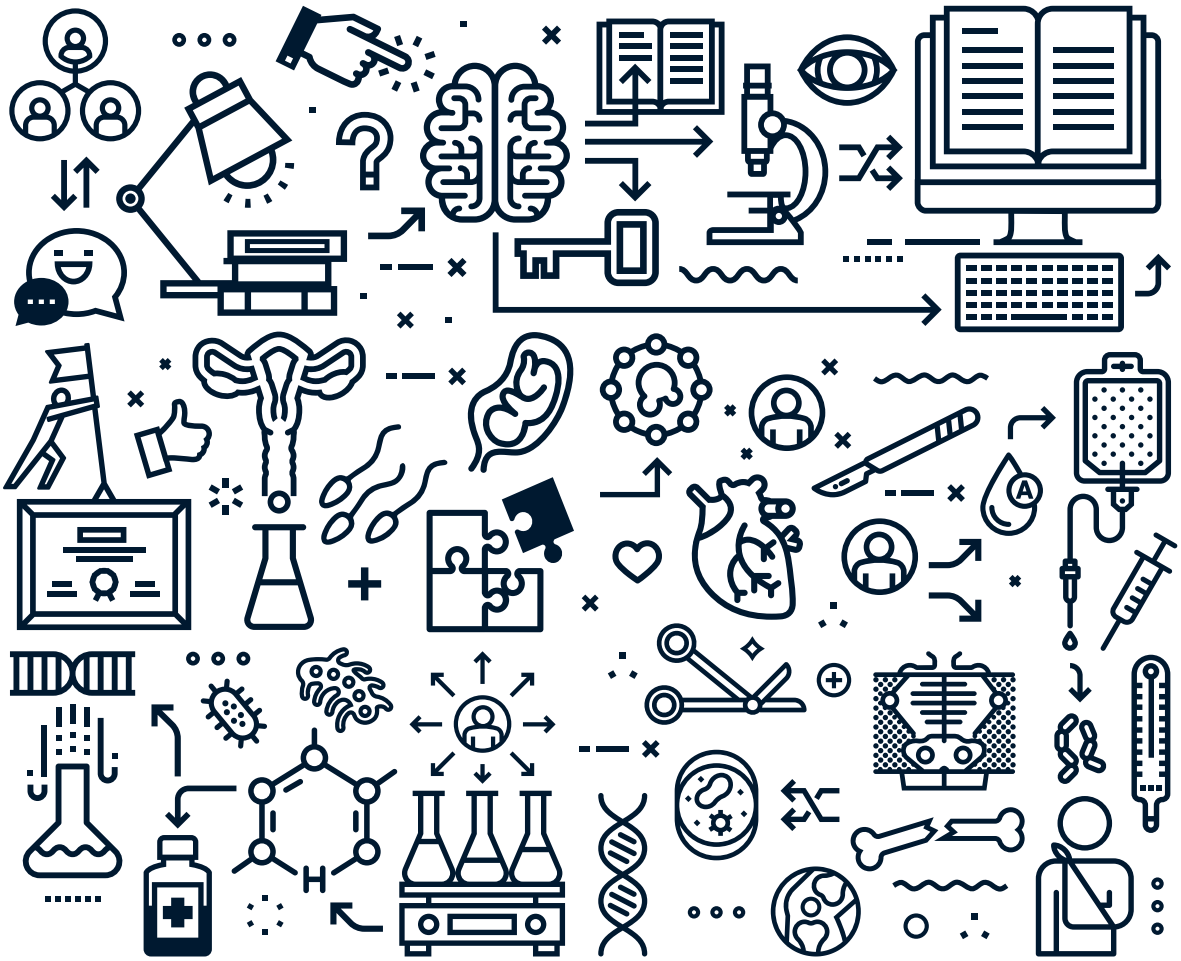

ABSTRACTBOG

Forskningssymposium

En portefølje af sundhedsfaglig forskning og udvikling ved Regionshospital Nordjylland

1. november 2018

CKF CENTER FOR KLINISK FORSKNING Regionshospital Nordjylland
AALBORG UNIVERSITET
REGIONSHOSPITAL NORDJYLLAND – i gode hænder

Forord

Det er med stor glæde, at Center for Klinisk Forskning kan byde velkommen til afholdelse af Forskningssymposium III ved Regionshospital Nordjylland, RHN torsdag d. 1 november 2018.

Der er ingen tvivl om, at forskningssymposiet er kommet for blive. Siden det første symposium i 2016, har denne årlige tilbagevendende begivenhed vist sin berettigelse på baggrund af den ganske omfattende portefølje af forskning og udviklingsaktiviteter, der i disse år folder sig ud på Regionshospital Nordjylland. Her giver symposiet således en god mulighed for at formidle de mange aktiviteter i et fælles forum for vidensdeling.

Det er i den forbindelse en fornøjelse at se, hvor meget talent og ildhu, der kommer til udtryk blandt medarbejdere, når sundhedsfaglig forskning og udvikling af høj standard folder sig ud til gavn for patienter og borgere i det nordjyske.

Abstractbogen for RHN Forskningssymposium III giver et fint indblik i de mange igangsatte forsknings- og udviklingsprojekter. Der skal ikke herske tvivl om, at symposiet rummer stor tværfaglig mangfoldighed og bredde eftersom, at stort set alle specialer og sundhedsfaglige grupper er repræsenteret i de tilmeldte abstrakts.

I dette års symposium indgår 53 abstracts, hvilket er en stigning i forhold til 14 abstracts i 2016 og 34 abstracts i 2017. Det er dog vigtigt at understrege, at kvantitet ikke gør det alene, men at der ligeledes stilles krav til kvaliteten i alle faser og aspekter af det enkelte projekt, som det også vil fremgå af de præsenterede abstracts i symposiet.

På vegne af organisationskomitéen, vil jeg gerne takke for de mange fine tilmeldte abstracts til RHN Forskningssymposium 2018. En særlig tak skal endvidere rettes til Mette Henriksen og Kristina Hansel for deres store hjælp med opsætning af henholdsvis posters og abstractbogen.

Med ønsket om et godt udbytte i forbindelse med deltagelse i RHN Forskningssymposium 2018!

Peter Leutscher, Professor
Center for Klinisk Forskning, Regionshospital Nordjylland &
Klinisk Institut, Aalborg Universitet

Indholdfortegnelse

Program for RHNs Forskningssymposium

Torsdag den 1. november 2018 – Skou Auditoriet
Regionshospital Nordjylland, Bispensgade 37, 9800 Hjørring

12.00-13.00 **Mød en forsker – posterudstilling i Glasgangen**
Servering af sandwich

13.00-13.10 **Velkomst**
Professor, overlæge Peter Derek Christian Leutscher, Center for Klinisk Forskning, RHN

13.10-13.50 **Orale præsentationer 1**
Dose-response association between level of daily physical activity and mortality in hypertension: The Copenhagen City Heart Study v. Gowsini Joseph

I*s venous to arterial conversion of blood gas values reliable in the critically ill patients? v. Mads Lumholdt*

Positive predictive value of rheumatoid arthritis diagnoses in the Danish National Patient Registry v. Asta Linauskas

Evaluation of the prevalence of screening for dysphagia among the hospitalised, older people v. Dorte Melgaard Kristiansen

13.50-14.05 **Pause**

14.05-14.45 **Orale præsentationer 2**
Female urinary, vaginal and gut microbiota – a comparison of the three compartments v. Suzette Sørensen

Interpersonal variation in gut microbiota supersedes the effects of differing fecal storage conditions v. Caspar Bundgaard-Nielsen

Jeg vil jo gerne leve. Anvendelse af cannabis blandt palliative cancerpatienter – et kvalitativt interviewstudie v. Dorte Buchwald

Tibialis posterior dysfunction – a contributing factor to forefoot deformities? A parametric study v. Morten Bilde Simonsen

14.45-15.00 **Pause**

15.00-15.45 **Poster walk**

15.45-15.55 **Uddeling af priser**

15.55-16.00 **Afslutning**

Kardiologi og Intensiv/Akut medicin

1. Is one-hours in-situ simulation training effective?

Angelika Wilke[1], Birgit Jensen[1,2], Anya Sook Goldmann Eidhammer[3], Dorte Melgaard[4]

1. Center for Medical Simulation, North Denmark Regional Hospital, Hjoerring, Denmark
2. Clinic for Anaesthesiology, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Obstetrics and Gynaecology, Clinic for Woman- and Child Diseases, North Denmark Regional Hospital, Hjoerring, Denmark
4. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

Background
Communication and teamwork deficiencies are identified as contributors to poor clinical outcome. Multidisciplinary simulation team training minimize poor outcomes by perfecting the elusive teamwork skills that cannot be taught in a didactic setting. Multidisciplinary simulation in-situ team training is also being used to detect latent system issues. At North Denmark Regional Hospital, Hjørring, the multidisciplinary one-hour in-situ simulation training started as an alternative to a combination of one hour of theoretical training and 90 minutes off-site simulation training. The aim of this study is to identify the clinician's experiences with these two different training sessions and to research, if one-hour simulation trainings are as effective as the long training with regard to learning effect, team communication and identifying latent system issues.

Methods
30 to 40 clinicians who attended simulation training in the trauma- and in the delivery room, and participated in either the short or the long training will be included. The effect of the two different simulation trainings are analyzed by qualitative research interviews with a semi structured interview guide. The interviews are conducted, recorded and subsequently transcribed. Students from Aalborg University experienced with the interview method will perform the interviews. The analysis process takes three steps: naive reading, structure analysis, critical interpretation and discussion. Approximately 30 interviews are expected to provide sufficient data. The informants receive oral and written information on the project and signed informed consent is obtained prior to participation.

Results
The first results will be presented at the Research Symposium.

Conclusion
*

Is one-hour in-situ simulation training effective?

- a qualitative study

Wilke, A.[1] • Jensen, B.[1,2] • Olsson, L.[3] • Kleis, C.[3] • Melgaard, D.[4]

[1]VenSim Simulation Centre, North Denmark Regional Hospital • [2]Clinic for Anaesthesiology, North Denmark Regional Hospital
[3]Aalborg University • [4]Centre for Clinical Research, North Denmark Regional Hospital

Background

Evidence has documented, that medical simulation is an important and safe intervention to reduce errors and risks associated with the process of care. Furthermore, communication and teamwork deficiencies are identified as contributors to poor clinical outcome. Studies demonstrate that multidisciplinary simulation team training minimizes poor outcomes by perfecting the elusive teamwork skills that cannot be taught in a didactic setting. In addition, it is being used to detect latent system issues.

At North Denmark Regional Hospital, Hjørring, the short multidisciplinary only one-hour in-situ simulation training has started to reduce expenses.

The aim of this study is to identify the clinicians' experiences with one-hour in-situ simulation training according to learning effect, team communication and identification of latent system issues.

Methods

20 clinicians who attended simulation training in the trauma and delivery rooms and in the ICU and who participated in the one-hour in-situ training will be interviewed starting in October 2018 until the end of November 2018. The effect of the training will be documented through qualitative research interviews with a semi-structured interview guide. Students from Aalborg University experienced with this interview method will perform the interviews. The analysis process will be performed in three steps: naive reading, structure analysis, critical interpretation and discussion. The informants signed consent forms prior to participation.

Perspective

We expect that our in-situ simulation training will have a positive effect with regard to learning effect, team communication and identification of latent system issues even though the training and subsequent debriefing only takes an hour.

Until now, the participants in the briefings have always expressed great satisfaction, but this is the first time it will be studied objectively. If the one-hour simulation training is efficient we will study further how to optimize the effect.

Several meta analyses show that simulation training works but there are not a lot of studies that compare the different types of simulation training. There is a lack of empirical studies to show which type of simulation training most efficiently convert the learning goals in a cost-saving and permanent manner. We are therefore planning to study this area further in order to increase the learning effect, team co-operation, hospital economy and patient safety.

NORTH DENMARK REGIONAL HOSPITAL

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DENMARK

RHN/MH/1018

2. Dose-response association between level of daily physical activity and mortality in persons with arterial hypertension: The Copenhagen City Heart Study

Gowsini Joseph[1,2], Jacob Louis Marott[3], Christian Torp-Pedersen[4], Gitte Nielsen[2], Ann-Eva Christensen[4], Tor Biering-Sørensen[5], Peter Schnohr[3], Peter Sogaard[6], Rasmus Møgelvang[7]

1. Department of Clinical Medicine, Aalborg University, Denmark
2. Department of Cardiology, North Denmark Regional Hospital, Hjoerring, Denmark
3. The Copenhagen City Heart Study, Frederiksberg Hospital, Denmark
4. Unit of Epidemiology and Biostatistics, Aalborg University Hospital, Denmark
5. Department of Cardiology, Copenhagen University Hospital Herlev & Gentofte, Hellerup, Denmark
6. Department of Cardiology, Aalborg University Hospital, Denmark
7. Department of Cardiology, Rigshospitalet, Copenhagen University Hospital, Denmark

Background
Arterial hypertension is an important, modifiable risk factor for cardiovascular disease and mortality. Physical activity in leisure time is related to lowering of blood pressure. It has been a challenge to verify the dose of exercise that will produce the maximum health benefits in hypertension.
The aim of this study was to explore if there was a dose-response association between levels of daily physical activity and reduction in all-cause mortality in persons with arterial hypertension.

Method
A random sample of 18,974 Caucasian men and women aged 20-98 years were examined in a prospective cardiovascular population study. All participants fulfilled a questionnaire including information on self-reported activity level in leisure time (level I: sedentary/inactivity; II: light activity; III: moderate/high level activity). Blood pressure levels were defined as: normal blood pressure <120/80mmHg; Pre-hypertension: 120-140/80-90 mmHg; Stage I hypertension: 140-160/90-100 mm Hg or receiving pharmacological treatment for hypertension; Stage II hypertension >160/100 mmHg. The population was followed until March 2017 or until death. Cox regression with time varying covariates was performed. The analysis was adjusted for following pre-specified confounders: age, gender, body mass index, previous cardiovascular disease, diabetes, educational status, smoking status, drinking habits, and cholesterol.

Results
At all levels of blood pressure, each level of physical activity was associated with lower mortality compared to inactivity. The pattern remained unchanged after adjustment for all of the pre-defined confounders: In subjects with stage I hypertension: light activity, HR 0.77 [0.71-0.83] ($p<0.001$); moderate/high level activity, HR 0.67 [0.62-0.73] ($p<0.001$). Stage II hypertension: light activity, HR 0.79 [0.73-0.86] ($p<0.001$); moderate/high level activity, HR 0.69 [0.63-0.76] ($p<0.001$).

Conclusion
Compared with inactivity, physical activity in leisure time was associated with lower all-cause mortality in hypertension. The results suggest presence of a dose-response association indicating lowering of mortality in each increased level of daily physical activity.

Dose-response association between level of daily physical activity and mortality in hypertension: The Copenhagen City Heart Study

Gowsini Joseph* *(1, 2), Jacob Louis Marott(3), Christian Torp-Pedersen(4), Gitte Nielsen(2), Ann-Eva Christensen(4), Tor Biering-Sørensen(5), Peter Schnohr(3), Peter Sogaard(6), Rasmus Møgelvang(7)*

(1) Department of Clinical Medicine, Aalborg University, Denmark; (2) Department of Cardiology, North Denmark Regional Hospital, Denmark; (3) The Copenhagen City Heart Study, Frederiksberg Hospital, Denmark; (4) Unit of Epidemiology and Biostatistics, Aalborg University Hospital, Denmark; (5) Department of Cardiology, Copenhagen University Hospital Herlev & Gentofte, Hellerup, Denmark; (6) Department of Cardiology, Aalborg University Hospital, Denmark; (7) Department of Cardiology, Rigshospitalet, Copenhagen University Hospital, Denmark

Background

Arterial hypertension is an important, modifiable risk factor for cardiovascular disease and mortality. Physical activity in leisure time is related to lowering of blood pressure. It has been a challenge to verify the dose of exercise that will produce the maximum health benefits in hypertension.

Aim

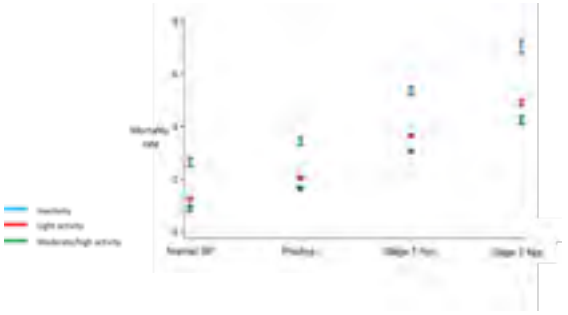
The aim of this study was to explore if there was a dose-response association between levels of daily physical activity and reduction in all-cause mortality in persons with arterial hypertension.

Method

A random sample of 18,974 Caucasian men and women aged 20-98 years were examined in a prospective cardiovascular population study. The population sample went through five examinations, and the current analyses used the observations from study I-IV (1976-78, 1981-83, 1991-94, 2001-03). All participants fulfilled a questionnaire including information on self-reported activity level in leisure time (level I: sedentary/inactivity; II: light activity; III: moderate/high level activity). Blood pressure levels were defined as: normal blood pressure <120/80mmHg; Pre-hypertension: 120-140/80-90 mmHg; Stage I hypertension: 140-160/90-100 mm Hg or receiving pharmacological treatment for hypertension; Stage II hypertension >160/100 mmHg. The population was followed until March 2017 or until death. Cox regression with time varying covariates was performed. The analysis was adjusted for following pre-specified confounders: age, gender, body mass index, previous cardiovascular disease, diabetes, educational status, smoking status, drinking habits, and cholesterol.

Results

At all levels of blood pressure, each level of physical activity was associated with lower mortality compared to inactivity. The pattern remained unchanged after adjustment for all of the pre-defined confounders: In subjects with normal blood pressure: light activity level had HR 0.74 [0.62-0.90] (p=0.002), moderate/high level activity: HR 0.66 [0.54-0.82], (p<0.001). Pre-hypertension: light activity, HR 0.83 [0.76-0.92] (p<0.001); moderate/high level activity, HR 0.76 [0.68-0.85] (p<0.001). Stage I hypertension: light activity, HR 0.77 [0.71-0.83] (p<0.001); moderate/high level activity, HR 0.67 [0.62-0.73] (p<0.001). Stage II hypertension: light activity, HR 0.79 [0.73-0.86] (p<0.001); moderate/high level activity, HR 0.69 [0.63-0.76] (p<0.001).



	Inactivity N=3,483	Light activity N=9,692	Moderate /high activity N=5,715
Age at first examination, years	54.4±12.7	51.1±12.8	47.0 ±14.4
Male sex, %	46.7	41.5	54.6
Diabetes, %	4.6	2.8	2.1
Body mass index, kg/m²	25.8 ± 4.8	25.0 ± 4.1	24.5 ± 3.7
Currently smoking, %	68	61	56

Conclusion

Compared with inactivity, physical activity in leisure time was associated with lower all-cause mortality in arterial hypertension. The results suggest presence of a dose-response association indicating lowering of mortality in each increased level of daily physical activity.

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AALBORG UNIVERSITY
DENMARK

NORTH DENMARK REGIONAL HOSPITAL

3. Is venous to arterial conversion of blood gas values reliable in critically ill patients?

Mads Lumholdt[1,2,3], Peter Derek Christian Leutscher[2,3], Erika Frischknecht Christensen[2], Kjeld Damgaard[1]

1. Clinic for Anaesthesiology, North Denmark Regional Hospital, Hjoerring, Denmark
2. Department of Clinical Medicine, Aalborg University, Denmark
3. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

Background
Arterial blood gas (ABG) is essential in the assessment of patients with suspected acid-base or respiratory illness. Using venous to arterial conversion (v-TAC) software, peripheral venous blood gas is converted to arterial values with high accuracy in stable patients. The aim of this study was to examine the reliability of the v-TAC method in critical ill patients admitted to the intensive care unit (ICU) with a variety of conditions that may affect the reliability of the v-TAC method.

Methods
This observational study was performed in the ICU at the North Denmark Regional Hospital between November 2017 and February 2018. Consecutively admitted patients with acidemia or alkalosis (pH < 7.35 or > 7.45) were included. ABG samples were drawn as routine practice and venous blood samples from central venous catheters and/or peripheral venous catheters were obtained within 2 mins after ABG samples were collected. All venous blood gas samples were converted to arterial values using v-TAC. Agreement between ABG and converted venous blood gas values were assessed in Bland and Altman analysis.

Results
Preliminary data of 44 samples were registered and 4 samples were excluded due to missing converted values. Blood gas samples were collected from 20 patients. Bland and Altman analysis showed clinically insignificant bias and narrow limits of agreement (LOA) in parameters pH and pCO2 and between ABG compared with central and peripheral calculated values, respectively. Small bias but wide LOA were observed when ABG and v-TAC calculated bicarbonate values were compared. Bias was barely within LOA when ABG and peripheral v-TAC calculated base excess were compared.

Conclusion
pH and pCO2 values calculated from venous blood values is reliable regardless of peripheral or central sampling location compared to ABG values. Peripheral calculated base excess did not show acceptable agreement with ABG base excess.

NORTH DENMARK REGION

Is venous to arterial conversion of blood gas values reliable in critically ill patients?

Mads Lumholdt[1,2,3], Peter Leutscher[2,3], Erika F. Christensen[2] & Kjeld Damgaard[1]

[1]Department of Anaesthesiology, North Denmark Regional Hospital
[2]Clinical institute, Aalborg University, Denmark
[3]Centre for Clinical Research, North Denmark Regional Hospital

CKF CENTRE FOR CLINICAL RESEARCH

Background

Arterial blood gas (ABG) is essential in clinical assessment of patients with suspected acid-base abnormalities due to respiratory or metabolic disease. Venous to arterial conversion (v-TAC) is a mathematical method by which venous blood gas values are transformed to estimates of arterial blood acid-base and oxygenation values. This method has previously calculated arterial pH and pCO_2 form venous blood with high accuracy and precision. However, validity of the method has not been tested in critically ill patients admitted to the intensive care unit (ICU) with *a priori* extreme blood gas or acid-base values that may affect the reliability of the v-TAC method.

Patients & Methods

Patients admitted to the ICU at the North Denmark Regional Hospital were consecutively included in this study if acidemia (pH <7.35) or alkalemia (pH >7.45) were present upon admission.

Data collection

Forty-four paired ABG and VBG samples were collected from 20 patients. ABG samples were drawn from arterial catheters and VBG samples were obtained simultaneously from peripheral venous catheters (PVK) and/or central venous catheters (CVK).

Results & discussion

Parameter	Mean ABG (±S.D.)	Mean aVBGpv (±S.D.)	Diff.	Limits of agreement Lower	Upper
pH	7.31 (0.13)	7.30 (0.13)	0.008	-0.034	0.051
pCO_2, kPa	6.21 (2.38)	6.23 (2.27)	-0.025	-0.750	0.700
pO_2, kPa	12.24 (8.10)	9.13 (1.12)	3.106	-11.841	18.052

Table 1. Comparison of blood gas parameters between ABG from arterial catheters and aVBG from central venous catheters. Std. dev., standard deviation; Diff., difference.

Parameter	Mean ABG (±S.D.)	Mean aVBGcv (±S.D.)	Diff.	Limits of agreement Lower	Upper
pH	7.33 (0.15)	7.33 (0.16)	0.007	-0.042	0.055
pCO_2, kPa	5.22 (1.31)	5.08 (1.25)	0.134	-0.486	0.754
pO_2, kPa	10.81 (2.05)	9.39 (0.50)	1.413	-2.181	5.008

Table 2. Comparison of blood gas parameters between ABG from arterial catheters and aVBG from peripheral venous catheters. Std. dev., standard deviation; Diff., difference.

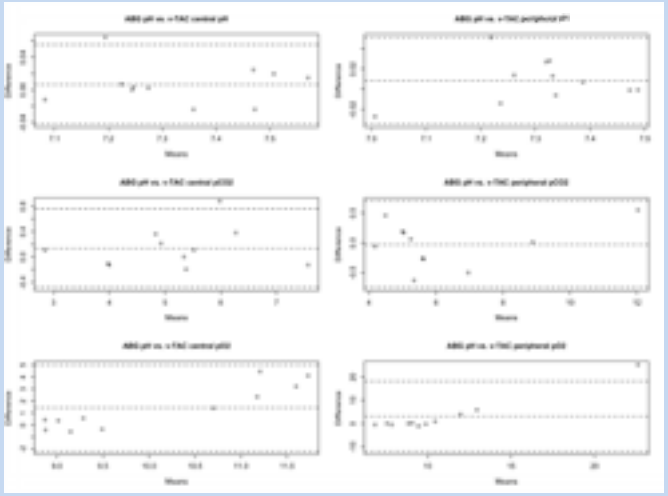

Figure 1. Bland and Altman plots of comparison of ABG and aVBG blood gas parameters.

Means and standard deviation showed clinically insignificant bias and narrow limits-of-agreement between both ABG and aVBGcv, and ABG and aVBGpv in pH and pCO_2 parameters (table 1 and 2).

Figure 1 show Bland and Altman plots, where bias is low for in comparison of pH and pCO_2 values between both ABG and aVBGpv, and ABG and aVBGcv.

Calculated pO_2 was clearly underestimated in both aVBGpv and aVBGcv compared to ABG. Incorrect calculated pO_2 may be caused by the flat shape of the oxygen dissociation curve (ODC) at high blood oxygen saturation levels, since all included patients had ABG pO_2 values above 8.5 kPa (kilopascal).

Conclusion & perspectives

The v-TAC method calculated pH and pCO_2 values in ICU patients with clinically acceptable bias and limits-of-agreement, but calculated pO_2 levels is not clinicaly acceptable in patients with normal or near normal blood oxygen saturation levels.

This study contributes with missing information on the validity of the v-TAC method in patients with severe acid-base diseases. Thus, this method could be valuable in the ED setting to detect unsuspected acid-base abnormalities early after admission.

4. Associations of health literacy with socio-economic position, health risk behavior, and health status: a large national population-based survey among Danish adults

Majbritt Tang Svendsen[1,2,3], Carsten Kronborg Bak[4], Kristine Sørensen[5], Jürgen Pelikan[6], Signe Juul Riddersholm[7], Regitze Kuhr Skals[8], Rikke Nørmark Mortensen[8], Helle Terkildsen Maindal[9], Henrik Bøggild[8,10], Gitte Nielsen[2], Christian Torp-Pedersen[8,10]

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7. Department of Anesthesia and Intensive Care, Aalborg University Hospital, Denmark
8. Unit of Epidemiology and Biostatistics, Aalborg University Hospital, Denmark
9. Department of Public Health, Section for Health Promotion and Health Services, Aarhus University, Denmark
10. Public Health and Epidemiology Group, Department of Health Science and Technology, Aalborg University, Denmark

Background
Health literacy concerns the ability of citizens to meet the complex demands of health in modern society. The present study aims to investigate associations between socio-economic position, health risk behavior, and health status with health literacy at a population level.

Methods
A cross-sectional nationwide survey linked to administrative registry data was applied to a randomly selected sample of 15,682 Danish citizens. The HLS-EU-Q measured health literacy within the domains of healthcare, disease prevention, and health promotion. Adjusted multinomial logistic regression analyses were used to estimate associations.

Results
Overall, 8,997 (57.4%) responded to the survey. Nearly 4 in 10 respondents perceived problematic or limited abilities in making empowered and informed decisions regarding health. Multinomial logistic regression analyses showed significant associations between the demographic and socio-economic characteristics, including gender, age, migration background, education, income, and transfer of public payments with health literacy. Except for physical activity [Sedentary behavior: OR: 2.24 (95%CI: 1.82; 2.76)], no associations of health literacy with health behavior, including smoking and alcohol consumption above national recommendations were demonstrated. The long-term health risk indicator body-weight showed that individuals with obesity [OR: 1.60 (95%CI: 1.29; 1.98)] had a significantly higher risk of lower health literacy scores. Self-assessed health [OR: 3.87 (95%CI: 3.23; 4.63)] and payments of sickness absence compensation benefits [OR: 1.72 (95%CI: 1.40; 2.11)] showed clear associations with lower health literacy scores.

Conclusion
Despite a relatively highly educated population, the prevalence of inadequate health literacy is high. Health literacy is strongly associated with socio-economic position, health risk indicators, and health status, but to a lesser extent to health behavior.

Associations of health literacy with socio-economic position, health risk behavior, and health status

A large national population-based survey among Danish adults

Majbritt Tang Svendsen[1] • Carsten Kronborg Bak[2] • Kristine Sørensen[3] • Jürgen Pelikan[4] • Signe Juul Ridderslholm[5] • Regitze Kuhr Skals[6]
Rikke Nørmark Mortensen[6] • Helle Terkildsen Maindal[7] • Henrik Bøggild[6,8] • Gitte Nielsen[1] • Christian Torp-Pedersen[6,8]

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[4]Ludwig Boltzmann Institute Health Promotion Research, Austria • [5]Department of Anesthesia and Intensive Care, Aalborg University Hospital, Denmark
[6]Unit of Epidemiology and Biostatistics, Aalborg University Hospital, Denmark • [7]Department of Public Health, Section for Health Promotion and Health Services, Aarhus University, Denmark
[8]Public Health and Epidemiology Group, Department of Health Science and Technology, Aalborg University, Denmark

Background

Health literacy concerns the ability of citizens to meet the complex demands of health in modern society. The distribution of health literacy in general populations and how health literacy impact social health, health behavior, and general health remains scarce. The present study aims to estimate the prevalence of health literacy and associations with socio-economic position, health risk behavior, and health status at a population level.

Methods

A cross-sectional nationwide survey linked to administrative registry data was applied to a randomly selected sample of 15,682 Danish individuals aged 25 years or older, between December 2016 and February 2017. The HLS-EU-Q measured health literacy within the domains of healthcare, disease prevention, and health promotion. Adjusted multinomial logistic regression analyses were used to estimate associations between demographic and socio-economic characteristics, health risk behavior (physical activity, smoking, alcohol, body mass index), and health status (sickness absence compensation, self-assessed health) with health literacy.

Results

Overall, 8,997 (57.4%) responded to the survey. Nearly 4 in 10 respondents perceived problematic (Problematic health literacy: 8.12%) or limited (Limited health literacy: 29.81%) abilities in making empowered and informed decisions regarding health. Multinomial logistic regression analyses, adjusted for potential confounders, showed significant associations between the demographic and socio-economic characteristics, including gender, age, migration background, education, income, and transfer of public payments with health literacy (Figure 1). Except for physical activity [Sedentary behavior: OR: 2.24 (95%CI: 1.82; 2.76)], no associations of health literacy with health behavior, including smoking and alcohol consumption above national recommendations were demonstrated in the adjusted models. The long-term health risk indicator body-weight showed that individuals with obesity [OR: 1.60 (95%CI: 1.29; 1.98)] had a significantly higher risk of lower health literacy scores. Self-assessed health [OR: 3.87 (95%CI: 3.23; 4.63)] and payments of sickness absence compensation benefits [OR: 1.72 (95%CI: 1.40; 2.11)] showed clear associations with lower health literacy scores (Figure 2).

Conclusions

Health literacy is strongly associated with socio-economic position, health risk indicators, and health status, but to a lesser extent to health behavior. Despite a relatively highly educated population, the prevalence of inadequate health literacy is high. Consequently, a significant proportion of the general population faces serious problems in managing health demands.

Funding

The study was financially supported by the Helsefonden (15-B-0156). The institution had no influence on the design and conduct of the study; management, analysis and interpretation of the data; and review or approval of the manuscript for submission.

Figure 1. Associations of demographic and socio-economic characteristics with health literacy.
Forrest plot presenting multivariable multinomial logistic regression model describing risk (odds ratios), with corresponding 95% confidence intervals, of problematic and limited health literacy compared to sufficient health literacy. Unadjusted and model adjusted for all covariates.

	Variables	Crude OR [95%CI]	P-value	Adjusted OR [95%CI]	P-value
Risk of Problematic Health Literacy					
Gender (Reference: Female)	Male	2.14[1.82;2.51]	<0.01	2.27[1.92;2.68]	<0.01
Age (Reference: 25–44)	45–54	0.70[0.57;0.86]	<0.01	0.77[0.61;0.97]	0.03
	55–64	0.73[0.59;0.90]	<0.01	0.73[0.57;0.93]	0.01
	>65	0.61[0.49;0.76]	<0.01	0.53[0.30;0.94]	0.03
Origin (Reference: Danish)	Immigrant	1.61[1.22;2.13]	<0.01	1.43[1.02;2.00]	0.04
	Descendant of immigrant	2.38[0.87;6.50]	0.09	1.96[0.68;5.66]	0.21
Civil status (Reference: Married)	Divorced	1.06[0.83;1.36]	0.62	0.96[0.74;1.24]	0.75
	Unmarried	1.60[1.34;1.92]	<0.01	1.10[0.89;1.37]	0.38
Education (Reference: Basic School)	High school/Vocational	0.85[0.69;1.05]	0.14	0.95[0.76;1.19]	0.66
	Medium	0.49[0.38;0.63]	<0.01	0.62[0.48;0.81]	<0.01
	High	0.56[0.41;0.77]	<0.01	0.67[0.48;0.94]	0.02
Income (Reference: Above average)	Below average	1.82[1.55;2.16]	<0.01	1.55[1.27;1.89]	<0.01
Social benefits (Reference: Non–social payments)	Retirement benefits	0.95[0.77;1.17]	0.61	1.22[0.71;2.09]	0.47
	Social payments	2.05[1.71;2.46]	<0.01	1.86[1.52;2.27]	<0.01
Risk of Limited Health Literacy					
Gender (Reference: Female)	Male	1.41[1.28;1.55]	<0.01	1.45[1.31;1.60]	<0.01
Age (Reference: 25–44)	45–54	0.80[0.71;0.91]	<0.01	0.85[0.74;0.97]	0.02
	55–64	0.79[0.69;0.90]	<0.01	0.79[0.69;0.92]	<0.01
	>65	0.78[0.69;0.89]	<0.01	0.69[0.50;0.95]	0.03
Origin (Reference: Danish)	Immigrant	1.12[0.93;1.35]	0.23	1.13[0.91;1.41]	0.28
	Descendant of immigrant	1.94[0.97;3.88]	0.06	1.52[0.71;3.27]	0.28
Civil status (Reference: Married)	Divorced	1.03[0.90;1.19]	0.65	1.02[0.88;1.18]	0.84
	Unmarried	1.32[1.19;1.49]	<0.01	1.15[1.01;1.31]	0.04
Education (Reference: Basic School)	High school/Vocational	0.94[0.82;1.08]	0.41	0.96[0.84;1.11]	0.60
	Medium	0.76[0.66;0.88]	<0.01	0.82[0.70;0.95]	0.01
	High	0.90[0.75;1.08]	0.25	0.93[0.77;1.13]	0.47
Income (Reference: Above average)	Below average	1.31[1.18;1.45]	<0.01	1.21[1.07;1.37]	<0.01
Social benefits (Reference: Non–social payments)	Retirement benefits	0.98[0.87;1.10]	0.68	1.16[0.86;1.56]	0.35
	Social payments	1.31[1.16;1.47]	<0.01	1.25[1.10;1.41]	<0.01

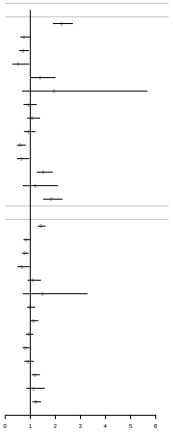
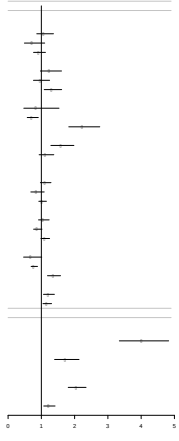


Figure 2. Associations of health risk behavior and health status with health literacy.
Forrest plot presenting multivariable multinomial logistic regression model describing risk (odds ratios), with corresponding 95% confidence intervals, of problematic and limited health literacy compared to sufficient health literacy. Unadjusted and model adjusted for all covariates.

Units	Variables	Crude OR[95%CI]	P–value1	Adjusted OR [95%CI]	P–value2
Health Behaviour and Health Risk Indicators					
Risk of Problematic Health Literacy					
Smoking (Reference: Non–smoker)					
	Smoker	1.31[1.05;1.63]	0.02	1.08[0.86;1.36]	0.49
	Weekly/Infrequently	0.87[0.59;1.30]	0.50	0.73[0.49;1.10]	0.14
	Former smoker	0.93[0.77;1.11]	0.41	0.93[0.77;1.12]	0.44
Alcohol (Reference: Infrequently above recommendations)					
	Weekly Above	1.19[0.93;1.52]	0.16	1.25[0.97;1.61]	0.08
	Monthly Above	0.98[0.77;1.24]	0.84	0.98[0.78;1.25]	0.84
	Never Above	1.32[1.09;1.59]	<0.01	1.32[1.09;1.61]	<0.01
Physical activity (Reference: Light)					
	Hard	1.24[0.70;2.19]	0.47	0.83[0.47;1.53]	0.59
	Moderate	0.73[0.58;0.91]	<0.01	0.72[0.58;0.91]	<0.01
	Sedentary	2.51[2.05;3.07]	<0.01	2.24[1.82;2.76]	<0.01
BMI (Reference: Normal)					
	Obesity	1.83[1.49;2.25]	<0.01	1.60[1.29;1.98]	<0.01
	Overweight	1.29[1.07;1.56]	<0.01	1.13[0.93;1.37]	0.21
Risk of Limited Health Literacy					
Smoking (Reference: Non–smoker)					
	Smoker	1.19[1.04;1.36]	0.01	1.12[0.97;1.29]	0.12
	Weekly/Infrequently	0.96[0.77;1.21]	0.74	0.86[0.68;1.09]	0.21
	Former smoker	1.02[0.91;1.13]	0.74	1.03[0.92;1.15]	0.58
Alcohol (Reference: Infrequently above recommendations)					
	Weekly Above	1.02[0.88;1.18]	0.77	1.06[0.91;1.23]	0.43
	Monthly Above	0.89[0.77;1.02]	0.10	0.89[0.77;1.02]	0.09
	Never Above	1.09[0.97;1.22]	0.13	1.11[0.99;1.25]	0.08
Physical activity (Reference: Light)					
	Hard	0.84[0.58;1.23]	0.38	0.69[0.47;1.01]	0.05
	Moderate	0.80[0.71;0.91]	<0.01	0.78[0.69;0.89]	<0.01
	Sedentary	1.43[1.25;1.65]	<0.01	1.37[1.18;1.58]	<0.01
BMI (Reference: Normal)					
	Obesity	1.27[1.12;1.45]	<0.01	1.22[1.05;1.39]	<0.01
	Overweight	1.22[1.10;1.36]	<0.01	1.17[1.05;1.31]	<0.01
Health Status					
Risk of Problematic Health Literacy					
Self–assessed health (Reference: Good)					
	Poor	4.37[3.66;5.21]	<0.01	4.02[3.34;4.83]	<0.01
Sickness Compensation (Reference: Non–compensation)					
	Sickness Compensation	1.82[1.50;2.21]	<0.01	1.72[1.40;2.13]	<0.01
Risk of Limited Health Literacy					
Self–assessed health (Reference: Good)					
	Poor	2.12[1.87;2.41]	<0.01	2.06[1.81;2.34]	<0.01
Sickness Compensation (Reference: Non–compensation)					
	Sickness Compensation	1.23[1.08;1.40]	<0.01	1.22[1.07;1.41]	<0.01



REGIONSHOSPITAL NORDJYLLAND
– i gode hænder

RHN/MH/1018

5. Different methods of receiving the sickest patients: does it make a difference?

Maika Helena Shakar[1], Mette Marie Berg[1], Flemming Bøgh Jensen[2], Peter Derek Christian Leutscher[3,4]

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2. Prehospital Emergency Medical Services, North Denmark Region, Aalborg, Denmark
3. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
4. Department of Clinical Medicine, Aalborg University, Denmark

Background
In 2013, the Emergency department in North Denmark Regional Hospital implemented an alarm system called "Red Medical Call", activated by ambulance personal under transport with a critically ill patient. It is our experience that this system is not used as often as it should. We wanted to explore the uniformity in the "red triage prehospital" patient group, and asses the effect on outcome depending on receiving method.

Methods
This is a retrospective, cohort study. All patients older than 14 years old reported with red triage prehospital and destined our emergency department in the period between 1st of January and 30th of April 2018 were selected. We registered their triage on arrival form Clinical Suite and identified method of admission; we then registered length of admission, need for intensive care admission and 30 days mortality.

Results
Out of the 93 patients identified, 49 (55,5 %) had a better triage on arrival. Men are younger, sicker, and need more often admission to intensive care. 46,2 % of patients were received as "Red Medical Call", even though 34,9% of them no longer had a red triage. Of those received by conventional method, 36 % still had a red triage on arrival and more patients in this group needed admission to intensive care.

Conclusion
There´s a need for revision of "red medical call" criteria. We cannot conclude that "red medical call" diminishes mortality, but who still have red triage on admission but are received by conventional method need more often intensive care admission.

RØDT KALD ELLER EJ?

– EVALUERING AF ALARMERINGSSYSTEMET PÅ AKUTMODTAGELSE VED REGIONSHOSPITAL NORDJYLLAND

MAIKA HELENA SHAKAR[1] • METTE MARIE BERG[1] • FLEMMING BØGH JENSEN[2] • PETER LEUTSCHER[3]

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BAGGRUND

I 2013 indførte Akutmodtagelsen på Regionshospital Nordjylland, Hjørring et alarmeringssystem, rødt medicinsk kald, som kan udløses af præhospitalt personale i samråd med visiterende sygeplejerske.

Det aktiverer et team sammensat af en akutlæge, en anæstesilæge, en medicinsk mellemvagt, en KBU-læge, to akutte sygeplejersker, en intensivsygeplejerske og to bioanalytikere, der venter på patienten i Traumestuen.

Vi oplever dog ofte, at kritisk syge patienter ikke udløser rødt medicinsk kald. Dette giver anledning til utilstrækkelig bemanding på modtagestuen, medførende forsinkelse i opstarten af relevant behandling og dermed risiko for utilsigtede hændelser.

FORMÅL

At afgøre:

- om gruppen af patienter med præhospital rød triage er ensartet eller i virkeligheden består af to undergrupper.
- om der er forskel i outcome (30-dages mortalitet, behov for intensivterapi i de første 24 timer og indlæggelsesvarighed) alt efter modtagemetode.

METODER

Projektet er udført i Akutmodtagelsen, Regionshospital Nordjylland, Hjørring.

Vi identificerede alle voksne patienter (>14 år) med rød triage præhospitalt og destinationssygehus Hjørring, i perioden fra 1. januar 2018 til 30. april 2018, fra AmPHI-databasen.

Gynækologiske, kirurgiske, traume- og hjertestopspatienter ekskluderes. Desuden ekskluderes patienter med manglende data.

Ved journalgennemgang identificeres to patientgrupper: modtaget som " rød medicinsk kald" og modtaget ved konventionel metode. De to grupper sammenlignes i forhold til vores outcome points.

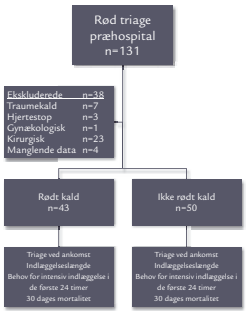


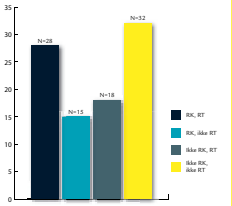
Fig 1. Fordeling af grupper

RESULTATER

Vi finder ingen overensstemmelse mellem nedtriagering af patienter ved ankomst og udløsning af rødt kald. Blandt patienterne, som bliver modtaget som rødt kald, har 15 (36,4%) en bedre triage ved ankomst, og blandt patienter, som bliver modtaget ved konventionel metode, er der 18 (36%) patienter, som har fortsat rød triage ved ankomst.

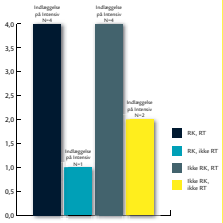
Mænd har en tendens til at være yngre, har oftest fortsat rød triage ved ankomst til modtagelsen (57,4% vs 41,3%) og kommer oftere på intensiv (21,3% vs 2,2%).

MODTAGELSESMETODER



Der er relativt flere indlæggelser på intensiv blandt de patienter, som modtages ved konventionel metode og fortsat har rød triage ved ankomst (4 (22,2%) vs 4 (14,3%)).

BEHOV FOR INDLÆGGELSE PÅ INTENSIV I DE FØRSTE 24 TIMER



KONKLUSION

Gruppen af patienter med rød triage præhospitalt er ikke ens, halvdelen har bedre triage ved ankomst.

Modtagelsen af patienter med rød triage ved rødt medicinsk kald gør ikke en forskel i deres mortalitet men reducerer behov for indlæggelse på intensiv.

Kriterierne til udløsning af rødt kald bør revideres.

REGIONSHOSPITAL NORDJYLLAND
– i gode hænder

RHN/MH/0918

6. Implication of critical illness in development of long-term mental and cognitive dysfunction? - a consecutive case series study of post intensive care patients

Mary Kruse[1], Kirsten Klostergaard[2], Tilde Skovkær Withen Olesen[2], Malgorzata Beata Pawlowicz-Dvoranska[1], Peter Derek Christian Leutscher[2,3]

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Denmark

Background
Recent years, there has been increasing focus on neuropsychiatric sequelae in post intensive care unit (ICU) patients. The condition is described after sepsis and ARDS1-5. Aim of the study: To assess late neuropsychiatric manifestations in post-ICU patients from a Danish Regional Hospital.

Methods
Post-ICU patients aged 18 to 80 years, with a history of +72 hours ICU stay, and no history of severe brain damage were after provision of a written informed consent invited to a semi-structural interview by a neuropsychologist two months after hospital discharge.
Neuropsychiatric evaluation:
• Mental state: Major Depression inventory, Anxiety Symptom Scheme, authorized PTSD test.
• Chronic Fatigue: Fatigue Severity Scale6.
• Cognitive function: Index-tools from Wechsler Adult Intelligence scale (WAIS) III7: Working Memory Index, Processing Speed Index and Perceptual Organization Index.

Results
Among 449 patients admitted to the ICU during the one-year period 39 were eligible for the study participation and 27 patients took part in the study. Mental problems were observed in 26%, all with depression, some combined with anxiety (11%) and PTSD (11%). Self-reported fatigue was documented in 84%. 26 patients (96%) were found with cognitive dysfunction. Most patients had abnormal low performance score in the working Memory Index followed by Processing Speed Index and Perceptual Organization Index.

Conclusion
Cognitive dysfunction and chronic fatigue were highly prevalent in this post-ICU patient population cohort. Mental illness was seen in 26%. It is important to be aware about these neuropsychiatric sequelae in order to provide the necessary follow-up support to the patient and the family.

Implication of critical illness in development of long-term mental and cognitive dysfunction?

- A consecutive case series study of post intensive patients

Mary Kruse[1] • Kirsten Klostergaard[2] • Tilde Skovkær Withen Olesen[2] • Malgorzata Beata Pawlowicz-Dvorzanska[1] • Peter Derek Christian Leutscher[2]

[1]Department of Anaesthetics, North Denmark Regional Hospital • [2]Centre for Clinical Research, North Denmark Regional Hospital • [3]Department of Clinical Medicine, Aalborg University

Background

Most Intensive Care Unit (ICU) patients suffer from life-threatening systemic insults or diseases, which often effect the brain[1,2,3]. This acute brain dysfunction in the critically ill patient manifest in several ways, including reduced consciousness, coma or delirium. It was previously assumed to be completely reversible, but it is now clear, that critical illness related brain dysfunction can lead to permanent impairment. Recent years there has been increasing focus on mental and cognitive sequelae in post-intensive care unit (ICU) patients. The conditions are described after sepsis and ARDS [4,5]. However, the symptoms are still underrecognized and not well described.

Aim

To access late fatigue, mental and cognitive manifestations in post ICU patients from a Danish Regional Hospital.

Methods

How

A semi structured neuropsychiatric interview with a neuropsychologist.

When

2 months after hospital discharge.
Study period: 1/2 2017 to 31/1 2018.

What

Mental illness

- **Anxiety** Symptom Scheme (ASS)
- Major **Depression** Inventory (MDI)
- An official authorized **PTSD** test

Fatigue Severity Scale (FSS)

Cognitive dysfunction

3 preselected indextool components of Wechsler Adult Intelligence scale (WAIS) -III[6]:

- Processing Speed Index (PSI)
- Working Memory Index (WMI)
- Perceptual Organisation Index (POI)

Who

- Patients from an unselected mixed surgical and medical ICU.
- No known previous or actual major cerebral or neuropsychiatric disease.
- 72+ hours ICU submission.
- Age: 18-70 years (the first 6 months), 18-80 (the last 6 months).

Results

548 ICU admissions
49 were re-admissions

449 ICU patients
70 died at the ICU

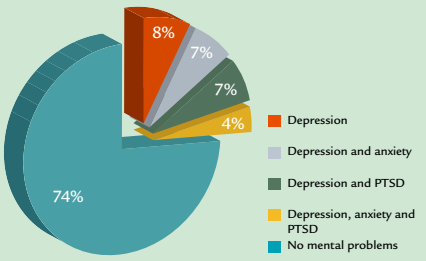
429 ICU survivors
367 were excluded
- <72 hour admission
- <18 years and >70 years (first ½ year) or >80 years (last ½ years)
- Known cereral or neuro-psychiatric disease

62 Eligible for assessment
12 died at the ward

50 invited to interview
- 2 Died before interview
- 4 Hospital re-admisions
- 5 Excluded
- 7 Did not wish do come
- 5 Did not answer the invitation (letter + phone)

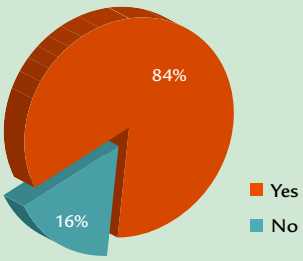
27 in the study

Mental health



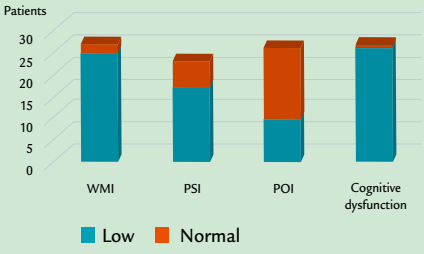
Data from the study suggest no relationship with the severity of the disease. Mental illness is mainly seen in patients with previous mental problems (3 of 7), in the younger ICU patients with a high co-morbidity score (CCI) and with shorter ICU stay.

Fatigue Severity Scale FSS: 4+



Average FSS score: 5,01 (max: 7). Much higher than Multiple Sclerosis: 4,66. Ischemic Stroke: 3,9. Sleep-wake disorder: 4,34[7]. 2 patients couldn't perform the test.

Cognitive dysfunction



Working Memory Index (WMI): 93%. Processing Speed Index (PSI): 74% and Perceptual Organisation Index (POI): 38%. Cognitive dysfunction: 96%.

Conclusion

Critical ill patients has a high degree of neurocognitive and mental complications 2 month after hospital discharge.

- Mental health problems were seen in 26%. (Depression 26%. Anxiety 11% and PTSD 11%).
- Self-reported fatigue was revealed in most of the post intensive patients (84%). Average FSS score was higher than seen in MS, Ischaemic-stroke and sleep-wake disturbances.
- Cognitive dysfunction was seen in 96%. Working Memory Index was the most frequent cognitive problem followed by Processing Speed Index and Perceptual Organisation Index.

It is important to be aware about these neuropsychiatric sequelae in order to provide the necessary follow-up support to the patient and the family.

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NORTH DENMARK REGIONAL HOSPITAL

RHN/MH/1018

7. Can the size of the tube change the patient's experience of sore throat and hoarseness after anesthesia?

Pia Christiansen[1], Dorte Melgaard[2]

1. Clinic for Anaesthesiology, Aalborg University Hospital, Thisted, Denmark
2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

Background
Free airway is vital for the patient in general anesthesia, and is secured by tracheal intubation. When intubating patients for elective surgery, the size of the tube is selected from the gender of the patient, Women 7.5 and Men 8.5. There is no evidence on the subject. Research shows that sore throat and/or hoarseness after intubation are common problems. The purpose of this study is 1) to examine, if there is correlation between the size of the tube and the patient's experience of sore throat and hoarseness after intubation 2) to clarify, if there is a difference between men´s and women´s experience of this discomfort, and 3) to clarify, if other base-line data from patients have influence on the patient´s experience of sore throat and hoarseness.

Methods
This blinded randomized study will take place at Aalborg University, Thisted and North Denmark Regional Hospital Hjørring during the period of 01.12.2018 – 30.06.2019. 240 healthy patients are randomized into 4 groups: In groups I and II women are intubated with tube size 6 or 7.5, and in groups III and IV men are intubated with tubes size 7 or 8.5. In all groups we measure the experience sore throat and hoarseness from 4-steps Likert Scala by a questionnaire ½ hour before anesthesia, 2 hours after, and 5 hours after anesthesia.

Results
We expect the project to bring knowledge of the fact, whether a smaller size of tube gives less discomfort to the patients post operationally.

Conclusion
The overall knowledge may optimize practice at the departments involved, and thus reduce this discomfort, felt by the patients.

CAN THE SIZE OF THE TUBE CHANGE THE PATIENT'S EXPERIENCE OF SORE THROAT AND HOARSENESS AFTER ANESTHESIA?

Pia Christiansen, Clinic of Anesthesia, Aalborg University Hospital, Thisted
Dorte Melgaard, Center for Clinical Research, North Denmark Regional Hospital.
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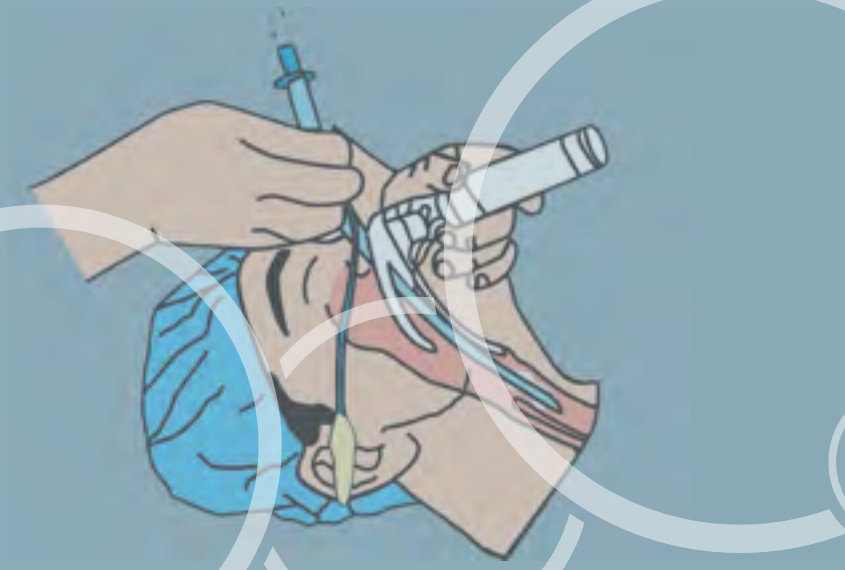


BACKGROUND

Free airway is vital for the patient in general anesthesia, and is secured by tracheal intubation. When intubating patients for elective surgery, the size of the tube is selected from the gender of the patient.

Research shows that sore throat and/or hoarseness after intubation are common problems.

The aim of this study is to examine, if there is correlation between the size of the tube and the patient's experience of sore throat and hoarseness after intubation and to clarify, if there is a difference between men´s and women´s experience of this discomfort.

METHOD

This blinded randomized study will take place at Aalborg University, Thisted and North Regional Hospital, Hjørring during the period of 01.12.2018 – 30.06.2019.

240 healthy patients are randomized into 4 groups: women are intubated with tube size 6 or 7, and men are intubated with tube size 7 or 8.

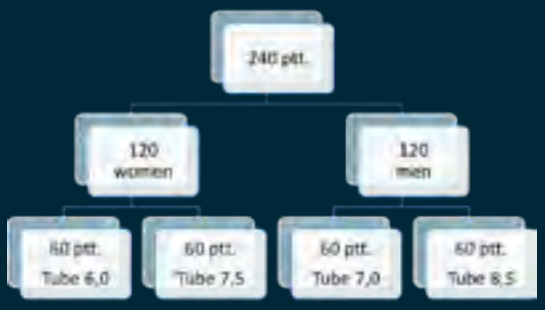
All patients report their subjective experience of sore throat and hoarseness with a 4-steps Likert Scala ½ hour before anesthesia, 2 hours after, and 5 hours after anesthesia.

RESULTS

With the results from the present study we hope to evidence base the decision about which size of the tube for intubation to choose, and to optimize the treatment so the patients experience less discomfort post operationally

CONCLUSION

Positive as well as negative and inconclusive findings will be published in internationally recognised scientific journals, in popular science journals and presentated at international og national conferences.



NORTH DENMARK REGION

8. Hyperpolarized cardiac magnetic resonance imaging in heart failure

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Background
Changes in cardiac metabolism are involved in the progression of heart failure (HF). Metabolic studies have until now used biopsies, disturbing metabolism or positron emission tomography imaging, which involve ionizing radiation and is without the ability to trace downstream metabolites. Results have been conflicting. With hyperpolarized [1-13C]-pyruvate cardiac magnetic resonance spectroscopy (MRS) it is possible to visualize cardiac metabolism in vivo. Our research group has published results from studies on pigs. A study on 4 healthy subjects has been published, confirming that the method is feasible in humans. The aim of this PhD is to visualize the metabolic flux in cardiomyocytes, in vivo, in HF in humans for the first time.

Methods
Study 1: Twenty newly diagnosed patients with dilated cardiomyopathy (DCM), (LVEF: 10-45%) will undergo a hyperpolarized 13C-pyruvate MRS.
Study 2: Patients from study 1 will undergo a hyperpolarized 13C-pyruvate MRS after 3 months on optimal HF medical therapy.
Study 3: Ten diabetic patients with DCM, on optimal HF medical therapy will undergo hyperpolarized 13C-pyruvate MRS.
Study 4: Patients from study 3 will have a SGLT-2-inhibitor added to medical therapy and undergo a hyperpolarized 13C-pyruvate MRS after 3 months. Advanced echocardiography, exercise testing, 6 min walk test and blood samples are carried out baseline and follow-up.

Results
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Conclusion
Perspectives Hyperpolarized 13C-pyruvate MRS offers real-time visualization of metabolic alterations in heart failure and provides a ”metabolic fingerprint” that can increase our understanding of metabolic mechanisms in HF. It may lead to the development of targeted personalized medical therapy for HF.

HYPERPOLARIZED CARDIAC MAGNETIC RESONANCE IMAGING IN HEART FAILURE

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[4]Department of Cardiology, Aarhus University Hospital, Skejby

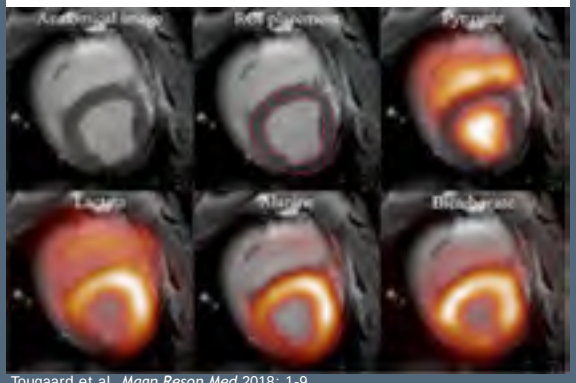
1. Perspectives

Hyperpolarized [1-^{13}C]-pyruvate MRSI offers real-time visualization of metabolic alterations in heart failure.

A "Metabolic fingerprint" of the failing heart.

May discriminate responders from non-responders to medical heart failure therapy.

One step towards targeted personalised medical therapy in heart failure.



Tougaard et al. *Magn Reson Med* 2018; 1-9.

2. Introduction

Changes in cardiac metabolism are involved in the progression of heart failure (HF).

Metabolic studies have until now used biopsies, disturbing metabolism or positron emission tomography imaging, which involve ionizing radiation and is without the ability to trace downstream metabolites and results have been conflicting.

Our research group has published results from studies on pigs. A study on 4 healthy subjects has been published, confirming that the method is feasible in humans.

The aim of this PhD is to visualize the metabolic flux in cardiomyocytes, in vivo, in HF in humans for the first time.

3. Methods

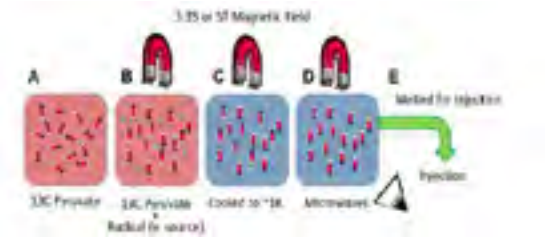
Study 1: Twenty newly diagnosed patients with dilated cardiomyopathy (DCM), (LVEF: 10-45%) will undergo a hyperpolarized [1-^{13}C]-pyruvate MRSI.

Study 2: Patients from study 1 will undergo a hyperpolarized [1-^{13}C]-pyruvate MRSI after 3 months on optimal HF medical therapy.

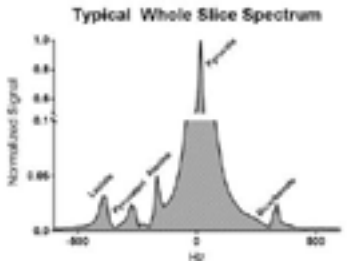
Study 3: Ten diabetic patients with DCM, on optimal HF medical therapy will undergo hyperpolarized [1-^{13}C]-pyruvate MRSI.

Study 4: Patients from study 3 will have a SGLT-2-inhibitor added to medical therapy and undergo a hyperpolarized [1-^{13}C]-pyruvate MRSI after 3 months.

Advanced echocardiography, exercise testing, 6 min walk test and blood samples are carried out baseline and follow-up.



Rider and Tyler *Journal of Cardiovascular Magnetic Resonance;* 2013 15:93



Hansen et al. *NMR in Biomedicine;* 2017;30 :e3702

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9. Raising the cardiopulmonary resuscitation (CPR) skills to a higher level in all staff-groups at the North Denmark Regional Hospital (NDRH)

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Background
We have highly educated and professional members in our resuscitation teams and they show rapid response (within 3 min) when a patient suffers from cardiac arrest. But evidence have shown that the immediate response by staff at the ward also has an impact on the patient outcome. Immediate response by staff, while waiting for the resuscitation team can reduce complications, reduce the need of intensive care and increase survival of the patient.

Methods
At North Denmark Regional Hospital we therefore decided to re-organise our CPR-education making it obligatory to participate in a practical BLS, - ILS (Immediate Life Support) or ALS - course each year, according to staff function. At one of our local hospitals only 2-4 cardiac arrest occur yearly. Most staff (apart from the resuscitation-team) may then feel insecure of their own CPR-skills if a cardiac arrest occurs at their ward. We decided to intensify CPR-training at this hospital: First we examined level of CPR-education as well as the staffs insight and beliefs of their own CPR-skills. Then all staff is trained at the BLS-, ILS- or ALS- level, twice, within a year. After each course the participants answer a questionnaire to evaluate the course, the instructor and their own achieved skills in CPR.

Results
*

Conclusion
When all staff has been through the 2nd course (December 2018) we repeat our examination in order to evaluate, if we have succeeded in raising the CPR-skills to a higher level, supported by patient and outcome data.

Raising the cardiopulmonary resuscitation (CPR) skills to a higher level in all staff-groups at the North Denmark Regional Hospital (NDRH)

Vivi Pedersen[1], Charlotte K. Christensen[2], Birgit Jensen[2], Niels-Erik Ribergaard[2], Per H. Lambert[3]
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INTRODUCTION

Our highly educated, trained and professional members in the resuscitation-teams show rapid response when a patient suffers from cardiac arrest. However, the immediate CPR, by staff, until the resuscitation-team arrives reduces complications, the need of intensive care and increases the 1 year survival of the patient.

In our continued improvement of patient safety and our efforts to fulfill National goals (National Quality Program) and indicators, we decided to implement a new education program, rising the CPR skills to a higher level in all staff-groups.

BACKGROUND

In our new education program we introduced an intermediate level of lifesupport – ILS, which the ERC defines as Immediate Life Support. All staff with patient-contact are planned to receive training at least at LS-level, and we maintain the skill-level with obligatory yearly training. The DRC educated at situ our future instructors in ILS. We have now educated 3 x 24 persons at ILS-instructor level with the responsibility to conduct future ILS-training at their own ward.

Within 2019 we have implemented our new CPR education program with ILS instructors at each ward. We are pioneers in Denmark with this ILS-Education level of staff.

PROJECT DESIGN AND METHODS

At one of our local hospitals only 2-4 cardiac arrests occur yearly. We decided to implement a more intense education program at this unit, due to the rare occurrence of cardiac arrests.

Prior to changing the CPR education program we examined the level education and of self-believed skills in CPR in all staff with a comprehensive questionnaire.

Then the training courses were initiated at BLS (Basic Life Support), - ILS (Immediate Life Support) or ALS – (Advanced Life support) levels according to staff function.

Training was obligatory twice within a year, at this unit, compared to the other units, where training is obligatory once a year. At the end of each training session, the instructor, the course and physical course-site were evaluated by each participant.

When all staff have received training in CPR twice (marts 2019), we repeat the comprehensive questionnaire, giving us a pre- and post intervention data-set.

Since cardiac arrest is so rare at this unit, we are not able to use "survival" or "post-complications" as valid data in our study.

HYPOTHESIS

We hypothesize that when cardiac arrests are rare events, most staff (apart from the resuscitation-team) feels insecure of their own CPR-skills. We predict that staff, after 2 times of either BLS, ILS or ALS training within a year, reports an increased level of confidence in their own skills in CPR.

PRELIMINARY CONCLUSION

Our new CPR-education program may increase CPR skills at our hospital units and especially at hospital-units with cardiac arrests being rare.

We thank the Danish Resucitation Council for providing 4 instructors at our 3 ILS – instructor courses, giving us the opportunity to be "first movers" in Denmark for high level skills in all staff. We also thank the North Denmark Region for funding ILS-instructor courses and for funding a ½ time CPR-instructor to complete the intense (twice a year) training of all staff at that specific unit.

CPR-skills will be maintained with obligatory training and E-learning once a year for all staff at either BLS, ILS or ALS level. Studies in various data related to cardiac arrests and CPR are planed in the future.

REGIONSHOSPITAL NORDJYLLAND
- i gode hænder

Inflammation og Infektion

10. Body fat percentage, waist circumference and obesity as risk factors for rheumatoid arthritis – a Danish cohort study

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1. Department of Rheumatology, Aarhus University Hospital, Denmark
2. Department of Rheumatology, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aarhus University, Denmark
4. Department of Public Health, Section for Epidemiology, Aarhus University, Denmark
5. Unit of Clinical Biostatistics, Aalborg University Hospital, Denmark

Background
To investigate the relationship between bioimpedance-derived total body fat percentage, waist circumference (WC) and Body Mass Index (BMI) and the subsequent development of rheumatoid arthritis (RA).

Methods
A population-based prospective cohort study among 55,037 persons enrolled into the Danish Diet, Cancer and Health cohort. Baseline data included anthropometric measures and lifestyle factors. Persons who developed RA were identified through linkage with the Danish National Patient Registry. The relationships between bioimpedance-derived body fat percentage, WC, BMI and incident RA were assessed using Cox proportional hazards regression models, stratifying by gender. All analyses were performed for overall RA and the serological subtypes: 'seropositive RA' and 'other RA'.

Results
A total of 210 men (37.6% seropositive RA) and 456 women (41.0% seropositive RA) developed RA during a median follow-up of 20.1 years. In women, overall RA risk was 10% higher for each 5% increment of total body fat (Hazard Ratio (HR) 1.10; 95% CI 1.02-1.18), 5% higher for each 5cm increment of WC (HR 1.05; 95% CI 1.01-1.10) and nearly 50% higher in those with an obese compared to normal BMI (HR 1.46; 95% CI 1.12-1.90). These positive associations were also found for 'other RA'. In men, there were no clear associations between body fat percentage, WC, or BMI and RA. No significant associations were found for 'seropositive RA' in women or men, possibly related to low sample size.

Conclusion
In women, higher body fat percentage, higher waist circumference and obesity were associated with higher risk of RA.

BODY FAT PERCENTAGE, WAIST CIRCUMFERENCE AND OBESITY AS RISK FACTORS FOR RHEUMATOID ARTHRITIS – A DANISH COHORT STUDY

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[1]Department of Rheumatology, Aarhus University Hospital, [2] Department of Rheumatology, North Denmark Regional Hospital, [3]Institute of Clinical Medicine, Aarhus University, [4]Department of Public Health, Section for Epidemiology, Aarhus University, [5]Unit of Clinical Biostatistics, Aalborg University Hospital

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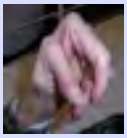
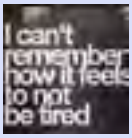
Background

- Rheumatoid arthritis (RA) is a systemic autoimmune disease characterized by joints` inflammation, deformity and several co-morbidities.





- Etiology is basically unknown.
- Fat tissue contributes to the systemic inflammation.
- Studies investigating the association between overweight and the development of RA came out with conflicting results.
- Body Mass Index (BMI) has been the preferred measure in these studies. BMI correlates only modestly with body fat volume.

Aim

To investigate the association between bio-impedance-derived body fat percentage and the development of RA.

Methods

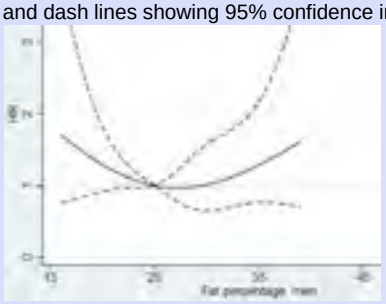
- Population-based cohort study among 57,053 persons enrolled in the Danish Diet, Cancer and Health cohort in the period 1993-1997.
- Bio-impedance measurements and data on life style factors collected at the enrolment into the cohort.
- RA cases identified linking data with the Danish National Patient Registry.
- Statistics: Cox proportional hazards regression models stratifying by gender and adjusting for known and potential confounders.

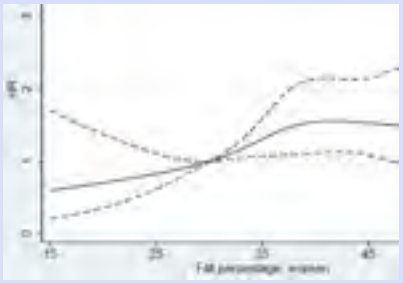
Results

- Study population 55,037 persons
- Median follow-up - 21 years
- 666 RA cases (67% women)
- Median time to RA onset – 10.8 years

Hazard Ratio (HR) per 5% increment of body fat
(age- and smoking-adjusted):
- men HR 1.02 (95%CI 0.90-1.16)
- women HR 1.10 (95%CI 1.02-1.18)

Dose-response associations between bio-impedance-derived fat percentage and risk for development of RA by gender. Four knots spline graphs, solid lines showing age and smoking adjusted (*) Cox proportional Hazard Ratio`s per 1% increment of body fat and dash lines showing 95% confidence intervals.





* Adjusted for age and smoking (status, duration, tobacco gram/day)

Conclusion

Higher body fat percentage was associated with higher risk of RA in women.

Acknowledgements

We would like to thank the steering committee of the Danish Diet, Cancer and Health cohort study, giving us the opportunity to conduct the present study, project manager for data collection, programmer Katja Boll for the preparation of the dataset, the participants of the cohort study and financial supporters of our study.

Funding

The Danish Cancer Society
The Danish Rheumatism Association
The Danish Heart Foundation
Central Denmark Region
North Denmark Regional Hospital
Scandinavian Rheumatology Research Foundation

11. Positive predictive value of rheumatoid arthritis diagnoses in the Danish National Patient Registry

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1. Department of Rheumatology, Aarhus University Hospital, Denmark
2. Department of Rheumatology, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aarhus University, Denmark
4. Department of Public Health, Section for Epidemiology, Aarhus University, Denmark
5. Unit of Clinical Biostatistics, Aalborg University Hospital, Denmark

Background
To assess whether the positive predictive value (PPV) of first-time rheumatoid arthritis (RA) diagnosis registration in the Danish National Patient Registry (DNPR) increases when data are linked to the RA treatment codes and to assess the PPV of first-time RA diagnoses according to RA serological subtypes.

Methods
Participants from the Danish Diet, Cancer and Health cohort with at least one RA diagnosis, registered in the DNPR during the period 1977- 2016, were identified. Register-based RA diagnoses were verified by scrutinizing medical records against RA classification criteria or clinical case RA. PPVs for ´overall RA´, ´seropositive RA´ and ´other RA´ were calculated for two models: first-time RA diagnosis registration ever in the DNPR and first-time RA diagnosis registration ever where a prescription for a synthetic disease modifying antirheumatic drug had been redeemed subsequently.

Results
Overall 205 of 311 first-time register-based RA diagnoses were verified (PPV 61.9% ; 95% CI 56.9-67.0). A total of 93 of 150 register-based ´seropositive RA´ (PPV 62.0; 95% CI 53.9-69.5) and 36 of 144 ´other RA´ (PPV 25.0; 95% CI 18.5-32.8) were confirmed. Linking register based RA diagnoses to the treatment codes, the PPV`s increased substantially: ´overall RA´ - 87.7% (95% CI 82.5-91.5), ´seropositive RA´ - 80.2% (95% CI 71.6-86.7), ´other RA´ - 41.1% (95% CI 30.2-52.9).

Conclusion
The first-time RA diagnoses in the DNPR should be used with caution in research. However, linking registry-based RA diagnoses to the subsequent RA treatment codes increases the probability of identifying true RA diagnoses.

POSITIVE PREDICTIVE VALUE OF RHEUMATOID ARTHRITIS DIAGNOSES IN THE DANISH NATIONAL PATIENT REGISTRY

Asta Linauskas[1,2], Annette de Thurah[1,3], Kim Overvad[4], Martin Berg Johansen[5], Kristian Stengaard-Pedersen[1,3]

[1]Department of Rheumatology, Aarhus University Hospital, [2] Department of Rheumatology, North Denmark Regional Hospital, [3]Institute of Clinical Medicine, Aarhus University, [4]Department of Public Health, Section for Epidemiology, Aarhus University, [5]Unit of Clinical Biostatistics, Aalborg University Hospital

Email: asli@.dk

Background

- The Danish National Patient Registry is a Danish key health registry, established in 1977 for administrative purposes.
- Nowadays the Registry is extensively used for epidemiological and clinical research.

Aim

To assess the Positive Predictive Value (PPV) of first-time rheumatoid arthritis (RA) diagnosis registration in the Danish National Patient Registry.

Methods

- Setting: participants from the Danish Diet, Cancer and Health cohort at least once registered with RA diagnosis during 1977-2016.
- Register-based RA diagnoses from the Central Denmark Region verified by scrutinizing medical records against RA classification criteria or clinical case RA.
- PPVs calculated for: 1) first-time RA diagnosis registration ever in the Danish National Patient Registry and 2) first-time RA diagnosis registration ever where subsequently a prescription had been redeemed for a synthetic disease modifying antirheumatic drug (sDMARD).

Results

Rheumatoid arthritis diagnoses		
Confirmed RA, n	Registered RA, n	PPV% (95% CI)
205	331	**61.9 (56.6-67.0)**
Rheumatoid arthritis diagnoses + sDMARD		
185	211	**87.7 (82.5-91.5)**

The most likely alternative diagnoses:

Non-confirmed RA cases	106
Osteoarthritis	29 % (n=31)
Polymyalgia rheumatica (PMR) or PMR with giant cell arteritis	9 % (n=10)
Crystal arthropathy	9 % (n=10)
Psoriatic arthritis	8 % (n=9)
Connective tissue diseases	5 % (n=5)

Conclusion

Linking registry-based RA diagnoses to the subsequent RA treatment codes increases the probability of identifying true RA diagnoses

Acknowledgements

We would like to thank the steering committee of the Danish Diet, Cancer and Health cohort study, giving us the opportunity to conduct the present study, programmer Katja Boll for the preparation of the dataset, the participants of the cohort study and financial supporters of our study.

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Scandinavian Rheumatology Research Foundation

12. Screening for Leishmania specific antibody among patients with rheumatic diseases treated with biologics

Fruzsina Szabados[1,2], Henrik Vedel Nielsen[3], Kurt Fuursted[4], Asta Linauskas[1], Sofie Larsen Rasmussen[1,2], Peter Derek Christian Leutscher[2,5], Claus Rasmussen[1,2]

1. Department of Rheumatology, North Denmark Regional Hospital & DANBIO, Hjoerring, Denmark
2. Centre for Clinical Research, North Denmark Regional Hospital, Denmark
3. Statens Serum Institut, Research Units of Mycology and Parasitology, Copenhagen, Denmark
4. Statens Serum Institut, Bacteriological Special Diagnostics, Copenhagen, Denmark
5. Department of Clinical Medicine, Aalborg University, Denmark

Background
The introduction of biologics has rapidly revolutionized the therapeutic approach of the chronic inflammatory rheumatic diseases. These drugs have also side effects including an increased risk of infection. Leishmaniasis is caused by parasites and transmitted by sandflies. The disease occurs in three different forms: cutaneous, mucocutaneous or visceral leishmaniasis. Patients with impaired immune system have a significantly increased risk of developing the visceral leishmaniasis. There is a case report of fatal outcome due to the visceral leishmaniasis in a Danish patient treated with infliximab for sarcoidosis. Additionally, at least 9 cases of visceral leishmaniasis were reported in patients treated with methotrexate. The purpose of this study is to investigate whether blood samples from patients treated with biologics contain antibodies to leishmania, as expression of latent infection.

Methods
Cross-sectional analysis of blood samples from patients treated with biologics at the rheumatology outpatient clinic, North Denmark Regional Hospital. Blood samples were examined by ELISA for IgG antibodies of Leishmania spices. Sensitivity Western blot analyses were carried out among samples with positive or gray zone results.

Results
A total of 400 patients were treated with biologics. None of blood samples were tested positively for leishmaniasis. Overall 1 % (n=4) of blood samples came out with gray zone results in the ELISA test. None of them could be confirmed as positive in the additional Western blot analysis.

Conclusion
We were not able to detect leishmania antibodies from blood samples in our patient group.

Screning for Leishmania specific antibody among patients with rheumatic diseases treated with biologics

Fruzsina Szabados[1,2] • Henrik Vedel Nielsen[3] • Kurt Fuursted[4] • Asta Linauskas[1]
Sofie Larsen Rasmussen[1,2] • Peter Leutscher[2,5] • Claus Rasmussen[1,2]

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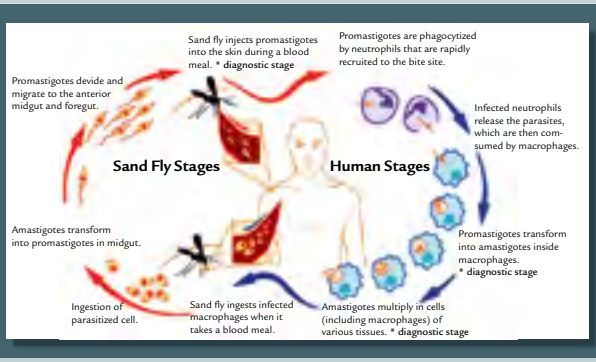

Background

Leishmaniasis is caused by parasites and transmitted by sandflies in Southern Europe.

The disease occurs in three different forms: Cutaneous, mucocutaneous or visceral leishmaniasis.

Patients with impaired immune system have a significantly increased risk of developing the visceral leishmaniasis.

There is a case report of fatal outcome due to the visceral leishmaniasis in a Danish patient treated with infliximab for sarcoidosis. These patients travel frequently in Europe.

Methods

Cross-sectional analysis of blood samples from patients treated with biologics at the rheumatology outpatient clinic, North Denmark Regional Hospital. Blood samples were examined by ELISA for IgG antibodies of Leishmania spices. Sensitivity Western blot analysis were carried out among samples with positive or gray zone results.

Results

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Conclusion

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NORTH DENMARK REGIONAL HOSPITAL

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RHN/NH/1018

13. Evaluation of antibiotic practice in a Danish regional hospital emergency department – a clinical quality assurance study

Morten Børge Sørensen[1], Cihan Özen[2], Steen Kåre Fagerberg[3], Marc Ludwig[4], Peter Hindersson[5], Vivi Pedersen[6], Peter Derek Christian Leutscher[1,7]

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2. Clinic for Surgery, North Denmark Regional Hospital, Hjoerring, Denmark
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6. Patient Safety, Quality and Improvement, North Denmark Regional Hospital, Hjoerring, Denmark
7. Department of Clinical Medicine, Aalborg University, Denmark

Background
It is estimated that 20-50% of hospital-administered antibiotics in Denmark is either unnecessary or inappropriate. A national antibiotic stewardship project has been implemented to improve clinician adherence to the existing clinical guidelines on rational antibiotic therapy. The main objective of the project is to reduce overall consumption of antibiotics without compromising patient-outcome, in particular broad-spectrum antibiotics. The aim of this clinical quality assurance study is to evaluate antibiotic practice in the hospital setting using procalcitonin (PCT) as reference biomarker for bacterial infections.

Methods
In the period from June 1 to July 30 2018, adult patients upon admission to the emergency department at North Denmark Regional Hospital were included in the study in one of following two categories. Either as a surgical patient with an acute abdomen or as an internal medicine patient requiring a blood culture procedure within the first 24 hours of admission. PCT analysis was then performed for each study participant, followed by review of medical patient files. The following key study parameters are applied: objective findings, indication for antibiotic treatment, selected antibiotic regimen (type, dosage and duration) and follow-up clinical evaluation.

Results
More than 1500 patients have been included in the study: >1000 surgical patients and >500 internal medicine patients. Study results are pending.

Conclusion
We expect that the study will provide important information about antibiotic practice in the emergency department. Moreover, PCT will evaluated as potential decision support biomarker in future activities as part of the national antibiotic stewardship project in Denmark.

Evaluation of antibiotic practice in a Danish regional hospital emergency department – a clinical quality assurance study

Morten Børge Sørensen[1], Cihan Özen[2], Steen Kåre Fagerberg[3], Marc Ludwig[4], Peter Hindersson[5], Vivi Pedersen[6] and Peter Derek Christian Leutscher[1,7]

[1]Centre for Clinical Research (CKF), North Denmark Regional Hospital, Hjoerring, Denmark (RHN); [2]Clinic for Surgery, RHN; [3]Clinic for Anaestesiology, RHN; [4]Clinic for Acute Medicine, RHN; [5]Department of Clinical Biochemistry, RHN; [6]Patient Safety, Quality and Improvement, RHN; [7]Department of Clinical Medicine, Aalborg University, Denmark

Background

It is estimated that 20-50% of hospital-administered antibiotics in Denmark is either unnecessary or inappropriate[1].

A national antibiotic stewardship project, *L*earning- and *Q*uality*T*eam-antibiotics (LKT-antibiotika)[1], has been implemented to improve adherence to guidelines[2] and to reduce overall consumption of antibiotics, in particular broad-spectrum antibiotics, without compromising patient-outcome.

Compared to C-Reactive Protein (CRP), procalcitonin (PCT) is more specific for bacterial etiology. And because PCT also has a faster response-profile with less lag, procalcitonin can *guide* antibiotics-use as a surrogate biomarker for disease-progression/therapeutic effectiveness.[3]

Aim

The aim of this clinical quality assurance study is to audit the current antibiotic practice in the hospital setting, as well as to evaluate the clinical utility of procalcitonin as a possible biomarker for bacterial infections.

Keywords:

Antibiotics; Procalcitonin; PCT; Bacterial infection; LKT-antibiotika; antibiotic stewardship; discriminatory power; clinical utility; biomarker; ICD-10; ATC; Denmark

Methods

All patients admitted via the emergency department at North Denmark Regional Hospital, from 1/6 to 1/8 2018 were included in the study as either a surgical patient with an acute abdomen or as an internal medicine patient requiring a blood culture procedure within the first 24 hours of admission. PCT analysis (blinded) was then performed for each study participant.

The following time-stamped, key study parameters are applied: tentative- and epicrisis-diagnosis (ICD-10) as indication for antibiotic treatment; selected antibiotic regimen (ATC, dosage and duration) and follow-up clinical evaluation.

Study data will be collected and managed using REDCap (Research Electronic Data Capture) hosted at Region Nordjylland.[5]

Outcomes

Primary:

—was initiation/non-initiation of antibiotic therapy *truly* indicated?

Co-primary:

—was PCT on admission correlated to *truly indicated* initiation of antibiotic therapy?

Secondary:

—detailed analysis of adherence to prescription-guidelines, incl. reasons for non-adherence

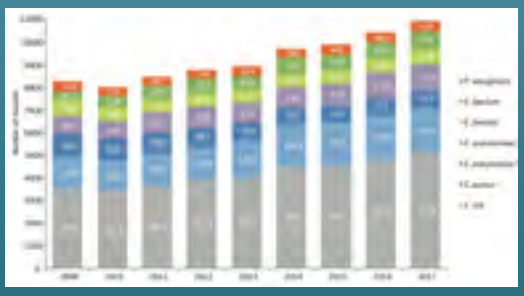

Fig. 1 Number of submitted invasive isolates (2009-2017) per species under surveillance. (DANMAP 2017, p. 98)[4]

Results

More than 1500 patients have been included in the study: >1000 surgical patients and >500 internal medicine patients. Study results are pending.

Perspectives

We expect that the study will provide previously unavailable information about antibiotic practice on *patient-level* in the emergency department.

Moreover, PCT will be evaluated as a potential decision support biomarker in future activities supporting the national antibiotic stewardship project in Denmark.

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Poster presented at "Forskningssymposium III", November 1. 2018 in Hjørring, Denmark

NORTH DENMARK REGIONAL HOSPITAL

REDCap

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14. Pneumococcal antibody protection in rheumatological patients receiving bDMARD therapy – a cross-sectional study

Sofie Larsen Rasmussen[1,2], Kurt Fuursted[3], Kasper A. Nielsen[1], Natalie Parks Laurberg[1], Morten Sørensen[2], Peter Derek Christian Leutscher[2,4], Claus Rasmussen[1,2,4]

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4. Department of Clinical Medicine, Aalborg University, Denmark

Background
Severe pneumococcal infections contribute to increased mortality in patients with rheumatic diseases. Since 2009, rheumatological patients from our department have been vaccinated against S. pneumoniae prior to initiation of bDMARD therapy, by use of 23-valent pneumococcal polysaccharides vaccine (PPV23). The aim of the study was to determine the prevalence of rheumatological patients receiving bDMARD therapy with a protective level of antibodies against S. pneumoniae, and to identify possible factors of relevance affecting antibody production.

Methods
Antibodies against 12 pneumoccocal serotypes were measured in the period of June 2017 to May 2018 in patients receiving bDMARD therapy initiated before March 1st 2017. A geometric mean level of all serotypes above 1 µg/ml was considered a protective antibody level. The study group consisted of both vaccinated and unvaccinated individuals.

Results
202 vaccinated and 144 unvaccinated patients were included in the study. Among the vaccinated patients, 30% had a protective antibody level versus 1.4% of the unvaccinated patients ($P<0.0001$). Logistic regression analysis showed that a significantly smaller proportion of patients treated with MTX at time of vaccination had a protective antibody level compared with patients not treated with MTX ($P=0.04$; odds ratio: 2.1; 95% CI [1.02;4.13]). The same applied for advanced age at time of vaccination ($P=0.03$), whereas years since vaccination did not decrease antibody protection significantly ($P=0.20$).

Conclusion
The results suggest that a majority of the vaccinated rheumatological patients are not protected adequately against pneumococcal disease in spite of vaccination. MTX treatment at time of vaccination and advanced age were both independently associated with lack of protective antibody level.

THU0677

PNEUMOCOCCAL ANTIBODY PROTECTION IN RHEUMATOLOGICAL PATIENTS RECEIVING bDMARD THERAPY

- A CROSS-SECTIONAL STUDY

Sofie Larsen Rasmussen[1,3] • Kurt Fuursted[2] • Kasper A. Nielsen[1] • Natalie Parks Laurberg[1] • Morten Sørensen[3] • Peter Leutscher[3] • Claus Rasmussen[1,3,4]

[1]Department of Rheumatology and DANBIO, North Denmark Regional Hospital • [2]Statens Serum Institut, Denmark • [3]Center for Clinical Research, North Denmark Regional Hospital • [4]Department of Clinical Medicine, Aalborg University

BACKGROUND

EULAR recommends that pneumococcal vaccination should be strongly considered in patients with rheumatic diseases, however, need and timing of revaccination for this patient group remains unknown[1]. Since 2009, rheumatological patients from our department have been vaccinated against *S. pneumoniae* 2 weeks prior to initiation of first bDMARD therapy, by use of the 23-valent pneumococcal polysaccharides vaccine (PPV23).

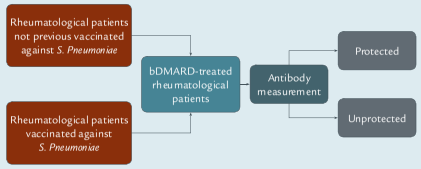
PURPOSE

The aim of the study was to determine the prevalence of rheumatological patients receiving bDMARD therapy with a protective level of antibodies against S. pneumoniae, and to identify possible factors of relevance affecting antibody level.

METHODS

Antibodies against 12 pneumoccocal serotypes were measured in consecutive patients receiving bDMARD therapy.
A geometric mean level of all serotypes above 1 µg/ml was considered a protective antibody level (Luminex-method).
Patients were diagnosed with rheumatoid arthritis (RA), spondyloarthritis (SpA), psoriatic arthritis (PsA) or juvenile idiopathic arthritis (JIA) and consisted of both vaccinated and unvaccinated individuals. All patients are registered in the clinical database, Danbio.
Differences in protection between vaccinated and unvaccinated patients were evaluated using the $\chi 2$ test. A logistic regression model was applied, to analyse factors of possible significance to the protective level of antibodies.

Figure 1 shows the study flow



RESULTS

A total of 320 patients were included in the study: 186 (58%) vaccinated and 134 (42%) unvaccinated patients. Among the vaccinated patients, 30% had a protective antibody level versus 0% of the unvaccinated patients (P<0.0001).

Table 1 Patient characteristics

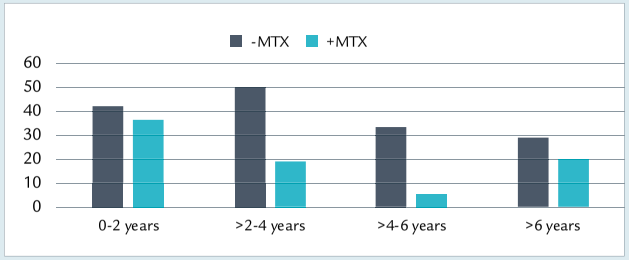
	RA[1]		PsA		SpA	
	+PPV23[2]	-PPV23[2]	+PPV23	-PPV23	+PPV23	-PPV23
Sex (women/men, n)	84/31	62/36	11/13	5/6	18/29	7/18
Age (mean)	61	63	53	64	43	55
MTX at vacc. (n/%)	67/60	-	16/70	-	-	-
Protective antibody level (n/%)	32/28	0	5/21	0	19/40	0

[1]4 patients with juvenile idiopathic arthritis are included in this group
[2]+PPV23=vaccinated, -PPV23=unvaccinated

Table 2 Predictors of a protective antibody level in the 186 vaccinated patients (logistic regression model)

	OR	95% CI	P-value
Age (years	0.972	[0.945;0.908]	**0.038**
Sex (male vs. female)	0.883	[0.422;1.845]	0.740
MTX at time of vaccination (no vs. yes)	2.262	[1.094;4.680]	**0.028**
Time since vaccination (years)	0.877	[0.744;1.033]	0.115
Diagnose (RA vs. SpA)	1.307	[0.481;3.553]	0.388
Diagnose (PsA vs. SpA)	0.782	[0.219;2.791]	0.506
Prednisolone at time of vaccination (no vs. yes)	1.001	[0.450;2.224]	0.998

Table 2 Percentage of patients with a protective level of antibodies based om MTX-treatment at vaccination and years since vaccination



CONCLUSIONS

Only one third of PPV23 vaccinated individuals had a protective level of pneumococcal antibodies.

Up to 7 years since vaccination did not decrease antibody protection significantly.

MTX treatment at time of vaccination and advanced age were both independently associated with lack of protective antibody level.

PERSPECTIVES

Trials are needed to examine if other types of vaccines, or vaccination strategies, are more effective to produce protective antibody levels.

Trials are also needed to investigate whether patients with rheumatic diseases who are vaccinated against S.Pneumoniae, are less susceptible to serious pneumococcal infections compared with nonvaccinated patients.

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15. Etanercept Treatment Response in Patients with Rheumatoid Arthritis

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2. Department of Rheumatology, North Denmark Regional Hospital , Hjoerring, Denmark
3. Laboratory for Medical Mass Spectrometry, Department of Health Science and Technology, Aalborg University, Denmark
4. Department of Clinical Medicine, Aalborg University, Denmark
5. Danish Rheumatologic Biobank and DANBIO registry, Denmark

Background
Rheumatoid arthritis (RA) is a chronic, inflammatory, autoimmune disorder known for its multifaceted immune response with serious longterm outcomes if left untreated. However, treating RA is costconsuming process and is often a challenge such as inter-patient differences in treatment response. Our study is a step toward optimizing current treatment. The aim is to analyse the association between biologic disease-modifying anti-rheumatic drug (bDMARD) etanercept serum concentration and disease activity in patients with RA.

Methods
The project is a follow-up study based on blood samples collected from the Danish Rheumatologic Biobank, Center Hjoerring and clinical DANBIO data. Patients with RA starting etanercept treatment were enrolled in the study. Clinical DANBIO data and serum samples from each RA patient have been extracted and obtained at 0, 3, 6 and 12 months, respectively.

Results
In total, 13 RA patients were enrolled. The median age at baseline was 62 years (SD=12.3) and the median disease duration at baseline was 193 months (SD=97.1). The median time for bDMARD treatment was 90 months (SD=52.8) As expected, most patients, who were positive for rheumatoid factor (n=12) or anti-citrullinated protein antibody (n=10), had X-ray confirmed joint erosions (n=10). The majority of patients (n=11) received concomitant synthetic DMARD therapy.

Conclusion
Further outcomes: To achieve more information on association between clinical etanercept treatment response, drug concentrations and inflammatory profile, blood sample analyses using the mass spectrometry (MS)-platform will be included. With bioinformatics, DANBIO data and MS data will be combined for further evaluation.

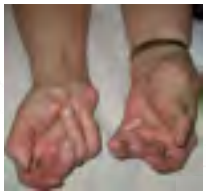
Etanercept Treatment Response in Patients with Rheumatoid Arthritis

Troels Vindbæk Stausbo[1], Marcin Ryszard Kowalski[2], Michael Kruse Meyer[5], Allan Stensballe[5], Peter Derek Christian Leutscher[1,3], Asta Linauskas[2,4]

1. Centre for Clinical Research, North Denmark Regional Hospital; 2. Department of Rheumatology, North Denmark Regional Hospital; 3. Department of Clinical Science, Aalborg University; 4. Danish Rheumatologic Biobank and DANBIO registry; 5. Laboratory for Medical Mass Spectrometry, Department of Health Science and Technology, Aalborg University

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic, inflammatory, autoimmune disorder known for its multifaceted immune response with serious long-term outcomes if left untreated. Despite an increasing knowledge of RA and its treatment, much is still inadequately understood, including in-depth characterization and knowledge of treatment response to biologic disease-modifying anti-rheumatic drugs (bDMARDs). Moreover, treating RA is cost-consuming process and is often a challenge due to inter-patient differences in treatment response amongst others. Present study is a step toward optimizing current treatment.



AIM

The aim is to analyse the association between biologic disease-modifying anti-rheumatic drug (bDMARD) etanercept serum concentration and disease activity in patients with RA.

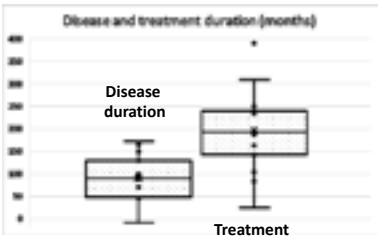
METHODS

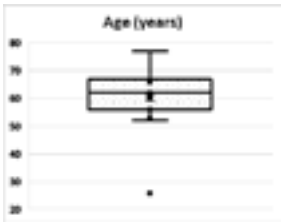
The project is a follow-up study based on serum samples collected from the Danish Rheumatologic Biobank, Center Hjoerring and clinical DANBIO data. Patients with RA starting etanercept treatment were enrolled in the study. Clinical DANBIO data were extracted and statistically analysed. Serum samples from each RA patient have been obtained at 0, 3, 6 and 12 months and prepared for subsequent Mass Spectrometry Analysis and bioinformatics.

RESULTS

In total, 13 RA patients were enrolled based on American College of Rheumatology/ European League of Rheumatism (ACR/EULAR) classification criteria. ACR/EULAR remission criteria were included and used for statistically analysis as the patient should present a stable disease activity and treatment response.

Participant no.	Treatment duration (month)	Disease duration (month)	Age (years)
1	71	84	52
2	47	234	67
3	90	186	53
4	46	142	62
5	77	105	66
6	99	309	66
7	99	391	56
8	165	193	67
9	-9	24	26
10	172	251	60
11	149	240	77
12	48	163	67
13	130	235	62
Median	90	193	62
Mean	91,1	196,7	60,1
SD	52,8	97,1	12,3
Min. value	-9	24	26
Max. value	172	391	77
Range	181	367	51





The median age at baseline was 62 years (*SD=12.3*). At baseline, the median disease duration and treatment duration was 193 months (*SD=97.1*) and 90 months (*SD=52.8*), respectively. However, disease and treatment duration were ranging 367 and 181 months, respectively, as shown in the table.

ACPA and Rheumatoid Factor: Most patients, who were positive for rheumatoid factor (*n=12*) or anti-citrullinated protein antibody (ACPA) (*n=10*), had X-ray confirmed joint erosions (*n=10*). The majority of patients (*n=11*) received concomitant synthetic DMARD therapy.

FURTHER OUTCOMES

Current study outcomes present an clinical characterization at baseline of the treatment. To achieve further in-depth clinical characterization and increasing our treatment response knowledge, we will expand the study to include drug concentration, inflammatory profile, and biomarker candidates analysis.

Serum samples will be analyses using the platform with mass spectrometry and bioinformatics. Information from current analysis and future bioinformatics will be combined for further evaluation.

Gynækologi/Obstetrik og Pædiatri

16. Day versus night variation in patterns of spontaneous births and complications - a retrospective registry study

Cecilie Lapirtis Andare[1], Troels Stausbo[2], Peter Derek Christian Leutscher[2,3], Louise Arenholt[1,2,3]

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3. Department of Clinical Medicine, Aalborg University, Denmark

Background
Spontaneous births have long been known to occur more frequently at night or in the early morning hours, but the importance of day variation in the process of spontaneous births related to complications has not been fully clarified. The aim of this study, is to investigate the relationship between day variation of spontaneous births and the occurrence of maternal and neonatal complications. There is little and conflicting research regarding the occurrence of circadian variations in childbirth complications. An association between nocturnal pattern of birth and lower risk of complications and fewer medical interventions has been observed. Conversely, others have shown an increased risk of both maternal and neonatal complications during the night time, possibly due to lower quality of obstetric care.

Methods
This study is a descriptive registry study using the Danish National Quality Database for Births, which covers all hospital and home births in Denmark. Data from 2012-2017 will be extracted. Data from 480,000 births will be analysed comparing time of delivery with maternal complications such as postpartum bleeding and sphincter ani muscle defects together with neonatal complications such as low Apgar score, low umbilical cord blood pH, hospitalization on neonatal or paediatric departments and death.

Results
The goal of this study is to contribute to the clarification of the complications according to the day variation of spontaneous births

Conclusion
Depending on the results, it could among other things be an important contribution to the discussion of the number of staff and workflow in a labour ward throughout the day.

Day versus night variation in patterns of spontaneous births and complications

a retrospective registry study

Cecilie Lapirtis Andare (MD)[1], Troels Stausbo (Research assistant)[2], Peter Leutscher(MD, PhD, professor)[2], Louise Arenholt (MD, PhD student)[1,2]
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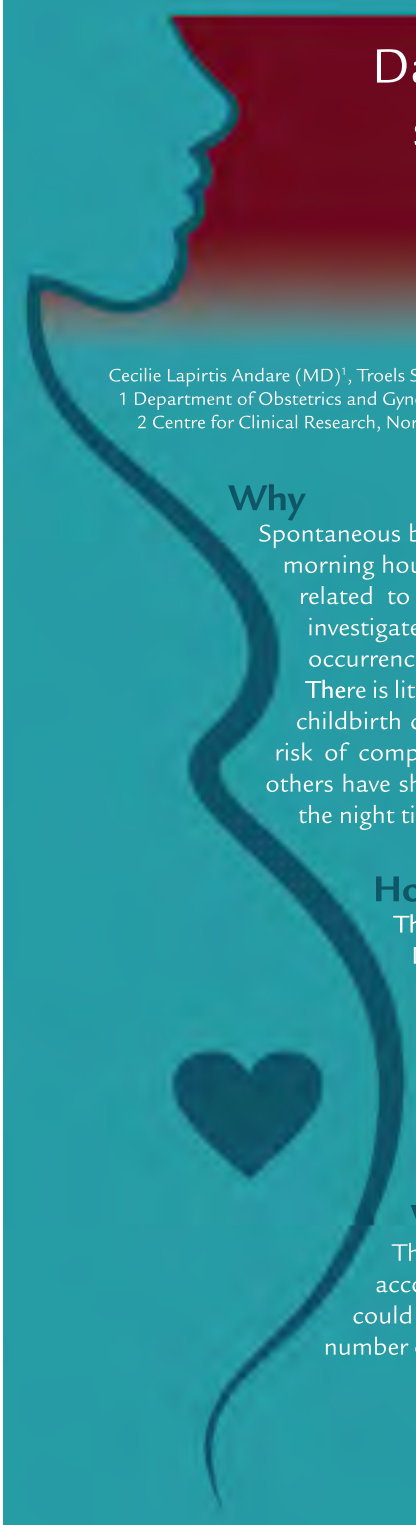

Why

Spontaneous births have long been known to occur more frequently at night or in the early morning hours, but the importance of day variation in the process of spontaneous births related to complications has not been fully clarified. The aim of this study, is to investigate the relationship between day variation of spontaneous births and the occurrence of maternal and neonatal complications.

There is little and conflicting research regarding the occurrence of circadian variations in childbirth complications. An association between nocturnal pattern of birth and lower risk of complications and fewer medical interventions has been observed. Conversely, others have shown an increased risk of both maternal and neonatal complications during the night time, possibly due to lower quality of obstetric care.

How

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What next....

The goal of this study is to contribute to the clarification of the complications according to the day variation of spontaneous births. Depending on the results, it could among other things be an important contribution to the discussion of the number of staff and workflow in a labour ward throughout the day.

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17. The role of the enuresis alarm in the treatment of daytime incontinence in children with combined enuresis and urge incontinence (ABDE-Studiet) - a randomized controlled multicenter trial

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Background
Urinary incontinence is among the most common disorders of children. Approximately 15% of 1st grade children suffers from nocturnal enuresis (involuntary voiding during sleep at an age where complete continence should have been achieved) and around 50% of these experiences urge incontinence episode during daytime. The enuresis alarm is the highly effective first line treatment for nocturnal incontinence in children with abnormal small bladders. Evidence suggests that the mode of action of the alarm treatment is a conditional increase of the functional bladder capacity. It is theoretically probable that treatment with the enuretic alarm can improve daytime incontinence as well, whereas this symptom most often is a result of bladder overactivity. Current guidelines recommend that daytime symptoms should be handled completely before initiation of enuresis treatment. However, this assumption is entirely based on expert opinion. It has not previously be investigated whether enuresis and daytime urinary incontinence can be handled simultaneously with e.g. an enuresis alarm. Also, no studies have investigated whether treatment with standard urotherapy and enuresis alarm is more efficient that standard urotherapy alone in the management of daytime incontinence in children with combined enuresis and urinary urge incontinence. The aim of this study is to investigate whether enuresis and daytime incontinence can be handled at the same time and whether standard urotherapy with enuresis alarm is superior to standard urotherapy alone in the treatment of pediatric urge incontinence.

Methods
In this multicenter study (North Denmark Regional Hospital Hjørring, Aalborg, Herning and Aarhus) 90 children age 5-15 years suffering from combined enuresis and daytime urinary incontinence will be included. The participant will be randomized to 8 weeks of treatment with standard urotherapy with or withour enuresis alarm. The treatment effect will be measure by validated measurement tools (Drypie, Incontinence diary), frequency –volume charts, Urge-VAS score and enuresis alarm scheme in accordance with the International Children´s Contience Society´s Standardizations.

Results
The results of this study will serve as basis for future guidelines of pediatric incontinence treatment.

Conclusion
The results of this study will serve as basis for future guidelines of pediatric incontinence treatment.

THE ROLE OF THE ENURESIS ALARM IN THE TREATMENT OF DAYTIME INCONTINENCE IN CHILDREN WITH COMBINED ENURESIS AND URGE INCONTINENCE (ABDE-STUDIET). -A RANDOMIZED CONTROLLED MULTICENTER TRIAL

Eva G Raaberg[1,2,6], Qing Chai[3], Mia Færch[4], Konstantinos Kamperis[5], Jette Hoffmann-Petersen[6], Søren Hagstrøm[1,2,6]

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6) Dept. of Pediatrics, Aalborg University Hospital, Aalborg, Denmark

Background

Urinary incontinence is among the most common disorders of children. Approximately 15% of 1st grade children suffers from nocturnal enuresis (involuntary voiding during sleep at an age where complete continence should have been achieved) and around 50% of these experiences urge incontinence episode during daytime(1-2). The enuresis alarm is the highly effective first line treatment for nocturnal incontinence in children with abnormal small bladders. There is evidence suggesting that the mode of action of the alarm treatment is a conditional increase of the functional bladder capacity (3-4). It is theoretically probable that treatment with the enuretic alarm can improve daytime incontinence as well, whereas this symptom most often is a result of bladder overactivity. Currently all guidelines recommend that daytime symptoms should be handled completely before initiation of enuresis treatment(5). However, this assumption is entirely based on expert opinion.

It has not previously be investigated whether enuresis and daytime urinary incontinence can be handled simultaneously with e.g. an enuresis alarm. Also, no studies have investigated whether treatment with standard urotherapy and enuresis alarm is more efficient that standard urotherapy alone in the management of daytime incontinence in children with combined enuresis and urinary urge incontinence.

The aim of this study is to investigate whether enuresis and daytime incontinence can be handled at the same time and whether standard urotherapy with enuresis alarm is superior to standard urotherapy alone in the treatment of pediatric urge incontinence.

Methods

In this multicenter study (RHN Hjørring, Aalborg, Herning and Aarhus) 90 children age 5-15 years suffering from combined enuresis and daytime urinary incontinence will be included. The participant will be randomized to 8 weeks of treatment with standard urotherapy with or without enuresis alarm.

The treatment effect will be measure by validated measurement tools (Drypie, Incontinence diary), frequency –volume charts, Urge-VAS score and enuresis alarm scheme in accordance with the International Children´s Contience Society´s Standardizations.

Results and conclusion

The results of this study will serve as basis for future guidelines of pediatric incontinence treatment.

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AALBORG UNIVERSITY DENMARK

18. Women with Lichen Sclerosus and their experienced quality of life and sexuality

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2. Sexological Centre, Aalborg University Hospital, Denmark
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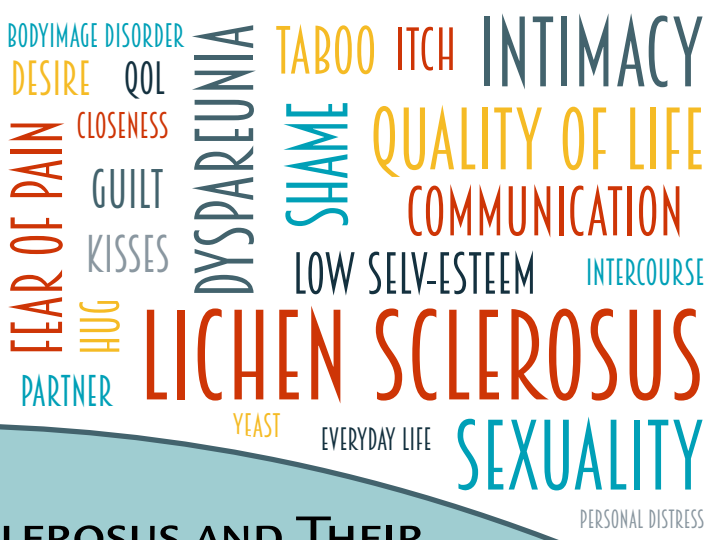
4. Sexological Research Centre, Aalborg University, Denmark
5. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

Background
Lichen sclerosus is a chronic autoimmune skin disease affecting the female anogenitale area and causing significant modification in the vulva leading to anatomical changes. Reported symptoms include itching, burning sensation, soreness as well as dyspareunia. This study intends to evaluate the quality of life and sexual functioning in women recently diagnosed with lichen sclerosus.

Methods
This study includes 72 patients over 18 years of age were recently diagnosed with lichen sclerosus and referred to North Denmark Regional Hospital from 1 January to 16 October 2018. Informed and written consent was obtained prior to participation. Female Sexual Function Index (FSFI) and Dermatology Quality of Life Index (DQLI) were fulfilled.

Results
Median age 51 years [18; 72]. The women presented low score on all FSFI scales with a mean score of 13.36, indicating worse sexual functioning with a cut off score of 26.55. The sub group evaluation scored: desire 2.18; arousal 2.15; lubrication 2.49; orgasm 2.33; satisfaction 2.64; pain 1.58. The results from DQLI revealed a mean score of 7.49 indicating moderate effect on patient's everyday life. The mean sub scores were 2.35 on physical symptoms and feelings; 0.93 on daily activities; 0.86 on leisure; 0.33 on work and school; 2.71 on personal relationships; and 0.31 on treatment.

Conclusion
This study concludes that lichen sclerosus has a considerable influence on the sexual functioning and on the quality of life of the women. In addition, a cut of score on 26.55 indicates an urgent need for sexual counseling. Health care professionals have to consider not only the biological aspects, but the psychological and the social aspects, as well.



Women with Lichen Sclerosus and Their Experienced Quality of Life and Sexuality

Vittrup, G.[1,2] • Mørup, L.[1,3] • Heilesen, T.[1] • Jensen, D[1] • Laursen, B.S.[2,4] • Westmark, S.[5] • Melgaard, D.[5]

[1]Clinic for Surgery, Women and Child diseases, North Denmark Regional Hospital • [2]Sexological Centre, Aalborg University Hospital, Denmark • [3]Clinic for Women- and Child Diseases and Urology, Aalborg University Hospital, Denmark
[4]Sexological Research Centre, Aalborg University, Denmark • [5]Center for Clinical Research, North Denmark Regional Hospital, Denmark

Objective

Lichen Sclerosus (LS) is a chronic skin disease affecting the female anogenitale area and causes significant modification in the vulva leading to anatomical changes and narrowing of the vaginal entrance.

Reported symptoms include itching, burning sensation, soreness as well as dyspareunia.

This study intends to evaluate the quality of life and sexual functioning in women recently diagnosed with LS.

Study design

72 women with a median age of 51 years. (18-72 years) participated in the period from 1 January to 16 October 2018.

They filled in two questionnaires: Female Sexual Function Index (FSFI) and Dermatology Quality of Life Index (DQLI).

Results

The women with LS were compared to a same-aged group with healthy controls and presented low score on all FSFI scales, which indicates worse sexual functioning and a cut-off score on 26.55 (fig. 1).

The results from DQLI revealed a mean score of 7.49 indicating moderate effect on the patients life (fig. 2).

Conclusion

Lichen sclerosus has a considerable influence on the womens sexual functioning and on their quality of life.

In addition, a cut of score on 26.55 indicates an urgent need for sexual counseling.

Health care professionals have to consider not only the biological aspects, but the psychological and the social aspects, as well.

Figure 1: Female Sexual Function Index (FSFI)

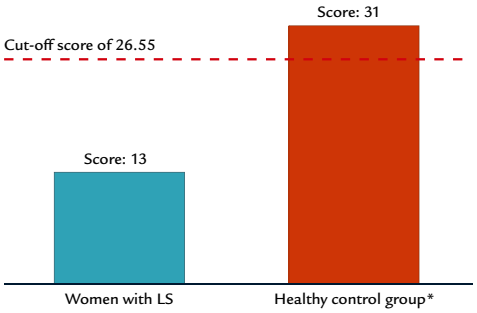
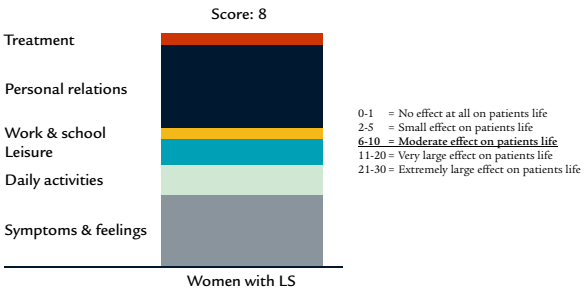


Figure 2: Dermatology Quality of Life Index (DQLI)



* Ref. Rosen R. et al., The Female Sexual Function Index (FSFI):A Multidimensional Self-Report Instrument for the Assessment of Female Sexual Function. Jr. of Sex & Marital Therapy. 26, 191-208, 2000

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RNN/MH/1018

19. Prospective evaluation of paravaginal defect repair - a six-month post-operative follow-up with MRI, clinical examination, and questionnaires

Louise Arenholt[1,2,3], Bodil Ginnerup Pedersen[4], Karin Glavind[5], Susanne Greisen[6], Karl M Bek[6], Marianne Glavind-Kristensen[6]

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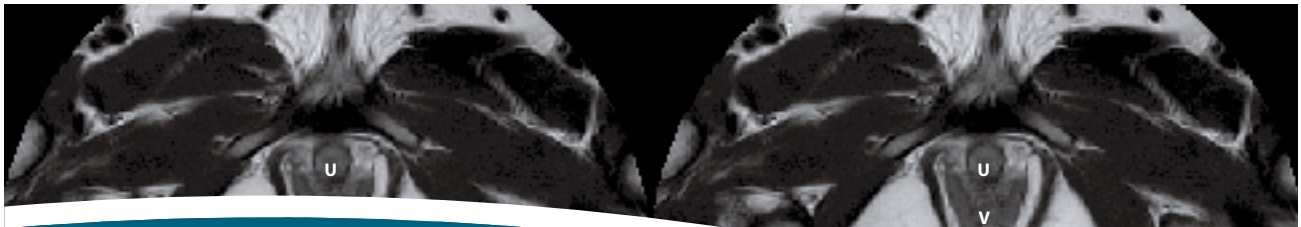
2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Denmark
4. Department of Radiology, Aarhus University Hospital, Denmark
5. Department of Obstetrics and Gynaecology, Aalborg University Hospital, Denmark
6. Department of Obstetrics and Gynaecology, Aarhus University Hospital, Denmark

Background
Paravaginal defect (PVD) has been suggested as one of the main contributors to the development of prolapse in the anterior vaginal wall (AVW). We aimed to evaluate the descent of the pelvic organs, presence of vaginal H configuration and pubococcygeus muscle defect by pelvic MRI, together with subjective symptoms of prolapse, before and six months after PVD repair. We also aimed to evaluate risk factors of recurrence.

Methods
Fifty women with PVD diagnosed by gynecological examination and scheduled for vaginal PVD repair were planned for enrollment. Preoperatively and six months postoperatively, subjective symptoms were evaluated by ICIQ-VS together with MRI of the pelvis to evaluate defects in the pubococcygeus (PC) muscle, vaginal shape, and pelvic organ descent.

Results
Forty-six women completed the study. Twenty had PVD repair alone whereas 26 also had concomitant surgery performed. Grade of prolapse, subjective symptoms, sexual problems, and quality of life were significantly improved at follow-up. Missing vaginal H configuration was observed in 21 women before operation and was correlated to PC muscle defect. Recurrence rate was 39% and significantly more women with recurrence had PC muscle defects and missing H configuration.

Conclusion
Vaginal PVD repair alone or combined with concomitant surgery significantly reduces objective prolapse and subjective symptoms. We could not demonstrate MRI findings of missing H configuration to be a sign of PVD but rather a sign of defect in the PC muscle. Risk of recurrence is significantly higher in women with major PC muscle defects and missing H configuration.



Prospective evaluation of paravaginal defect repair

— a six-month post-operative follow-up with MRI, clinical examination, and questionnaires

Louise TS Arenholt[1,2], Bodil Ginnerup Pedersen[3], Karin Glavind[4], Susanne Greisen[5], Karl M Bek[5], Marianne Glavind-Kristensen[5]

Introduction and Hypothesis

Paravaginal defect (PVD) has been suggested as one of the main contributors to the development of prolapse in the anterior vaginal wall (AVW). We aimed to evaluate the descent of the pelvic organs, presence of vaginal H configuration and pubococcygeus muscle defect by pelvic MRI, together with subjective symptoms of prolapse, before and six months after PVD repair. We also aimed to evaluate risk factors of recurrence.

Methods

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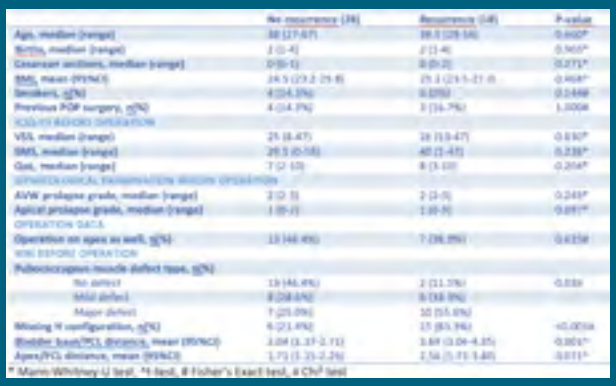
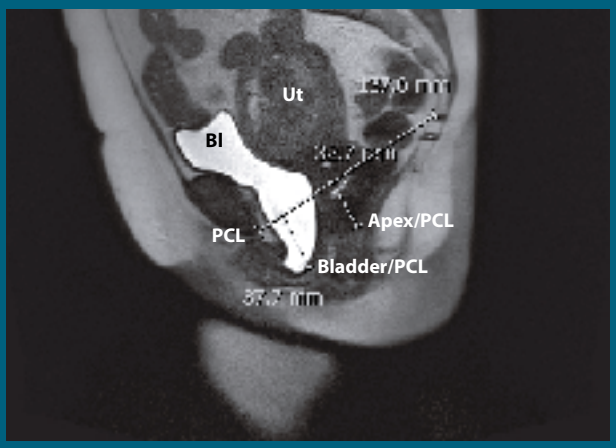


Characteristics of women with and without recurrence six months after operation, BMI: Body-Mass Index, POP: Pelvic Organ Prolapse, VSS: Vaginal Symptom Score, SMS: Sexual Matter Score, QoL: Quality of Life, PCL: Pubococcygeal Line



MRI images of the pelvis. Dynamic MRI in the mid-sagittal plane. Illustration of the measurements of the bladder and apical descent according to the pubococcygeal line (PCL).
Bl: urine bladder, Ut: uterus, PCL: pubococcygeal line, Bladder/PCL: the distance from the PCL to the bladder base, Apex/PCL: the distance from the PCL to the anterior cervical lip

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20. Diagnosing a paravaginal defect - a comparison of gynecological examination, 3-D endoanal ultrasound, and pelvic MRI

Louise Arenholt[1,2,3], Marianne Glavind-Kristensen[4], Bodil Ginnerup Pedersen[5]

1. Department of Obstetrics and Gynaecology, North Denmark Regional Hospital, Hjoerring, Denmark
2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Denmark
4. Department of Obstetrics and Gynecology, Aarhus University Hospital, Denmark
5. Department of Radiology, Aarhus University Hospital, Denmark

Background
Much effort has been put into diagnosing the paravaginal defect (PVD) and discussing its impact on the development of anterior vaginal wall prolapse. Missing vaginal H configuration in the axial plane on magnetic resonance imaging (MRI) or ultrasound (US) has been linked to the presence of PVD. The aims were to calculate interrater reliability of detecting a PVD by gynecological examination, to correlate those findings with missing H configuration evaluated by MRI and endoanal US (EAUS), and to assess whether missing H configuration seen by MRI correlated to the findings of pubococcygeus (PC) muscle defects, and calculate agreement on muscle defects between MRI and endovaginal US (EVUS).

Methods
We included fifty women with presumed PVD and ten nulliparous women. Diagnosis of PVD was established by gynecological examination at two different time points. MRI, EAUS and EVUS were performed to evaluate vaginal H configuration and grade of defects in the levator ani muscle.

Results
Interrater reliability in detecting a PVD by gynecological examination was moderate. There was poor to moderate correlation between side of PVD found by gynecological examination and missing H (MRI and EAUS). Missing H configuration was associated with severe defects in the PC muscle with substantial agreement on muscle defect score between MRI and EVUS. Nulliparous women had intact H configuration evaluated by MRI.

Conclusion
Moderate interrater reliability of the PVD diagnosed by gynecological examination was found. Missing H was not a sign of PVD but rather a sign of severe PC muscle defect. EAUS cannot be used in the evaluation of vaginal shape.

Diagnosing a paravaginal defect

—A comparison of gynecological examination, 3-D endoanal ultrasound, and pelvic MRI

Louise TS Arenholt[1,2], Marianne Glavind-Kristensen[3], Bodil Ginnerup Pedersen[4]

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Much effort has been put into diagnosing the paravaginal defect (PVD) and discussing its impact on the development of anterior vaginal wall prolapse. Missing vaginal H configuration in the axial plane on magnetic resonance imaging (MRI) or ultrasound (US) has been linked to the presence of PVD. The aims were to calculate interrater reliability of detecting a PVD by gynecological examination, to correlate those findings with missing H configuration evaluated by MRI and endoanal US (EAUS), and to assess whether missing H configuration seen by MRI correlated to the findings of pubococcygeus (PC) muscle defects, and calculate agreement on muscle defects between MRI and endovaginal US (EVUS).

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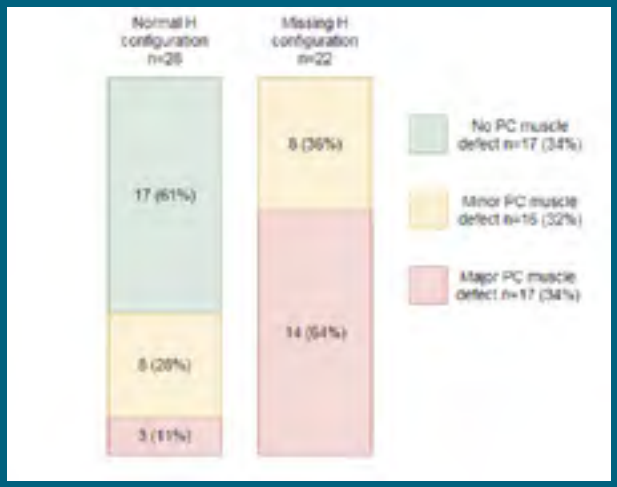

Distribution of pubococcygeus muscle (PC muscle) defect type according to normal H configuration or not at pelvic MRI.

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[2]Center for Clinical Research, Department of Clinical Medicine, Aalborg University, Denmark
[3]Department of Obstetrics and Gynaecology, Aarhus University Hospital, Denmark
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Conclusion

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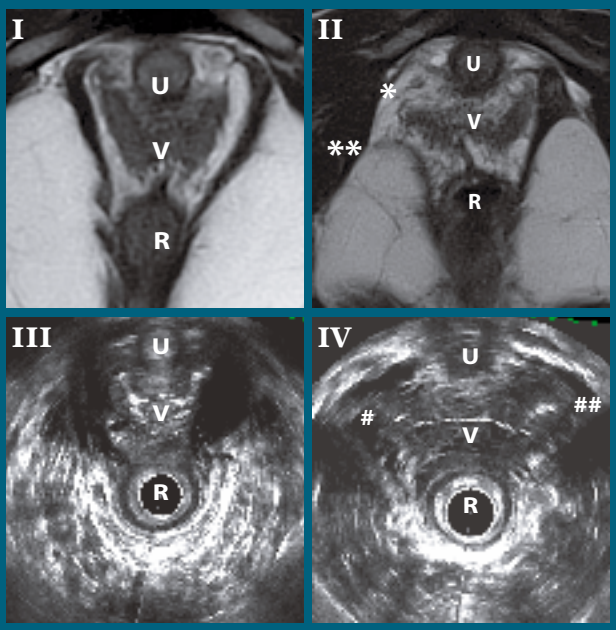

MRI and EAUS axial image at rest of normal and missing H configuration in four different women. I. MRI image of normal vaginal H configuration. II: MRI of missing vaginal H configuration on the right side (*). Notice the right-sided pubococcygeus muscle defect (**). III. EAUS of normal vaginal H configuration. IV: EAUS of bilateral missing vaginal H configuration (# right side, ## left side). MRI: magnetic resonance imaging, EAUS: endoanal ultrasound, U: urethra, V: vagina, R: rectum

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21. Post-hysterectomy vault hematoma: Incidence and correlation to postoperative pain score

Pia Colding[1], Louise Arenholt[2,3,4], Anya Eidhammer[2]

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2. Department of Obstetrics and Gynaecology, North Denmark Regional Hospital, Hjoerring, Denmark
3. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
4. Department of Clinical Medicine, Aalborg University, Denmark

Background
Post hysterectomy vault hematoma is common, but the incidence (between 25% and 98%), and the significance of a vault hematoma is variably described. The correlation between the presence of a vault hematoma and postoperative pain has not previously been described. Aim: To determine the incidence of vault hematoma after hysterectomy and to determine any correlation between vault hematomas and pain score / need of analgesics.

Methods
Fifty-four consecutive patients admitted for hysterectomy for benign causes were included in this prospective cohort-study study, from June 2017 to June 2018 in the Department of Gynecology and Obstetrics, North Denmark Regional Hospital, Hjørring, Denmark. Transvaginal ultrasound examinations were performed 3-5 days after surgery and vault hematoma volume, if any, was calculated by measuring the hematoma in three planes. Data concerning pain score, use of analgesics, febrile morbidity and use of antibiotics were collected in a patient conducted questionnaire for 21 days after surgery.

Results
Preliminary results: Mean age was 45.2 years and mean BMI was 27 kg/m^2. Mean operating time was 128 minutes. A vault hematoma larger than 2 ml was detected in 39% (21/54). Mean volume of vault hematomas were 9 ml (range 0 – 64.9 ml). Results concerning the correlation between the presence of a vault hematoma and the pain score is pending.

Conclusion
Results will help the clinicians to determine if a vault hematoma found after hysterectomy is associated with an increased postoperative morbidity together with higher pain score and febrile morbidity or the finding can be considered as mostly coincidental.

Post-hysterectomy vault hematoma:

Incidence and correlation to postoperative pain score

Pia Colding[1], Louise Arnholdt[2,3], Anya Eidhammer[2]

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2: Department of Gynaecology and Obstetrics, North Denmark Regional Hospital, Hjørring, Denmark.
3: Centre for Clinical Research, North Denmark Regional Hospital, Hjørring, Denmark

BACKGROUND

Post hysterectomy vault hematoma is common, but the incidence (between 25% and 98%), and the significance of a vault hematoma is variably described.
The correlation between the presence of a vault hematoma and postoperative pain has not previously been described.
Aim: To determine the incidence of vault hematoma after hysterectomy and to determine any correlation between vault hematomas and pain score / need of analgesics.

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Transvaginal ultrasound examinations were performed 3-5 days after surgery and vault hematoma volume, if any, was calculated by measuring the hematoma in three planes.
Data concerning pain score, use of analgesics, febrile morbidity and use of antibiotics were collected in a patient conducted questionnaire for 21 days after surgery.

Fig. 1: VAS-scale

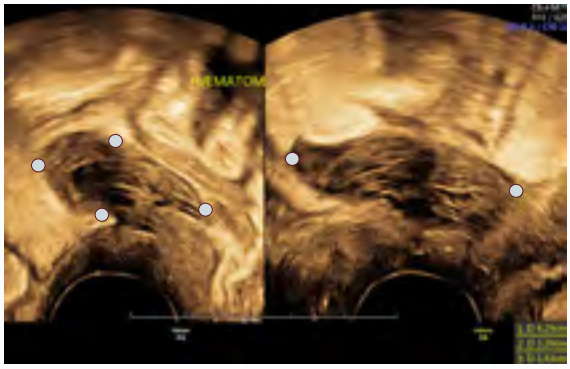

Fig. 2: Vault hematoma. 4 days after surgery.

RESULTS

Preliminary results: Mean age was 45.2 years and mean BMI was 27 kg/m². Mean operating time was 128 minutes.
A vault hematoma larger than 2 ml was detected in 39% (21/54). Mean volume of vault hematomas were 9 ml (range 0 – 64.9 ml).
Results concerning the correlation between the presence of a vault hematoma and the pain score is pending.

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References:
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- Dane et al. "Sonographically diagnosed vault hematomas following vaginal hysterectomy and its correlation with postoperative morbidity. Infect Dis Obstet Gynecol. 2009;2009:91708
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Correspondence: pidc@rn.dk

22. Efterfødselssamtale efter kejsersnit - et randomiseret interventionsstudie

Sine Eeg Petersen[1], Diana Brøgger Jensen[1], Anya Eidhammer[1], Louise Arenholt[1,2]

1. Gynækologisk og Obstetrisk Afdeling, Regionshospital Nordjylland, Hjørring, Danmark
2. Klinisk Institut, Aalborg Universitet, Danmark

Background
Hvis en kvinde en enkelt gang har født ved sectio anbefales ofte vaginal fødsel næste gang hun skal føde. Vaginal fødsel betragtes som den mest skånsomme fødselsmåde og der er derfor et ønske om, at så mange som muligt føder vaginalt efter et førstegangs sectio. Ingen studier har undersøgt effekten af samtale kort tid efter kejsersnittet i forhold til ønsker til eventuel kommende graviditet og fødsel

Methods
Kvinder, der har født ved første sectio uanset indikation fra juli 2018 – maj 2019 på Regionshospital Nordjylland tilbydes at deltage i projektet. Deltagerne randomiseres til kontrol eller intervention. Interventionsgruppen får en efterfødselssamtale i obstetrisk ambulatorium 3 mdr. efter fødslen. Kontrolgruppen får "nuværende standardtilbud" (behovsvis samtale med jordemoder). Til efterfødselssamtalen gennemgås årsag til kejsersnit, kvindens/parrets oplevelse af fødslen og der snakkes om en evt. kommende graviditet og fødsel og om, at de fleste kan føde vaginalt efter kejsersnit. Begge grupper får et spørgeskema 4 mdr. efter fødslen. Heri spørges bl.a til årsag til kejsersnit, evt. tidligere fødsler, oplevelse af kejsersnit, komplikationer, om de ønsker flere børn og hvilken fødselsmåde de vil foretrække i en evt. kommende graviditet.

Results
Ingen resultater endnu.

Conclusion
Outcome: At undersøge, om samtalen ændrer kvindens opfattelse af fødslen ved kejsersnit og ønske om fødselsmåde i en kommende graviditet.
Hypotese: Kvinder der gennemgår målrettet efterfødselssamtale får bearbejdet fødslen herunder indikation for sectio, så de er mere positivt indstillede for vaginal fødsel i næste graviditet.

Efterfødselssamtale efter kejsersnit – et randomiseret interventionsstudie

Sine Eeg Petersen (1. reservelæge), Diana Brøgger Jensen (reservelæge), Anya Eidhammer (overlæge), Louise Arenholt (afd.læge og PhD.stud)

Gynækologisk Obstetrisk afdeling, Regionshospital Nordjylland

Baggrund:

Hvis en kvinde en enkelt gang har født ved kejsersnit anbefales ofte vaginal fødsel næste gang hun skal føde.

Vaginal fødsel betragtes som den mest skånsomme fødselsmåde og der er derfor et ønske om, at så mange som muligt føder vaginalt efter et førstegangs kejsersnit. Ingen studier har undersøgt effekten af samtale kort tid efter kejsersnittet i forhold til ønsker til eventuel kommende graviditet og fødsel

Metode:

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At undersøge, om samtalen ændrer kvindens opfattelse af fødslen ved kejsersnit og ønske om fødselsmåde i en kommende graviditet.

Hypotesen:

Kvinder der gennemgår målrettet efterfødselssamtale får bearbejdet fødslen herunder indikation for kejsersnit, så de er mere positivt indstillede for vaginal fødsel i næste graviditet.

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23. The effects of High-Intensity Interval Training on Obesity-related Complications in Children

Theresa Stjernholm[1,2,3], Ryan Godsk Larsen[4], Jens-Christian Holm[5,6,7], Søren Hagstrøm[1,2,3,8]

1. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
2. Department of Clinical Medicine, Aalborg University, Denmark
3. Steno Diabetes Center North Denmark Region, Aalborg, Denmark
4. Department of Health Science and Technology, Aalborg University, Denmark
5. The Childrens Obesity Clinic, Department of Pediatrics, Copenhagen University Hospital, Holbaek, Denmark
6. Department of Clinical Medicine, University of Copenhagen, Denmark
7. The Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen, Denmark
8. Department of Pediatrics, Aalborg University Hospital, Denmark

Background
In Denmark, the prevalence of overweight among children is 15-20% and obesity is seen in as many as 5%. Complications to obesity are already seen in adolescence, numerous, and include among others prediabetes, dyslipidaemia, and fat accumulation in liver and muscles. High-Intesitive Interval Training seems not only effective in reducing weight and body fat in obese, it also appears to improve endothelial function, cardiac health and insulin sensitivity and blood pressure, but this has not yet been investigated in children with obesity. We will investigate the metabolic changes in children with obesity and the reversibility hereof via high-intensity interval training (HIIT) and lifestyle-intervention (The Children's Obesity Clinic Treatment, TCOCT)

Methods
Fifty children with obesity will be randomised to either 3 months of HIIT and TCOCT or TCOCT alone, followed by 9 months of TCOCT. We will obtain data on general physical activity level, duration and quality of sleep and heart rate, as well as measure anthropometrics and body composition before, during, and 3 and 12 month after HIIT. At baseline, after 3 months and 12 months, metabolic function will be evaluated by MR-images, blood sample analysis including extracellular vesicles, insulin and glucose, and urinary markers of oxidative stress.

Results
We expect that HIIT in combination with TCOCT improves all metabolic parameters more than TCOCT alone after 3 months of HIIT and that these changes are maintained 1 year after baseline

Conclusion
*

THE EFFECTS OF HIGH-INTENSITY INTERVAL TRAINING ON OBESITY-RELATED COMPLICATIONS IN CHILDREN

Theresa Stjernholm[1-2,8], Ryan Godsk Larsen[5], Jens-Christian Holm[4,6,7], Søren Hagstrøm[1-3,8]
[1]Centre for Clinical Research, North Denmark Regional Hospital, Hjørring. [2]Department of Clinical Medicine, Aalborg University, Aalborg, [3]Department of Pediatrics, Aalborg University Hospital, Aalborg. [4]The Childrens Obesity Clinic, Department of Pediatrics, Copenhagen University Hospital, Holbæk. [5]Department of Health Science and Technology, Aalborg University, Aalborg. [6]Department of Clinical Medicine, Copenhagen University, Copenhagen. [7]The Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen, Denmark. [8]Steno Diabetes Center Nordjylland, Aalborg, Denmark.

Background

In Denmark, the prevalence of overweight among children is 15-20% and obesity is seen in as many as 5%. Complications to obesity are already seen in adolescence, numerous, and include among others pre-diabetes, dyslipidaemia, and fat accumulation in liver and muscles. High-Intesitive Interval Training seems not only effective in reducing weight and body fat in obese, it also appears to improve endothelial function, cardiac health and insulin sensitivity and blood pressure, but this has not yet been investigated in children with obesity.

AIM

We will investigate the metabolic changes in children with obesity and the reversibility hereof via high-intensity interval training (HIIT) and lifestyle-intervention (The Children's Obesity Clinic Treatment, TCOCT)

Methods

Fifty children with obesity from around the North Denmark Region will be randomised to either 3 months of HIIT and TCOCT or TCOCT alone, followed by 9 months of TCOCT. We will obtain data on general physical activity level, duration and quality of sleep and heart rate, as well as measure anthropometrics and body composition before, during, and 3 and 12 month after HIIT. At baseline, after 3 months and 12 months, metabolic function will be evaluated by MR-images, blood sample analysis including extracellular vesicles, insulin and glucose, and urinary markers of oxidative stress.

Expected results

We expect that HIIT in combination with TCOCT improves all metabolic parameters more than TCOCT alone after 3 months of HIIT and that these changes are maintained 1 year after baseline.

NORTH DENMARK REGIONAL HOSPITAL

CKF | CENTRE FOR CLINICAL RESEARCH North Denmark Regional Hospital

AALBORG UNIVERSITY DENMARK

24. Which interdisciplinary and intersectional efforts can lift the quality of practice and reduce readmission of infants?

Tina Heilesen[1], Dorte Melgaard[2]

1. Clinic for Surgery, Women and Child diseases, Department of Obstetrics and Gynaecology, North Denmark Regional Hospital, Hjoerring, Denmark
2. Centre of Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark

Background
In 2016, the North Denmark Regional Hospital (RHN) had a readmission for infants of 4.0 % within 30 days compared to 2.4 % for the North Denmark Region and 1.9-2.7 % in the other regions of Denmark. Infants are readmitted due to dehydration, jaundice, malnutrition, problems with breastfeeding, low well-being and congenital sepsis. The practice today is the parents can call the Family and Maternity Department (FMD) with questions 24/7 until healthcare takes over, within 7 days. An interdisciplinary and intersectional group has been established. Audits are performed in order to improve practice. The study aims at improving the quality of the offer for families with infants. The purpose of the study is to clarify what the offer at RHN should contain. Furthermore, it shall address which families the offer should be aimed at to lower the readmission frequency and contribute to the wellbeing of the families.

Methods
The project will be carried out at RHN in autumn 2018. 8-10 parents with a readmitted infant will be interviewed, as well as 8-10 parents with an infant not readmitted. A group of nurses from FMD and Paediatric Department, midwifes, doctors and health visitors from the municipality will be interviewed. In addition, data with regard to causes for readmission as well as interventions are collected.

Results
The collected knowledge combined with literature will form the basis of a newly established offer. The first results will be presented at the Research Symposium.

Conclusion
*

Which interdisciplinary and intersectional efforts can lift the quality of practice and reduce readmission of infants?

Tina Heilesen, Registered nurse with a particular clinical function[1] • Dorte Melgaard, Research Coordinator, Ph.d.[2]

[1]Department of OB-GYN, Clinic of Surgery, Women and Children, North Denmark Regional Hospital (email: tihe@rn.dk)
[2]Center of Clinical Research, North Denmark Regional Hospital

Background

In 2016, the North Denmark Regional Hospital (RHN) had a readmission for infants of 4.0 % within 30 days compared to 2.4 % for the North Denmark Region and 1.9-2.7 % in the other regions of Denmark. Infants are readmitted due to dehydration, jaundice, malnutrition, problems with breastfeeding, low well-being and congenital sepsis.

The practice today is the parents can call the Family and Maternity Department (FMD) with questions 24/7 until healthcare takes over, within 7 days.

An interdisciplinary and intersectional group has been established. Audits are performed in order to improve practice.

The study aims at improving the quality of the offer for families with infants. The purpose of the study is to clarify what the offer at RHN should contain. Furthermore, it shall address which families the offer should be aimed at to lower the readmission frequency and contribute to the wellbeing of the families.

Method

A qualitative study
The project will be carried out at RHN, in autumn 2018.

8-10 parents with a readmitted infant will be interviewed, as well as 8-10 parents with an infant not readmitted.

A group of nurses from FMD and Paediatric Department, midwifes, doctors and health visitors from the municipality will be interviewed.

In addition, data with regard to causes for readmission as well as interventions are collected.

Results

The collected knowledge combined with literature will form the basis of a newly established offer.

Conclusion

The study is in its beginning therefore there are no conclusions yet.

The study aims at improving the quality of the offer for families with infants. The purpose is to lower the readmission at RHN and to contribute to the well-being of the family by avoiding a readmission and its subsequent emotional impact.

NORTH DENMARK REGIONAL HOSPITAL

RHN/MH/0918

25. Is obesity, incontinence and nocturia associated? Results from a study on 4002 children and 2801 adolescents

Tine Caroc Warner[1,2], Ronni Jacobsen[3], Ulrik Baandrup[1,2], Henrik Bøggild[4], Patrick Simon Aunsholt Østergaard[3], Søren Hagstrøm[1,2,3]

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2. Department of Clinical Medicine, Aalborg University, Denmark
3. Department of Pediatrics, Aalborg University Hospital, Denmark
4. Public Health and Epidemiology Group, Health Science and Technology, Aalborg University, Denmark

Background
Fecal and urinary incontinence are common childhood disorders. Simultaneously obesity is increasingly common. A possible relation between obesity and incontinence has been suggested. The aim of this study was to determine if obesity is associated with fecal incontinence (FI), daytime urinary incontinence (DUI), Enuresis (NE) and nocturia in children at school entrance and in adolescents.

Methods
Children in first grade and sixth to eighth grade were interviewed by their school nurse. Completed questionnaires was returned from 4002(95.1%) in the child population and 2801(84.4%) in the adolescent population. Questionnaires included information on age, height, weight and four simple questions on FI, DUI, NE and nocturia.

Results
Mean age in childrens population was 6.45±0.39 years, 4.4% boys and 4.3% girls were obese. Overall 11.2% had FI, 21.8% had daytime wetting, 16.8% had enuresis and 31.4% had nocturia. Obesity (BMI SDS>2) was related to fecal incontinence in boys (OR1.86), compared to normal weight. Mean age in adolescents was 13.9±0.85 years. In adolescents obesity was present in 7.6% boys and in 5.5% girls. Overall 2.1% had FI, 4.5% had daytime wetting, 1.0% had enuresis and 32.3% had nocturia. Obesity was significantly associated to nocturia in adolescents, (OR1.74-2.01).

Conclusion
The study finds obesity to be associated with FI in 6- to 7-year old boys and nocturia in adolescents.

Is obesity, incontinence and nocturia associated? Results from a study on 4002 children and 2801 adolescents

T. C. Warner[1],R.B. Jacobsen[2], U. T. Baandrup[1], H. Bøggild[3], P.S.A. Østergaard[2], S. Hagstroem[2]
[1]Center of Clinical Research, North Denmark Regional Hospital
[2]Department of Pediatrics, Aalborg University Hospital, Denmark
[3]Public Health and Epidemiology Group, Health Science and Technology, Aalborg University, Denmark

Background: Enuresis and daytime urinary incontinence (DUI) are common disorders in young children. Simultaneous overweight and obesity are increasingly common among children. A possible association between obesity and child incontinence has been suggested[1-4], mainly due to numerous comorbidities in obese that has also been associated with incontinence in children. Among these; disturbed sleep, hypertension, constipation and higher intravesical pressure of the bladder. The aim of this study was to determine the prevalence of incontinence in children at school entrance and in 7th-8th grade adolescents and to elucidate if obesity is associated to fecal incontinence (FI), DUI, enuresis or nocturia in children and adolescents.

Obesity:	
Denmark	15-20% of Danish children are at school entrance overweight or obese -Prevalence rises with age. About 50% of the adult population is overweight or obese
Complications	Known complications to obesity in children, with possible relation to incontinense • Obstructive sleep apnea • Higher blood pressure • Glomerulosclerosis • Excess stress on bladder • Constipation

Enuresis:	
Prevalence	10% of all 7-year olds
Cure rate	15% are spontaneously cured /year
Disease prognosis	1-3% of all adults suffer from enuresis
Patophysiology	Mismatch between bladder capacity and urine production at night[4]
Complications	Associated to low "Quality of life –score", low self-confidence and self-esteem

FI and DUI: Existing prevalences are more inconsistent, ranging from 0,8%-7,8% having FI, and 2-12% having DUI.

Methods: Eight of eleven municipalities in North Jutland participated in the study in first round and 6 of 11 in the second round. Children in first grade and sixth-eighth grade were interviewed by their school nurse. Questionnaires included information on age, height, weight and four simple questions on FI, DUI, NE and nocturia.

- Exact age
- BMI[5] (adjusted for age and gender)
- Four questions on incontinence and nocturia. Questions were designed from the existing criterias for incontinence[6]

Questions:

Have you had accidents with feces / soiling in your pants within the last month ?	Yes_____ No_____
Have you had accidents with drip pnts/wetting your pants within the last month?	Yes_____ No_____
Have you wet the bed within the last month?	Yes_____ No_____
Do you wake up at night by urge to go to the toilet to pee, once or more per month ?	Yes_____ No_____

Results:
Completed questionnaires were returned from 4002 (95.1%) in the child population and 2801 (84.4%) in the adolescent population.
Mean age of children was 6.49±0.41 years in boys, and for girls 6.40±0.37 years. In boys 4.4% were obese and in girls 4.3% were obese. Overall 11.2% reported FI, 21.8% daytime urinary incontinence, 16.8% enuresis, and 31.4% had nocturia. Obesity (BMI SDS>2) was associated with fecal incontinence in boys (OR 1.86 compared to normal weight).
Mean age of adolescent boys was 14.00±0.85 years, and in girls 13.8±0.84 years. 7.6% boys and 5.5% girls were obese. Overall 2.1% had FI, 4.5% had daytime wetting, 1.0% had enuresis and 32.3% had nocturia. Obesity was significantly associated with nocturia in adolescents (OR 1.74-2.01)

	Children	Adolescents
Age	6.45±0.39	13.90±0.85
BMI-SDS Normal	79.5%	74.5%
Overweight	14.1%	17.0%
Obese	4.4%	6.5%

Child population	Adolescent population	
Obesity and Fecal Incontinence (FI)	**Obesity and Nocturia**	
Boys	Boys	Girls
OR: 1.56 (95%CI: 1.00-2.46)	OR: 1.74 (95%CI: 1.17-2.60)	OR: 2.01 (95%CI: 1.25-3.23)

	Child population		Adolescent population	
Obesity and	Girls	Boys	Girls	Boys
Daytime incontinence	NS OR 1.27 CI: 0.76-2.13	NS OR 1.03 CI: 0.62-1.70	NS OR 1.44 CI 0.60-3.45	NS OR 1.92 CI 0.78-4.72
Enuresis	NS OR 1.26 CI: 0.67-2.37	NS 1.18 CI: 0.72-1.93	NS OR 1.74 CI: 0.21-14.08	NS OR 1.84 CI: 0.53-6.41

Discussion:
Obesity was only found significantly associated with FI in male children and with nocturia in adolescents. The latter may be explained by nocturnal polyuria as a result of the obesity. Due to low prevalence of obesity among children and low prevalence of FI, DUI and enuresis among adolescents, a relation between these entities cannot be completely ruled out, but obesity seems not to be a key cause of these symptoms.

Conclusion:
Obesity is associated with fecal incontinence in young boys and nocturia in adolescents. No association was found between obesity and daytime urinary incontinence or enuresis.

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REGIONSHOSPITAL NORDJYLLAND – i gode hænder

Tine Caroc Warner
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AALBORG UNIVERSITY DENMARK

Gastroenterologi, Ernæring og Dysfagi

26. Spiserør – En undersøgelse af patienter med spiserørsbetændelse

Anne Lund Krarup[1]

1. Neurogastroenterologisk Forskningsafdeling, Klinik medicin, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

Eosinofil øsofagitis (EoE) også kaldet allergisk spiserørsbetændelse er en nyopdaget immunsygdom, der giver synkebesvær, synkestop og i værste tilfælde invaliderende komplikationer. Sygdommen er ny med første voksne patient beskrevet i 1993, men siden da har EoE spredt sig med alarmerende hastighed over de seneste 20 år og rammer nu ca. 1 ud af 1000. Projektets formål er at samle alle patienter med EoE i Region Nordjylland fundet i patologiregistret mellem 2007-2018 i en kohorte.

Metode

Til kohortens database indhentes detaljeret information om kliniske forløb, patologi og selvrapporterede symptomer, livskvalitet og sociale forhold. Dette kombineres med information fra sundhedsregistre. Formålet med projektet er at undersøge om opvækst i by, ift. opvækst på landet, giver større risiko for udvikling af EoE, måle antallet af EoE patienter med komplikationer og beskrive deres kliniske forløb i sammenligning med ukomplicerede patienter, måle om risikoen for komplikationer er højere hos patienter, hvor udredning og behandling ikke lever op til de nationale guidelines eller som samtidig har en anden immunsygdom samt at samle alle EoE patienter i Region Nordjylland i en database, monitorere komplikationerne i 20 år.

Resultater

Resultaterne forventes at bidrage væsentligt til forebyggelse af sygdommen og dens komplikationer. Projektet ledes af afdelingslæge Anne Lund Krarup, Gastroenterolog, ph.d., klinisk lektor ved Aalborg Universitet. Der samarbejdes med Klinisk Forskning og Forebyggelsesenhed, Region Hovedstaden. Resultaterne vil blive fremlagt på konferencer og publiceret i internationale tidsskrifter samt i aviser og evt. elektroniske medier. Det videnskabelige arbejde forventes at blive 4-5 artikler samt en ph.d-afhandling.

Konklusion

*

Projekt Spiserør

- En undersøgelse af patienter med spiserørsbetændelse

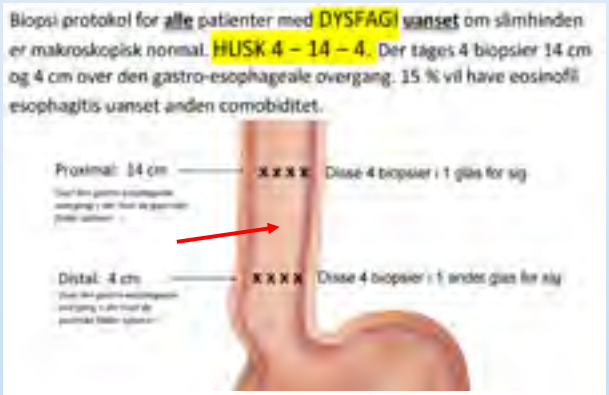
Anne Lund Krarup, Neurogastroenterologisk Forskningsafdeling, Klinik Medicin, Regionshospital Nordjylland (Gastroforskning@rn.dk)

Patienter med allergisk spiserørsbetændelse har ofte mange gener og nedsat livskvalitet. Da sygdommen først blev fundet hos voksne fra 1993, ved vi ikke så meget om, hvordan det går patienterne eller hvordan det er at leve med sygdommen.

I Region Nordjylland (RN) fandt vi ikke patienterne før vi lavede en fælles strategi med at lede efter dem både kirurger, mave/tarm medicinere og øre-næse-halslæger.

Kodeordet var vævsprøver nok!

Vi begyndte at tage 8 vævsprøver fra spiserøret (rød pil) hos alle patienter med synkebesvær (dysfagi). Også selvom synkebesværet kun kom engang imellem. Plakaten i figur 1 blev hængt op alle steder i regionen, hvor patienterne blev undersøgt med kikkertundersøgelse



Figur 1. Plakat ophængt i alle rum hvor der laves kikkertundersøgelse i RN

Figur 2. Antallet af patienter fundet per år

Så myldrede patienterne frem. I figur 2 ses hvor mange patienter vi har fundet årligt. Vi begyndte at lede efter patienterne i 2011 (grøn pil).

I Projekt Spiserør gennemgås for alle patienterne: Sygehistorierne, vævsprøvesvar, medicinrecepter og diagnoser

Derudover sendes der spørgeskemaer elektronisk til alle patienterne om: Symptomer, medicinadfærd og livskvalitet

Projekt Spiserør kortlægger på denne måde mange aspekter af livet som patient med spiserørsbetændelse. Både det patienterne oplever og alle de medicinske og kirurgiske forløb, så vi får en bedre forståelse af sygdommen og dens komplikationer.

27. Evaluation of the prevalence of screening for dysphagia among hospitalized, older people

Dorte Melgaard[1], Signe Westmark[1], David Smithard[2]

1. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
2. Queen Elizabeth Hospital, Lewisham and Greenwich NHS Trust United Kingdom

Background
Respiratory disease is a common reason for hospital admission for older people. Aspiration of saliva, which is probably infected, is the likely etiological agent. The presence of an abnormal swallow has been found to be high in frail older people. Despite the high incidence of swallow problems amongst older people, many hospital services do not routinely screen older people for dysphagia.

Methods
A survey, using a web-based tool, was emailed to contacts working in hospitals. They were asked 1) Type of hospital? 2) Does your hospital screen older (>80) people for swallowing difficulties? 3) Are nursing staff and medical staff trained to administer a swallow screen? 4) Is a swallowing rehabilitation programme offered to older people? 5) Which rehabilitation programme is offered and used?

Results
135 people responded from 25 countries. 74.1% work in acute hospital, 16.3% in rehab and 9.6% in community hospital. 63.7% responded that they do not or only occasionally screen older people for dysphagia; 48.9% of the medical staff and 28.1% of the nurses were not trained to administer a swallow screen. 62.2% offered a rehabilitation swallowing programme, with chin tuck (84.3%), Shaker manoeuvre (80.7%), and tongue strengthening (88.0%) being more common than neuromuscular electrical stimulation (24.1%).

Conclusion
This study suggest that many health facilities are not routinely screening older people for swallowing problems, and the majority do not train their staff. The majority of facilities were offering a rehabilitation programme. In addition, it is likely that many people are not receiving appropriate proactive intervention.

Evaluation of the prevalence of screening for dysphagia among the hospitalised, older people

Melgaard, D.[1] • Westmark, S.[1] • Smithard, D.[3]

[1]Center for Clinical Research, North Denmark Regional Denmark • [2]Queen Elizabeth Hospital, Lewisham and Greenwich NHS Trust United Kingdom

Introduction

As the world's population ages, so the number of old and frail people increases. Respiratory disease is a common reason for hospital admission for older people. Aspiration of saliva, which is probably infected, is the likely aetiological agent. The presence of an abnormal swallow has been found to be high in frail older people admitted to hospital.

Despite the high incidence of swallow problems and aspiration pneumonia amongst older people, many hospital services do not routinely screen older people for dysphagia.

Material & Methods

A survey, using a web-based tool, was emailed to contacts working in hospitals.

They were asked

1. Type of hospital?
2. Does your hospital screen older (>80) people for swallowing difficulties?
3. Are nursing staff and medical staff trained to administer a swallow screen?
4. Is a swallowing rehabilitation programme offered to older people?
5. Which rehabilitation programme is offered and used?

Results

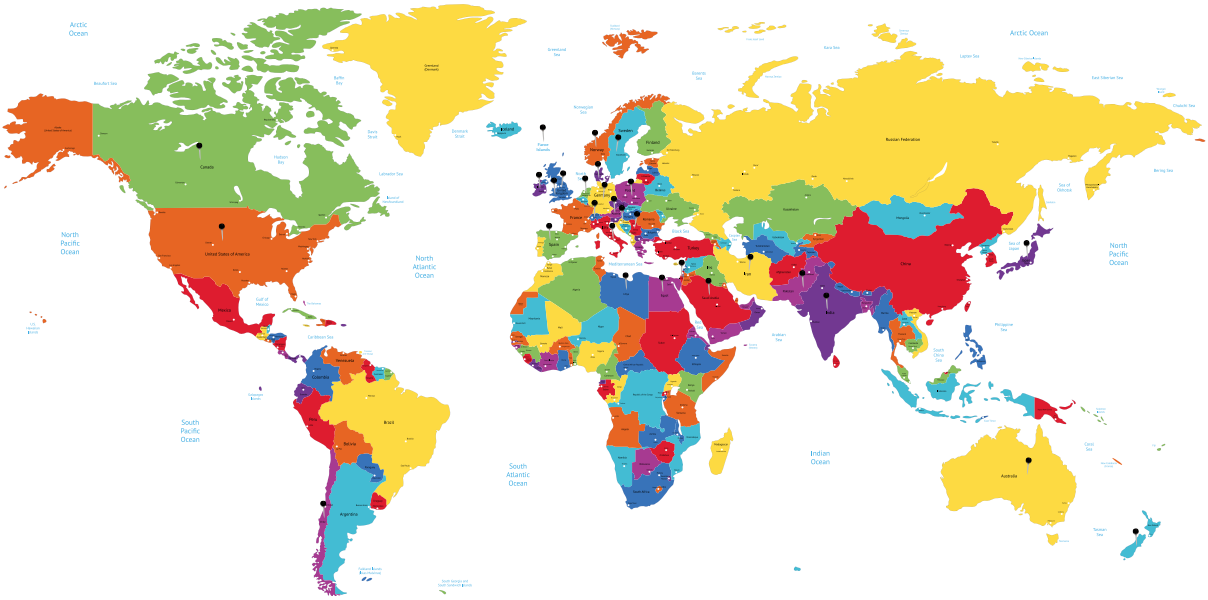
154 people responded from 25 countries. 75.3% work in acute hospital, 14.9% in rehab and 9.7% in community hospital.

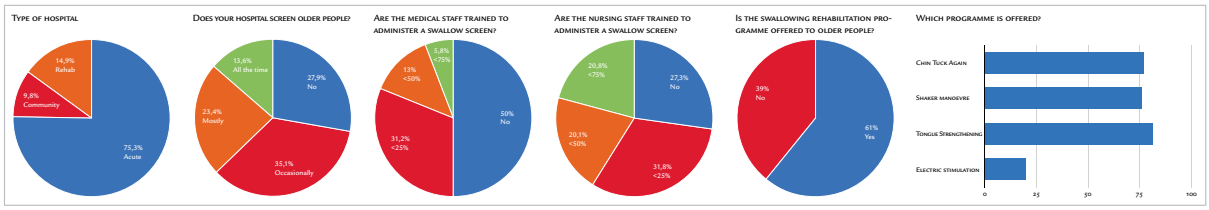
63.0% responded that they do not or only occasionally screen older people for dysphagia; 50.0% of the medical staff and 27.3% of the nurses were not trained to administer a swallow screen. The majority offered a rehabilitation swallowing programme (61.0%) with chin tuck (82.8%), Shaker manoeuvre (78.5%), and tongue strengthening (87.1%) being much more common than neuromuscular electrical stimulation (21.5%).

Conclusions

The results of this study suggest that many health facilities are not routinely screening older people for swallowing problems, and the majority do not train their staff. The majority of facilities were offering a rehabilitation programme, but 37.8% were not.

In addition, it is likely that many people are not receiving appropriate proactive intervention because swallowing problems are not being proactively sought.





NORTH DENMARK REGIONAL HOSPITAL

28. Dietary intervention in patients with Ulcerative Colitis and Irritable Bowel Syndrome – a randomized, placebo controlled, double blinded study

Jeanette Sørensen[1,2,3,4], Peter Derek Christian Leutscher[2,4], Dorte Melgaard[2], Suzette Sørensen[2,4], Peter Hindersson[4], Tine Ovesen[5], Jeanette Ejstrup[1], Lina Fonseca Christensen[1], Mette Borre[6], Kathrine Lauritzen[2], Lena Brahe[7], Anne L. Krarup[1,8]

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6. Clinic for Woman- and Child Diseases and Urology, The North Denmark Regional Hospital, Denmark
7. Department of Gastroenterology & Hepatology, Aarhus University Hospital, Denmark
8. Novo Nordisk, Denmark

Background
Ulcerative Colitis is a chronic inflammatory bowel disease which is characterized by periods of remission and periods of flares with rectal bleeding, abdominal pain and diarrhea. Patients in remission often experience abdominal symptoms similar to those in Irritable Bowel Syndrome that affects quality of life. Studies have suggested a diet low in fermentable carbohydrates (low FODMAP) can have a beneficial effect in the treatment of Irritable Bowel Syndrome and also in Irritable Bowel Syndrome with comorbid Ulcerative Colitis patients. Unfortunately these studies are biased by lack of randomization, placebo diet or blinding. Furthermore patients with Irritable Bowel Syndrome have shown altered microbiota in the gut leading to the assumption that the microbiota plays a significant role in developing Irritable Bowel Syndrome.

Methods
The study is a randomized double-blinded placebo controlled crossover study with eight weeks of intervention. A schematic timeline of the design is shown in Figure 1. Participants are randomized upon inclusion into three groups. The intervention groups are given dietary introduction in the low FODMAP diet and will follow this diet throughout the following eight weeks. After a two-week run-in period on the diet a food supplement added either low FODMAP (true low FODMAP arm) or FODMAPs (equivalent to a standard Danish diet, Danish diet arm). This is followed by a two-week washout period and the participants will hereafter be crossed over. During the study the participants will complete questionnaires and stool samples collected for microbiome analysis. A total of 45 participants will be included and inclusion has started July 2018 and are expected to end in spring 2019.

Results
*

Conclusion
*

Dietary intervention in patients with Ulcerative Colitis and Irritable Bowel Syndrome
- A randomized, placebo controlled, double blinded study

Jeanette Sørensen[1,2,3,4], Peter Leutscher[2,4], Dorte Meldgaard[2], Suzette Sørensen[2,4], Peter Hindersson[5], Tine Ovesen[6], Jeanette Ejstrup[1], Lina Fonseca Christensen[1], Mette Borre[7], Kathrine Lauritzen[2], Lena Brahe[8] Anne L. Krarup[1,3,4]

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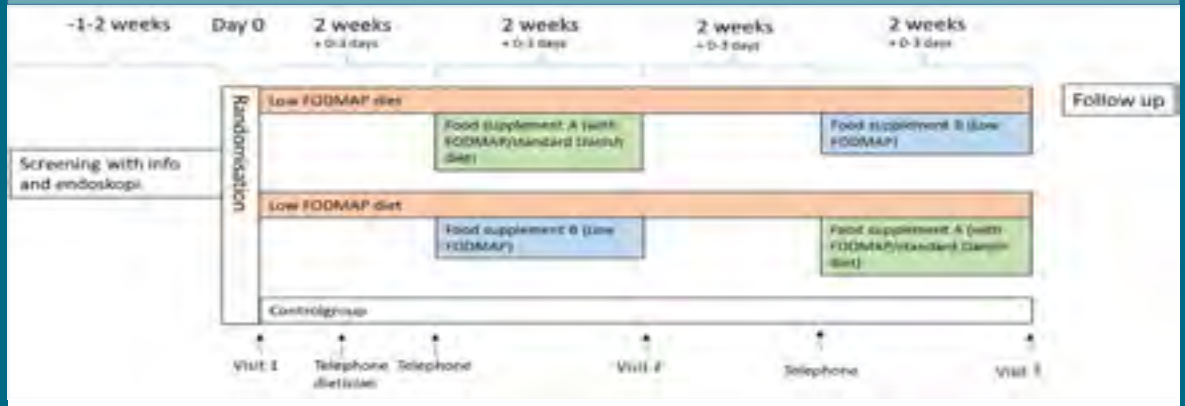
Introduction

Ulcerative Colitis is a chronic inflammatory bowel disease with a prevalence of 16,5-19,5/100000 in Scandinavia. It is characterized by periods of remission and periods of flares with rectal bleeding, abdominal pain and diarrhoea. Patients in remission often experience abdominal symptoms similar to those in Irritable Bowel Syndrome. Irritable bowel syndrome affects quality of life including an increase in anxiety, stress, depression, general body symptoms and possibly negatively influencing sexual functioning.
Studies have suggested a diet low in fermentable carbohydrates (low FODMAP) can have a beneficial effect in the treatment of Irritable Bowel Syndrome and also in Irritable Bowel Syndrome with comorbid Ulcerative Colitis patients. Unfortunately these studies are biased by lack of randomization, placebo diet or blinding.
Patients with Irritable Bowel Syndrome have shown altered microbiota in the gut leading to the assumption that the microbiota plays a significant role in developing Irritable Bowel Syndrome.

Methods

The study is a randomized double-blinded placebo controlled crossover study with eight weeks of intervention. A schematic timeline of the design is shown in Figure 1.
Participants are randomized upon inclusion into three groups. The intervention groups are given dietary introduction in the low FODMAP diet and will follow this diet throughout the following eight weeks. After a two-week run-in period on the diet a food supplement added either low FODMAP (true low FODMAP arm) or FODMAPs (equivalent to a standard Danish diet, Danish diet arm). This is followed by a two-week wash-out period and the participants will hereafter be crossed over. During the study the participants will complete questionnaires and stool samples collected for microbiome analysis.
A total of 45 participants will be included and inclusion has started July 2018 and are expected to end in spring 2019.

Fig. 1 - Study design



FODMAP: fermentable oligo-, di-, monosaccharides and polyols.

Aims

To measure the effect of a low-FODMAP on:
- gastrointestinal symptoms
- quality of life
- sexual dysfunction
- microbiome

in patients with Ulcerative Colitis and comorbid Irritable Bowel Syndrome.

F – Fermentable
O – Oligo-
D – Di-
M– Monosaccharides
A – And
P – Polyols

29. Vegansk energitæt proteindrik til patienter med KOL – undersøgelse af den sensoriske oplevelse

Nina Peilicke[1], Dorte Melgaard[2]

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2. Center for Klinisk Forskning, Regionshospital Nordjylland, Hjørring, Danmark

Baggrund

Forekomsten af underernæring antages at være 20-50% hos patienter med KOL. Undersøgelser har vist, at vægttab øger risikoen for mortalitet, samt at underernæring øger risikoen for genindlæggelser. Patienter, der har KOL, betegnes som underernærede, hvis deres BMI er <18,5. Studier har vist, at en fokuseret ernæringsindsats suppleret med ernæringsdrikke til underernærede KOL patienter kan medføre en signifikant vægtstigning. Udvalget af kommercielle produceret ernæringsdrikke er ofte mælkebaseret, hvilket gør dem cremet i konsistensen, men også fed i smagen. Svækkede patienter med nedsat appetit oplever ofte disse drikke som kvalmende. Formålet med dette projekt er at udvikle en vegansk saftbaseret energitæt proteindrik. I dette projekt undersøges KOL patienters sensoriske oplevelse af en smagsvariant, der har udgangspunkt i en frisk-syrlig smag.

Metode

Udviklingsprojektet vil følge Plan, Do, Check, Act cirklen (PDCA) og bliver gennemført I periode august 2018 til februar 2019 med 10 patienter der har KOL og er i ambulante forløb på Regionshospital Nordjylland. Der udføres en sensorisk test ud fra Klosses sensoriske Model der bygger på 6 kulinariske succesfaktor: navn og præsentation, dufte, umami, tekstur samt balance af og rigdom på smag.

Resultater

De første resultater præsenteres til Forskningssymposiet.

Konklusion

*

VEGANSK ENERGITÆT PROTEINDRIK TIL PATIENTER MED KOL

- UNDERSØGELSE AF DEN SENSORISKE OPLEVELSE

Nina Peilicke, Udviklingskøkkenet, Regionshospital Nordjylland
Dorte Melgaard Kristiansen, Center for Klinisk Forskning, Regionshospital Nordjylland

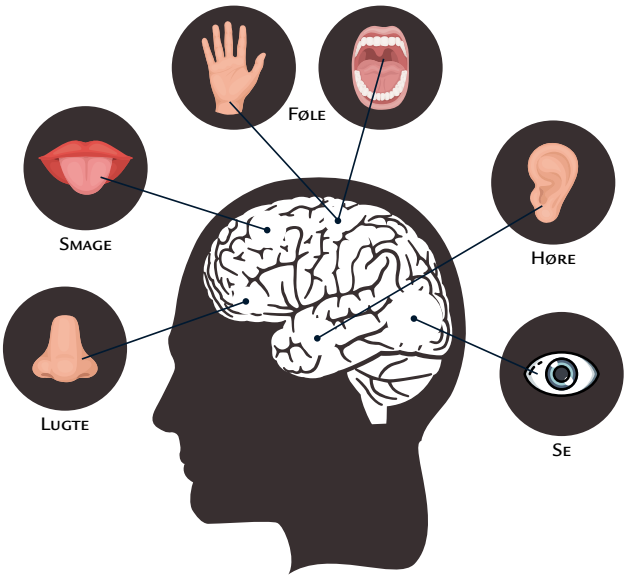
Baggrund

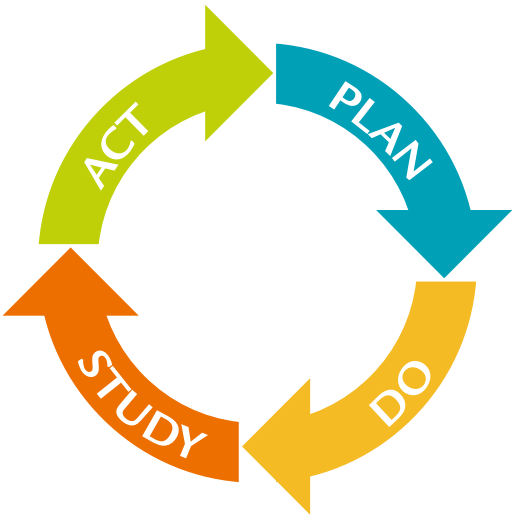
Forekomsten af underernæring antages at være 20-50% hos patienter med KOL. Undersøgelser har vist, at vægttab øger risikoen for mortalitet, samt at underernæring øger risikoen for genindlæggelser.

Patienter, der har KOL, betegnes som underernærede, hvis deres BMI er <18,5. Studier har vist, at en fokuseret ernæringsindsats suppleret med ernæringsdrikke til underernærede KOL-patienter kan medføre en signifikant vægtstigning.

Udvalget af kommercielle producerede ernæringsdrikke er ofte mælkebaseret, hvilket gør dem cremet i konsistensen men også fed i smagen. Svækkede patienter med nedsat appetit oplever ofte disse drikke som kvalmende.

Formålet med dette projekt er at udvikle en vegansk saftbaseret energitæt proteindrik. I dette projekt undersøges KOL-patienters sensoriske oplevelse af en smagsvariant, der har udgangspunkt i en frisk-syrlig smag.





Metode

Udviklingsprojektet vil følge Plan, Do, Check, Act cirklen (PDCA) og bliver gennemført i perioden august 2018 til februar 2019.

Der udføres en sensorisk test ud fra Klosses sensoriske model, der bygger på 6 kulinariske succesfaktorer: Navn og præsentation, dufte, umami, tekstur samt balance af og rigdom på smag.

REGIONSHOSPITAL NORDJYLLAND
– i gode hænder

RHN/NH/1018

Det humane Mikrobiom

30. Comparison of the vaginal, urinary and gut microbiota on a genus level in pre- and postmenopausal women

Benedikt Bau[1], Nadia Ammitzbøll[2,3], Caspar Bundgaard-Nielsen[2,3], Peter Derek Christian Leutscher[2,3], Karin Glavind[3,4], Suzette Sørensen[2,3], Louise Thomsen Schmidt Arenholt[1,2,3]

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Denmark
4. Department of Obstetrics and Gynecology, Aalborg University Hospital, Denmark

Background
The description and the relationship between the urinary, vaginal and gut microbiota in healthy women is crucial in order to do microbiota research in not healthy women. To our knowledge, this is the first study comparing the bacterial composition of the three anatomic compartments (bladder, vagina and gut) in one cohort of healthy premenopausal and postmenopausal women.

Methods
The bacterial DNA in urine, feces and vagina of 41 premenopausal and 42 postmenopausal women was analyzed using culture-independent methods (16S rRNA gene sequencing). The overall data of the three compartments was compared regarding bacterial richness, diversity and composition.

Results
The three compartments differed significantly in bacterial richness and diversity in premenopausal women. However, there was no significant difference between the urinary and vaginal diversity in postmenopausal women. The bacterial richness and diversity of the gut microbiota was significantly different in pre- and postmenopausal women compared to the two other compartments. The vaginal and urinary microbiota showed very similar characteristics on a genus level within the pre- and postmenopausal group despite a different composition after menopause.

Conclusion
This study provides further evidence for the hypothesis of a common urogenital microbiota. before and after menopause, but some bacteria are found in all three compartments suggesting a shared colonization of some genera due to the close anatomic relation. Further studies need to include species and strains. Furthermore, an individual approach to the three sites in each patient is necessary rather than an overall view, as this study suggests a large variety of individual compositions without pathological relevance.

Female urinary, vaginal, and gut microbiota – a comparison of the three compartments.

Benedikt PJ Bau[3], Nadia Ammitzbøll[1,2], Caspar Bundgaard-Nielsen[1,2], Peter Leutscher[1,2], Karin Glavind[2,4], Suzette Sørensen[1,2], Louise TS Arenholt[1,2,3]

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[3]Department of Gynecology and Obstetrics, North Denmark Regional Hospital, Denmark [4]Department of Obstetrics and Gynecology, Aalborg University Hospital, Denmark

Background

The human body consists of billions of cells, but only 25 % of these cells are of human origin. Apart from these cells, the human body is home to a vast quantity of viruses, fungi and bacteria, termed the microbiota. Especially the bacterial communities of the body have an important role in maintaining health, whereas changes in the bacterial composition has been linked to diseases. Research has mainly focused on describing the gut microbiota. Only a few studies have investigated the microbiota of the vagina and the bladder. These studies suggested a similar microbiota in the two compartments. The rectum, the vagina and the bladder are anatomically closely related, and our aim was to compare the microbiota of the three anatomical compartments in healthy women to investigate, if similar microbiota was present. By describing the association between the bacteria in the three compartments, our understanding on how and why a specific microbiota is developed, enhances. The aim of our study was to compare the microbiota of the bladder, the vagina and the gut in healthy women with special references to the menopausal status.

Methods

The bacterial DNA in feces, vaginal flour and urine of 41 premenopausal and 42 postmenopausal women was analyzed using culture-independent methods (16S rRNA gene sequencing). Differences in bacterial richness and diversity between the three anatomical compartments were evaluated using operational taxonomic unit (OTU) richness and Shannon Diversity Index, while composition of bacterial genera were analyzed using principal component analysis (PCA).

Results

Due to low bacterial DNA count, only 54 women were enrolled (34 premenopausal and 20 postmenopausal) in the final analysis. In both, pre- and postmenopausal women, the bacterial richness and diversity of the fecal, vaginal and urinary microbiota were significantly different (data not shown). The vaginal and urinary microbiota generally showed very similar characteristics in both the pre- and postmenopausal group, whereas the fecal microbiota was different (Fig. 1A and 1C). Regarding the bacterial composition, comparable genera and abundances were found in the vagina flour and urine. The composition of the gut was characterized by bacterial genera, which were underrepresented or absent in the urogenital compartment and vice versa which applied for both groups (Fig. 1B and 1D).

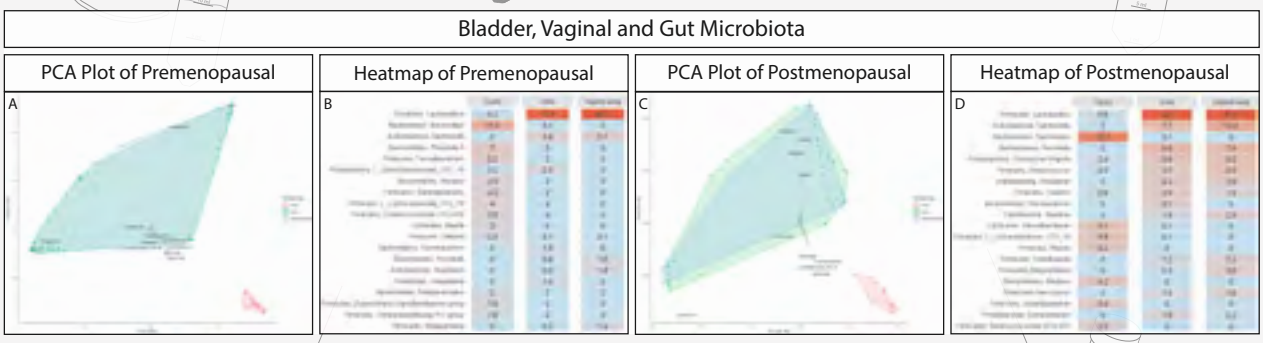

*Fig. 1: Beta-diversity of pre- and postmenopausal women. **A** and **C**: PCA Plot and bacterial composition with abundances among the 20 most abundant genera found in premenopausal women. **B** and **D**: PCA Plot and bacterial composition with abundances among the 20 most abundant genera found in postmenopausal women.*

Conclusion

This study provides further evidence for the hypothesis of a common urogenital microbiota despite a significantly different richness and diversity in premenopausal women. Some bacteria are found in all three compartments, suggesting a shared colonization of some genera due to the close anatomic relation. It is noteworthy, that the bacterial diversity and richness of the vagina is lower than in the bladder, an organ which was until recently assumed to be sterile.

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31. Short Time Changes in the Female Urinary Microbiota

Benedikt Bau[1], Nadia Ammitzbøll[2,3], Caspar Bundgaard-Nielsen[2,3], Peter Derek Christian Leutscher[2,3], Karin Glavind[3,4], Suzette Sørensen[2,3], Louise Thomsen Schmidt Arenholt[1,2,3]

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4. Department of Obstetrics and Gynecology, Aalborg University Hospital, Denmark

Background
Analogous to other microbiota niches, the female urinary microbiota (FUM) seems to be individual and there might not exist a "normal" composition. No research has been done on changes of the FUM. Studies on the vaginal microbiome suggest a markedly change over a short period of time in some individuals.

Methods
The bacterial DNA in urine of 7 premenopausal and 3 postmenopausal women was analyzed on a genus level using culture-independent methods (16S rRNA gene sequencing) at two visits. Time between the two samples was 1 month (mean 31.1 days (±1.3)). The overall data was compared regarding diversity and richness. Moreover, the individual values of bacterial richness, diversity and the bacterial composition at the two time-points were compared.

Results
Preliminary data suggests no significant change in bacterial richness, diversity and bacterial composition on an individual level at the two time points. However, there seems to be minor changes in the abundance of the dominant genus and less abundant bacteria vanished or emerged.

Conclusion
Our preliminary findings suggest a stable FUM with no substantial changes over 1 month. However, this study is limited due to the small number of patients. Further studies in regard to the menstrual cycle, contraception and other factors are needed to examine the extent of stability over a longer period in a larger number of healthy patients.

Short Time Changes in the Female Urinary Microbiota

Benedikt PJ Bau[3], Nadia Ammitzbøll[1,2], Caspar Bundgaard-Nielsen[1,2], Peter Leutscher[1,2], Karin Glavind[2,4], Suzette Sørensen[1,2], Louise TS Arenholt[1,2,3]

[1]Centre for Clinical Research, North Denmark Regional Hospital, Denmark [2]Department of Clinical Medicine, Aalborg University, Denmark
[3]Department of Gynecology and Obstetrics, North Denmark Regional Hospital, Denmark [4]Department of Obstetrics and Gynecology, Aalborg University Hospital, Denmark

Background

Analogous to other microbiota niches, the female urinary microbiota (FUM) seems to be individual and there might not exist a "normal" composition. No research has been done on changes of the individual FUM over time. Studies on the anatomical related vaginal microbiota suggest a markedly change over a short period of time in some individuals.

Methods

The bacterial DNA in urine from 10 premenopausal and 9 postmenopausal women was analyzed on a genus level using culture-independent methods (16S rRNA gene sequencing) at two visits. Time between the two samples was 1 month. The diversity and richness of all samples were compared using operational taxonomic unit (OTU) richness and Shannon Diversity Index. Moreover, the intrapersonal bacterial compositions at the two time-points were compared using principal component analysis (PCA).

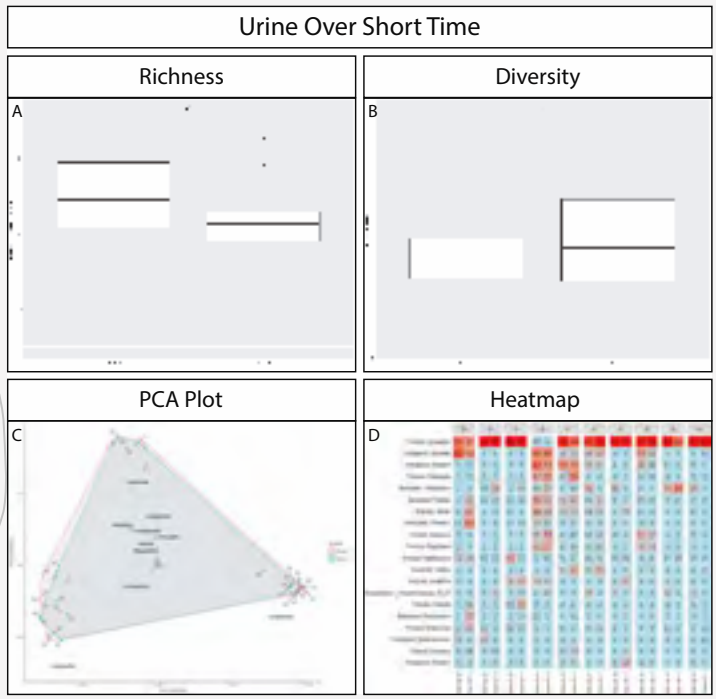

*Fig 1: Alpha and beta-diversity over time. **A** and **B**: Overall Alpha-diversity at both time points. **C**: PCA Plot figuring all analyses. **D**: Bacterial composition at two time points. Premenopausal participants with ID numbers 04, 18, 47, 57, 58, 59, and 60. Postmenopausal participants with ID number: 36, 38, and 53. NS = not significant*

Results

Due to low DNA count in some of the samples, only 7 premenopausal and 3 postmenopausal women were enrolled in the final analysis. Mean time between the two samples was 31.1 days (±1.3). Data showed no significant change in overall bacterial richness nor diversity at the two time points (Fig. 1A and 1B). In 6 participants no remarkable changes in abundance and composition was observed. In 2 premenopausal women, the composition of the dominant genus (>50% abundance) was decreased a month later, but still was the most abundant genus. In 1 premenopausal woman the dominating genus, *Gardnerella*, was replaced by *Lactobacillus*, while in 1 postmenopausal woman the most abundant, but not dominating genus, *Atopobium*, switched to *Gardnerella* (Fig. 1D).

Conclusion

Our preliminary findings suggest individual characteristics regarding temporary changes in urinary microbiota. While in some women, the FUM stayed stable, others showed changes. No women had a bladder infection or received antibiotics between the two samples, but information on other factors affecting the FUM during that month was not collected. The difference in FUM stability over time can therefore not be evaluated. Nevertheless, these results show, that the FUM, like the vaginal microbiota, is a dynamic system. This study is limited due to the small number of women. Further studies in regard to the menstrual cycle, contraception, and other factors are needed to examine the extent of stability over a longer time period and in a larger number of healthy women.

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32. The Human Gut Microbiota and its Role in ADHD and Autism Spectrum Disorder

Caspar Bundgaard-Nielsen[1,2], Marlene Briciet Lauritsen[2,3], Peter Derek Christian Leutscher[1,2], Mette Nyegaard[4], Søren Hagstrøm[1,2,5], Suzette Sørensen[1,2]

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2. Department of Clinical Medicine, Aalborg University, Denmark
3. Department of Child and Adolescent Psychiatry, Aalborg University Hospital, Denmark
4. Department of Biomedicine, Aarhus University, Denmark
5. Department of Pediatrics, Aalborg University Hospital, Denmark

Background
The neurodevelopmental disorders attention-deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD), are serious but poorly understood disorders. While genetic factors are clearly involved in both disorders, genetics alone fail to accurately predict risk, and thus environmental factors appears to be involved. Recent studies have discovered a role of the gut microbiota in neurological functions and development. This microbiota-gut-brain axis has been implicated in ADHD and ASD. However, the microbial composition associated with these disorders are poorly described, while the mechanisms by which these bacteria can affect development of ASD and ADHD are unclear.

Methods
This PhD project aims to investigate the role of gut microbiota in children with ADHD and ASD. To this end, we will collect feces, blood and urine from children with 1) ADHD, 2) ASD and co-occurring ADHD, 3) ASD, and as controls 4) unaffected siblings to children from 1), 2), or 3). Bacterial DNA will be extracted from fecal samples and bacterial composition analyzed using Illumina 16S rRNA gene sequencing. To investigate mechanisms by which gut microbiota may influence neurodevelopment, we will investigate leakage of bacterial products across the gut-blood membrane. Blood will similarly be collected to test for inflammatory markers and genetic variations associated with ADHD and ASD, while urine will be analyzed for resting cortisol levels.

Results
This study will describe the bacterial compositions associated with ADHD and ASD in children.

Conclusion
We aim at providing a deeper insight into how specific bacterial compositions in the gut may influence neurodevelopmental disorders in children.

The Human Gut Microbiota and its Role in ADHD and Autism Spectrum Disorder

Caspar Bundgaard-Nielsen[1,2], Marlene Briciet Lauritsen[1,3], Peter DC Leutscher[1,2], Mette Nyegaard[4], Søren Hagstrøm[1,2,5], Suzette Sørensen[1,2]

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➢Background

The neurodevelopmental disorders attention-deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD), are serious but poorly understood disorders. While genetic factors are clearly involved in both disorders, genetics alone fail to accurately predict risk, and thus environmental factors appears to be involved. Recent studies have discovered a role of the gut microbiota in neurological functions and development. This microbiota-gut-brain axis has been implicated in ADHD and ASD. However, the microbial composition associated with these disorders are poorly described, while the mechanisms by which these bacteria can affect development of ASD and ADHD are unclear.

➢Aim

- To determine if a specific bacterial composition is associated with ADHD or ASD.
- To investigate if bacterial components can cross the gut membrane, and lead to altered inflammatory state or activity of the hypothalamic-pituitary-adrenal axis.
- To investigate if altered bacterial composition is associated with altered epigenetic control of the gastrointestinal epithelial cells.
- To examine if altered gut bacterial composition correlates with genetic susceptibility for ASD or ADHD.

Autism Spectrum Disorder (ASD)

- Spectrum of disorders characterized by varied degrees of impaired social interactions and communication together with restrictive and repetitive behavior.

ASD and microbiota:

- No complete picture of bacterial composition of the gut, but several individual phyla and genera have been investigated:
  - Higher Bacteroidetes/Firmicutes ratio.
  - Lower proportion of fermenting bacteria and *Akkermancia*.
  - Higher proportion of Clostridium spp.
- High frequency of gastrointestinal problems.
- Presence of bacterial products (LPS) in blood.
- Often elevated level of pro-inflammatory cytokines in blood.

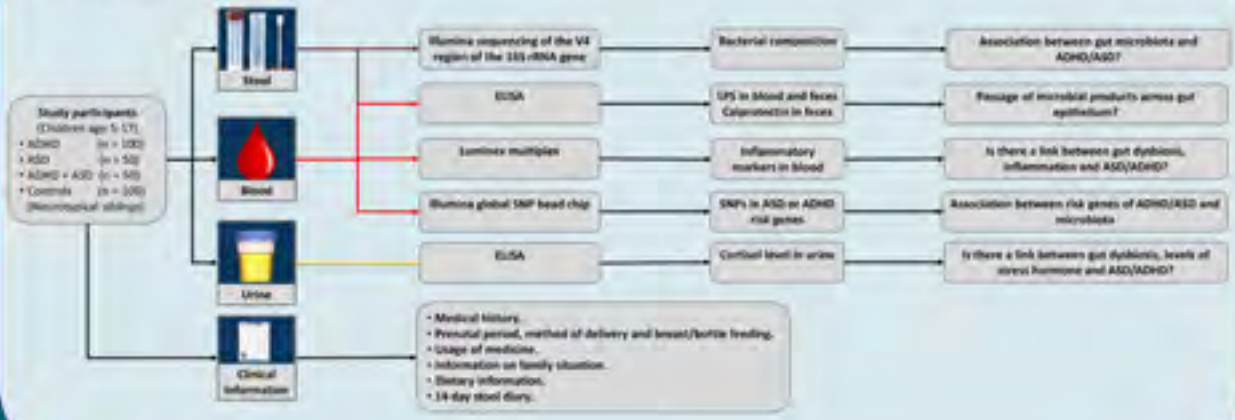
Attention Deficit Hyperactivity Disorder (ADHD)

- Disorder characterized by inattention, hyperactivity, and impulsivity.

ADHD and microbiota:

- Only few studies:
  - Increased *Bifidobacter*
  - Reduced *Faecalibacterium*
- Mouse studies have linked alterations in gut bacterial composition with ADHD behavior.
- High frequency of gastrointestinal problems.
- Often linked to different diets, although specific diet changes do not themselves affect disorder.
- Presence of bacterial products (lipopolysaccharide, LPS) in blood stream.
- Affected cortisol level. Cortisol is affected by microbial composition.

➢Methods



➢Expected outcome

This study will investigate how microbiota composition is associated to children with ADHD and/or ASD compared to siblings without ADHD or ASD. Using information concerning microbiome, inflammation, stress level, epigenetics and genetics, we expect this study to elaborate on the development of these disorders. This will provide a deeper insight in how altered bacterial compositions may influence neurodevelopmental disorders in children.

The information arising from this study, is expected to be able to improve diagnostics, and can improve diagnostics or potentially lead to new treatment options that may improve symptoms of ADHD or ASD.

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33. Prevotella, Acinetobacter, and the species Fusobacterium nucleatum and Bacteroides fragilis, varies between colorectal cancer, adenomas and non-malignant tissue

Caspar Bundgaard-Nielsen[1,2], Ulrik T. Baandrup[1,2,3], Lars Peter Nielsen[4], Suzette Sørensen[1,2]

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3. Department for Pathology, North Denmark Regional Hospital, Hjoerring, Denmark
4. Biobank and Biomarkers, Statens Serum Institut, Copenhagen, Denmark

Background
A causal association has been suggested between certain bacteria and colorectal cancer (CRC). Only a few studies have investigated the presence of these bacteria directly in colon tissue and has produced conflicting results. It is thus uncertain what role they may have in prognosis and carcinogenesis of CRC. Here we aim to investigate the bacterial involvement in CRC tumor tissue.

Methods
Formalin-fixed and paraffin-embedded (FFPE) colorectal tissue samples from patients diagnosed with CRC (tumor and paired normal tissue, n=99), adenomas (n=96), or diverticular disease (n=104) were tested for Streptococcus gallolyticus (S. gallolyticus), Fusobacterium nucleatum (F. nucleatum), and Bacteroides fragilis (B. fragilis) using quantitative PCR. Subsequently, the bacterial population of a subset of samples was tested using 16S ribosomal RNA gene sequencing. Finally, to evaluate the prognostic value, the bacterial status was compared to clinical records.

Results
S. gallolyticus was not detected in any of the investigated tissue samples and F. nucleatum and B. fragilis were found to be equally distributed in tumors, paired normal tissue, and diverticula, but significantly less present in adenomas compared to both tumors and diverticula. Furthermore, F. nucleatum or B. fragilis status did not affect the five-year prognosis of the investigated patients. The 16S rRNA gene sequencing revealed that tumors were associated with the Prevotella genus while conversely adenomas and diverticula were associated with Acinetobacter genus.

Conclusion
These findings do not support a role of F. nucleatum, B. fragilis, and S. gallolyticus in CRC development. However, a potential role of the bacterial genera Prevotella and Acinetobacter in colorectal carcinogenesis was indicated.

Prevotella, *Acinetobacter*, and the species *Fusobacterium nucleatum* and *Bacteroides fragilis*, varies between colorectal cancer, adenomas and non-malignant tissue

Caspar Bundgaard-Nielsen[1,2], Ulrik T. Baandrup[1,2,3], Lars P. Nielsen[4], Suzette Sørensen[1,3]

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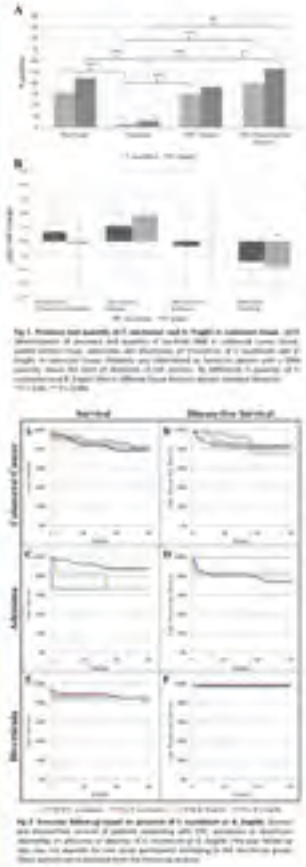
Background

Colorectal cancer (CRC) is one of the most common cancers and are responsible for a reported 700,000 deaths annually. Early detection allows efficient treatment, however the disease is often detected in late stage leading to poorer prognosis for the patients. Thus more research into development of CRC is needed to detect more sensitive biomarkers for early non-invasive CRC detection. Recent studies has revealed a number of potential oncogenic bacteria in patient with CRC. This include the bacteria *Streptococcus gallolyticus subspecies gallolyticus*, *Bacteroides fragilis*, and *Fusobacterium nucleatum*. While there are several published candidates for bacteria associated with CRC, large differences in bacterial prevalence have been reported in different studies. Only few studies have compared bacterial status in precancerous adenomas with that of CRC, or evaluated the prognostic value of bacterial status.
In this study, we compared bacterial colonization of archival colorectal tissue from tumors, adenomas, and non-cancerous tissue of the colorectal tract. Furthermore, we investigated the effects of bacterial status on patient outcome.

Methods

Formalin-fixed and paraffin-embedded (FFPE) colorectal tissue samples from patients diagnosed with CRC (tumor and paired normal tissue, n=99), adenomas (n=96), or diverticular disease (n=104) were tested for the presence and bacterial load of *S. gallolyticus*, *F. nucleatum*, and *B. fragilis* using quantitative PCR. A subsequent broader search was conducted on a subset of samples using Illumina sequencing of the V4 region of the 16S ribosomal RNA gene.
Finally, to evaluate the prognostic value, the bacterial status was compared to patient outcome.

Results



S. gallolyticus, B. fragilis, and F. nucleatum in CRC tumors, paired normal tissue, adenomas and non-malignant diverticula

To establish the degree of colonization with *S. gallolyticus*, *F. nucleatum* and *B. fragilis* in CRC, we utilized qPCR to compare the prevalence and quantity (fig. 1) of the bacteria in tumors, paired normal tissue, adenomas and diverticulum samples.
S. gallolyticus was not detected in any of the investigated tissue samples. Both *F. nucleatum* (29.9 %) and *B. fragilis* (36.4 %) could be detected in tumor samples. However, both bacteria were equally or more often observed in paired normal tissue or diverticula (Fig. 1A), while relative quantities were comparable (Fig. 1B). Intriguingly, we detected *F. nucleatum* and *B. fragilis* significantly less common in adenomas (3.0 % and 5.9 % respectively) compared to both tumor tissue ($p<0.001$) and diverticula ($p<0.001$, Fig. 1A). In addition, the adenomas contained significantly less *B. fragilis* DNA compared to diverticula ($p<0.05$, Fig. 1B).

Effects of *B. fragilis* and *F. nucleatum* five year survival and disease free survival

To assess the clinical significance of *F. nucleatum* and *B. fragilis*, information on disease progression and survival were collected for all patients for a five year period following initial diagnosis, and analyzed using a Kaplan-Meier analysis (Fig. 2).
Detection of *F. nucleatum* or *B. fragilis* did not result in significant ($p>0.05$) changes in survival or disease-free survival rates of patients within a five year period.

Relative bacterial abundances of tumors, paired normal tissue, adenomas and diverticula.

To determine if CRC tissue from the four tissue groups differed in overall bacterial composition, we analyzed 10 randomly selected samples from each group using 16S rRNA gene sequencing. One sample from the adenomas and four paired normal tissue yielded less reads than the negative controls and were thus excluded.
The differences between bacterial compositions were minor as indicated by clustering on the PCA plot (Fig. 3A). These minor changes were elucidated through a subsequent RDA plot that revealed limited tissue specific clustering (Fig. 3B). A heatmap was produced to elucidate tissue specific bacterial changes (Fig. 4), that revealed that tumors were associated with the *Prevotella* genus while conversely adenomas and diverticula were associated with *Acinetobacter* genus.

Conclusion

Our results do not support a role for either *F. nucleatum*, *B. fragilis*, or *S. gallolyticus* in development of CRC. On the contrary, the bacteria were scarcely represented in the pre-cancerous lesions, indicating that the bacteria are not required for cancer development. This study does indicate a potential role of bacteria belonging to the genera *Prevotella* and *Acinetobacter* in the progression of carcinogenesis, which warrants further studies.

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34. Variations in Interpersonal Gut Microbiota Profiles, Supersedes the Effects of Differing Stool Storage Conditions

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2. Department of Clinical Medicine, Aalborg University, Denmark
3. Department of Pediatrics, Aalborg University Hospital, Denmark

Background
Due to ease of acquisition, fecal samples are often used in studies investigating gut microbiota. Improper handling of these samples can lead to bacterial growth and alter bacterial composition. While freezing samples at -80 C is considered gold standard, this is not suitable for studies utilizing self-sampling by lay participants or field studies. Thus to effectively prevent bacterial growth, techniques that allows efficient fecal storage outside laboratory facilities are needed.

Methods
Fecal samples were collected from three donors. From each donor feces, 45 samples were collected and stored either freshly frozen at -80 or -20 C, or in three separate storage buffers at room temperature or 4 C for 24 or 72 hours. Bacterial composition was analyzed using Illumina amplicon sequencing of the V4 region of the 16S rRNA gene. Bacterial DNA integrity was investigated using gel electrophoresis while purity was tested spectrophotometrically using Nanodrop.

Results
While storage conditions did affect bacterial composition and diversity, compared to storage at -80 °C, the variation between donors superseded the variations introduced by storage. Samples stored at -20 C most closely resembled those stored at -80 C.

Conclusion
When investigating variations in bacterial composition between separate study populations, fecal samples can efficiently be stored in -20 C freezers or in one of the presented storage buffers, without severe alterations in bacterial composition.

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VARIATIONS IN INTERPERSONAL GUT MICROBIOTA PROFILES, SUPERSEDES THE EFFECTS OF DIFFERING STOOL STORAGE CONDITIONS

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Background

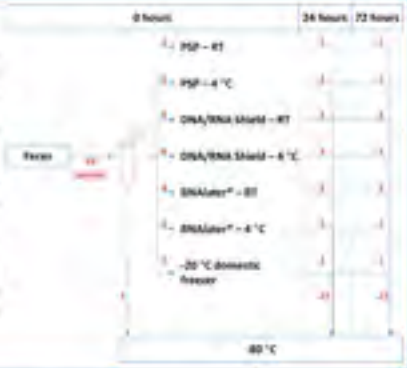
The effects of gut bacteria on health and disease has received great interest in recent years. These bacteria has been implicated in several health benefits, while dysbiosis has been linked to a wide range of disorders.

Due to ease of acquisition, stool samples are often used for investigating gut bacteria. Improper handling of these samples can lead to bacterial growth and thus alter bacterial composition. While freezing samples at -80 °C is considered gold standard, this is not suitable for studies utilizing self-sampling by donors or field studies.

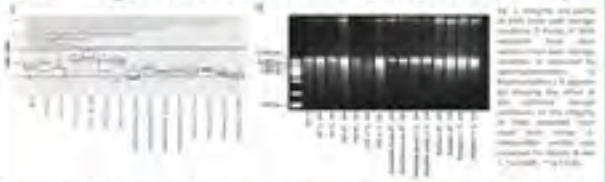
Thus, the aim of this study is to investigate storage techniques that allows maintenance of bacterial DNA outside laboratory facilities, without altering bacterial composition.

Methods

Stool samples were collected from three donors. From each donor, samples were exposed to different storage conditions in triplicates. DNA extraction efficiency was evaluated using DNA yield (ng/µL), A260/280 OD ratio and DNA integrity.
Bacterial composition was investigated using α diversity and principal component analysis of variance of bacterial composition.



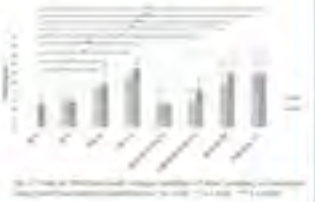
All Storage Conditions Maintain DNA Quality



First, we needed to ensure that all storage conditions maintained a good quality DNA for downstream analysis.
Using A260/A280 OD ratio, the DNA purity was examined, with all storage conditions maintains good quality DNA. Agarose gel electrophoresis similarly confirmed that all storage conditions maintained highly intact bacterial DNA.

Increased DNA Yield in PSP and RNAlater®

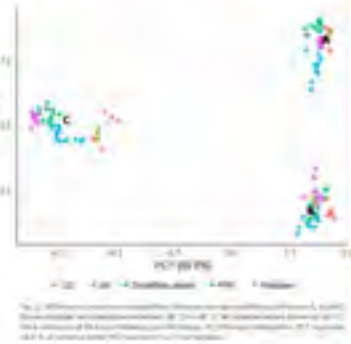
A good storage condition prevents bacterial growth. To investigate how differing stool storage conditions affected bacterial growth, the DNA quantity following storage was compared to stool stored immediately at -80 °C. DNA yields were comparable for samples stored at -80°C, -20°C, and DNA/RNA Shield. However, an increase in DNA yield was observed for samples stored in PSP buffer or RNAlater ($p<0.05$), indicating that these buffers may lead to increased bacterial growth. Neither temperature, nor storage time in buffers, affected DNA yield significantly.



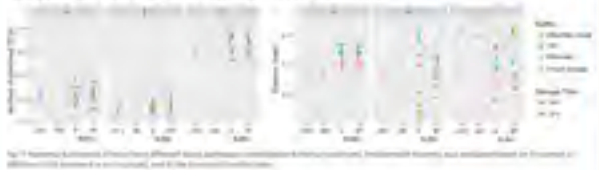
Maintenance of Bacterial Composition

It is critical that bacterial composition does not change due to storage conditions. We therefore evaluated if any storage conditions favored or inhibited growth of specific bacteria and thus, shifted bacterial composition. This was achieved through Illumina sequencing of the 16S rRNA gene.

Interindividual Variation Supersedes variations caused by storage
While some clustering did occur based on storage condition, the major factor influencing clustering was donor identity. This means that the normal variation between individual donors clearly superseded the variations caused by stool storage.

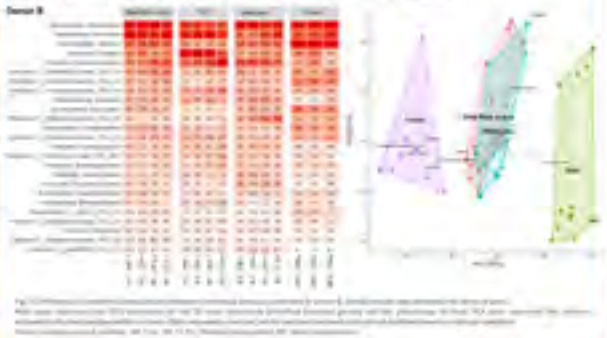


Storage Buffer Alters Shannon Diversity but not Total OTUs



No differences were found in total number of observed OTUs, whereas the Shannon Diversity Index (SDI) indicated a difference in diversity depending on storage, most noticeable in samples from donor B and C.

Within Donors, PSP and RNAlater® Causes Minor Bacterial Variations



Within donors, the primary cause of variance of bacterial composition depended on storage conditions. For all donors, the least variance was observed between samples stored at -20 °C and -80 °C. We observed an increased abundance of the genus *Faecalibacterium* and a reduced abundance of *Alistipes* in all donors, when samples were stored in a storage buffer rather than frozen at -80 °C or -20 °C.

Conclusion

For all donors, the interindividual variation in bacterial composition of stool supersedes the variation introduced by storage. Within the individual donors, storage did cause minor changes in bacterial composition, with -20 °C most closely resembling stool stored at -80 °C.

35. Characterization of the gut microbiome in newly diagnosed patients with depression

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5. Psychosis Research Unit, Aarhus University, Denmark

Background
The last decades have seen major advances in characterization of depression as a multifactorial disease involving both psychiatric, neurologic, immunological, endocrine and infectious causes and effects. Recently, the gut microbiota has emerged as a newly founded theory of depression development, maintenance and treatment-resistance. As antidepressants have antimicrobial properties, there is a necessary demand for a study aimed at characterizing the gut microbiota in treatment-naïve patients newly diagnosed with depression.

Methods
The microbiotic state of gut bacteria in patients with depression are characterized by 16S rRNA gene mapping. We believe the composition to result in pathologic interactions with the intestinal epithelium, which are evaluated by purifying human proteins impenetrable to the gut wall from faecal samples. The immune profile altered by dysbiotic features will be mapped by multiplexing several relevant cytokines. The increase in bacterial metabolites is believed to result in neuroinflammation. Preclinical studies are conducted by transplanting donor material into rats to confirm the clinically observed profiled of the clinical subjects, as well as further characterization of intestinal epithelium protein expression and neuroinflammation.

Results
See next.

Conclusion
EXPECTED OUTCOMES: We expect the clinical studies to confirm the standing hypothesis of gut dysbiosis in patients developing depression, as well as lay the foundation for a broader understanding of treatment resistance. The preclinical studies will expand the knowledge of associative factors in depression, which can be utilized in the development of alternative treatments of depression, such as augmentation of antidepressants with probiotics, faecal microbiota transplantation for optimal treatment efficacy, or other forms of bacteriotherapy.

Depression is not only the prevalent cause of years lived with disabilities globally, but also the leading determinant of suicide and suicide-attempts (1, 2). Patients present with wildly heterogeneous clinical symptoms and course trajectories (3), while optimal treatment has to be adapted the individual, and in many cases, it proves difficult to accomplish both response and remission with the current treatment (4). A newly established theory of The gut microbiome has been implicated to be differentially expressed in patients with depression (7-12), and the gut microbiota is implicated to be involved in management of the gut wall integrity (13-15), regulation of the immune system (11, 13, 15-17), and neurological structure and functioning (18-20). The hypothesis of this study is that a dysbiotic state in patients with depression leads to altered intestinal permeability, resulting in transfer of bacterial metabolites. Subsequently, the immune system is activated, which causes an increase in permeability of the blood-brain barrier. This allows the entry of bacterial products into the brain parenchyma, activating resident microglia, which by producing pro-inflammatory cytokines induces neuron

NORTH DENMARK REGIONAL HOSPITAL

Ph.d. projektet: "Karakterisering af tarmbakterier hos patienter nyligt diagnosticeret med depression"

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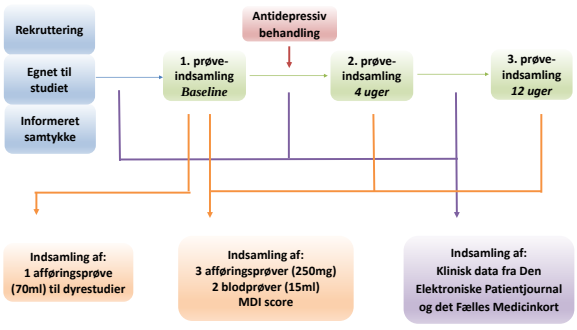
Depression er ikke blot den mest prævalente årsag til forringet livskvalitet og år levet med handikap på verdensplan, men også primært afgørende faktor hvad angår selvmord og selvmordsforsøg (1, 2). Patienter præsenterer med unikke sygdomsbilleder og svært forskellige symptomer og varighed af sygdom (3), hvor behandling skal optimeres og tilpasses den enkelte, hvilket besværliggør udformningen af retningslinjer om en general behandlingsindsats (4). En nyere teori om at depression opstår på grund af neuroinflammation (5, 6). Neuroinflammation er en tilstand, hvor aktivering af immunforsvare i hjernen kan resultere i skade på hjernevævet.
Tarmens bakterier er blevet associeret til depression, da de er påvist at være anderledes sammensat i patienter med depression (7-12), og tarmbakterier er impliceret i at være involveret i stabilisering af tarmvæggens barriere (13-15), regulering af immunforsvaret (11, 13, 15-17), og neurologiske strukturer, funktionalitet og adfærd (18-20).
Hypotesen for studiet er at ubalance i tarmbakterierne hos patienter med depression fører til en ændret tilstand i tarmvæggen, hvilket tillader øget overførsel af bakterielle produkter fra tarmen til blodcirkulationen. Dette aktiverer immunforsvaret, der efterfølgende påvirker blod-hjernebarrieren så denne også bliver mere gennemtrængelig. Dette fører til passage af bakterielle metaboliter der kan påvirke hjernens immunforsvar og føre til neuroinflammation. Studiet har til formal at undersøge denne hypotese gennem kliniske og prækliniske studier.

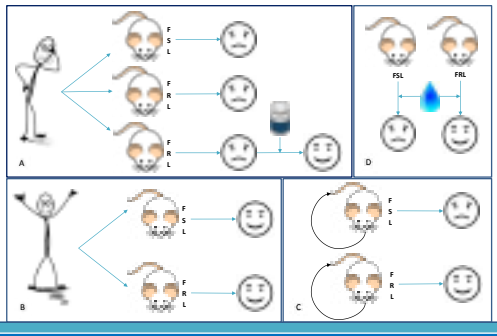
Kliniske karakteristika

50 patienter nyligt diagnosticerede med depression, mellem 18-24 år og endnu ikke i antidepressiv behandling skal inkluderes i studiet via Enheden for Psykiatri, Aalborg Universitetshospital. 50 raske kontrolpersoner mellem 18-30 år skal rekrutteres fra lokale studerende og ansatte på Regionshospital Nordjylland. Begge grupper følges derefter i 12 uger, hvor de løbende skal aflevere prøver
Projektets setup;



Prækliniske karakteristika

Både patienter og raske kontrolpersoner donerer en ekstra afføringsprøve. Denne transplanteres ind i rotter tre gange om ugen i tre uger. Der bruges to forskellige typer rotter; Flinders Sensitiv Line (FSL, depressiv) og Flinders Resistent Line (FRL, rask). Først indsamles en afførings- og en blodprøve. Herefter udføres der adfærdsstudier for at vurdere om tarmbakterierne fra henholdsvis syge og raske har påvirket rotterne. Til sidst aflives dyrene, der indsamles igen en afførings- og en blodprøve og yderligere vævsprøver fra tarm og hjerne.
Projektets eksperimentelle setup og forventlige adfærdsmæssige ændringer;



Molekylærbiologiske metoder – kliniske studier

1. *Fra en afføringsprøve oprenses bakterielt DNA, der når de kortlægges kan fortælle hvilke bakterier der er til stede i deltageren. Herefter kan man sammenligne om bakterierne er signifikant forskellige mellem kontrolgruppen og patienter med depression.*
2. *Fra en afføringsprøve oprenses der humant protein, mens der fra blodet oprenses et protein der binder til et bakterielt produkt. Dette er for indirekte at undersøge om tarmvæggen er mere gennemtrængelig hos patienten.*
3. *Fra blodet oprenses der en stor mængde cytokiner, som er små proteiner involveret i immunforsvaret. Denne data skal vise os om overførsel fra tarmen til blodet påvirker immunforsvaret hos patienten.*
4. *Disse analyser foretages både før og efter antidepressiv behandling for at undersøge om behandlingen påvirker sammensætningen af bakterier, samt hvilken effekt det har på tarmvæggen og immunforsvaret.*

Molekylærbiologiske metoder – prækliniske studier

1. *Der tages afføringsprøver og blodprøver fra rotterne inden de transplanteres med tarmbakterier fra mennesker, samt auto-transplantation og vand.*
2. *Rotterne adfærdstestes for at undersøge hvordan transplantationen har påvirket dem.*
3. *Herefter aflives de, og afføringsprøver og blodprøver tages igen samt vævsprøver fra tarmen og hjernen udtages.*
4. *Afføringsprøverne og blodprøverne taget før og efter transplantation undersøges med samme metode som i de kliniske studier for at undersøge om tarmbakterierne har påvirket rotternes adfærd og immunforsvar.*
5. *Rottens tarm undersøges for proteiner der binder tarmcellerne til hinanden, for at vurdere om barrieren virker mindre effektivt. Rottens hjerne undersøges for immunmarkører, for at vurdere om de fremmede tarmbakterier har ændret molekylære strukturer i hjernen.*

Expected outcome

Kliniske studierne – Vi forventer at humanstudierne viser at tarmbakterier hos patienter med depression er signifikant anderledes end hos den raske population. Vi forventer at denne sammensætning påvirker tarmvæggen og leder til en betændelsestilstand påbegyndt af immunforsvaret. Vi forventer at se signifikant bedring i disse symptomer når patienten kommer i antidepressiv behandling, og at de ændringer der tidligere var observeret begynder at tilnærme sig værdierne hos de raske.
Dyreforsøg – Vi forventer at transplantationen overfører den psykiske tilstand fra donoren til rotten. Vi forventer at se lignende bakterier i tarmen hos rotten, samt samme påvirkning af immunforsvaret og tarmbarrieren. Ved vævsanalyser forventer vi at observere ændringer i tarmvæggens struktur, samt inflammation i hjernesnittene hos de rotter der er transplanteret med bakterier fra patienter med depression.

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36. Can fecal immunochemical test (FIT) samples from the national colorectal cancer screening program be used for population based microbiota analysis? - a pilot study

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Background
In Denmark people from 50 to 74 years are invited to participate in the colorectal cancer screening program, that screens for blood in fecal samples using a fecal immunochemical test (FIT). Each year the program amass a considerable amount of FIT samples, which if stored correctly, have the potential to be included in large population-based microbiota studies. This pilot study aims to investigate if fecal microbiota composition in FIT samples is comparable to stool samples.

Methods
Five healthy participants collected both a FIT and a fresh stool sample from the same feces immediately after defecation. Bacterial DNA was extracted for 16S rRNA gene sequencing whereafter intrapersonal bacterial diversity and relative abundance between the two sampling methods were compared

Results
The alpha diversity (OTU richness and Shannon index) and beta diversity (PCA plot and heatmap) did not reveal any statistical difference in bacterial composition between FIT and stool samples. However, when examining the individual bacteria, the relative abundance of nine Gram-positive bacteria were found to be significantly different between the two sampling methods. Among those the genus Anaeroplasma and family Clostridiales vadinBB60 group were vastly more abundant (P=<0,01) in FIT than in stool samples.

Conclusion
This pilot study indicates that FIT samples collected from the colorectal cancer screening program, may serve as valuable material for largescale population-based microbiota studies. However, verification of the results needs a larger population of participants and extended sequencing techniques in order to identify the specific bacterial genera or species that are sensitive towards the FIT cartridges.

Can fecal immunochemical test (FIT) samples from the national colorectal cancer screening program be used for population based microbiota analysis?

- a pilot study

Katrine Lauritzen[1], Peter Hindersson[2], Peter Leutscher[1,3], Suzette Sørensen[1,3]

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INTRODUCTION

In Denmark people from 50 to 74 years are invited to participate in the colorectal cancer screening program, that screens for haemoglobin (HbA0) in fecal samples using a fecal immunochemical test (FIT) (1). Each year about 40.000 FIT samples are analyzed, where around 7% are positive (2). Up to 6% of the participants with positive HbA0 results have developed a cancer, wherein the remaining 94% either are predominantly false positive or have benign changes in the gut (2).

The FIT cartridges contains a buffer (HEPES) with sodium azide which helps stabilize the fecal sample prior to analysis (3).

The considerable amount of FIT samples the screening program amass have the potential to be included in large population-based microbiota studies.

This pilot study aims to investigate if fecal microbiota composition in FIT samples is comparable to stool samples.

METHODS

Five healthy participants collected both a FIT and a fresh stool sample from the same feces immediately after defecation.

Storage condition and sample preparation

Stool

Up to 24 hours in a home freezer at -20°C

Transfer 250mg ±25mg

Up to 7 days in a lab freezer at -80°C

FIT

Up to 7 days at room temperature

10mg feces in 2ml HEPES buffer

DNA isolation

- Bead Beating
- Cell Lysis
- Elute DNA

16S rRNA gene sequencing

Bacterial DNA was extracted for 16S rRNA gene sequencing whereafter intrapersonal bacterial diversity and relative abundance between the two sampling methods were compared.

RESULTS

The alpha diversity (OTU richness and Shannon index (data not shown)) and beta diversity (PCA plot (figure 1) and heatmap (data not shown)) did not reveal any statistical difference in bacterial composition between FIT and stool samples

However, when examining the individual bacteria, the relative abundance of nine Gram-positive bacteria (figure 2) were found to be significantly different between the two sampling methods.

Among those the genus *Anaeroplasma* and family *Clostridiales vadinBB60* were vastly more abundant (P=<0,01) in FIT than in stool samples.

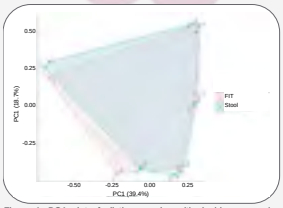

Figure 1: PCA plot of all the samples with double sequencing results; Stool (blue) and FIT (red).

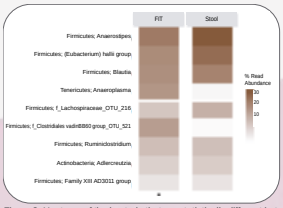

Figure 2: Heatmap of the bacteria that are statistically different between stool and FIT collection methods.

CONCLUSION

This pilot study indicates that FIT samples collected from the colorectal cancer screening program, may serve as valuable material for large-scale population-based microbiota studies. However, verification of the results needs a larger population of participants and extended sequencing techniques in order to identify the specific bacterial genera or species that are sensitive towards the FIT cartridges.

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37. The Urinary Microbiota of Preadolescent Children with and without Urgency Urinary Incontinence

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Background
Through many years, the urine was thought to be sterile in the absence of a urinary tract infection. However, the emergence of 16 rRNA sequencing has proven that a healthy bladder has its own microbiome. In adults, studies suggest that the urinary microbiome plays a role in bladder function. Likewise, there is a difference in the urinary microbiome of women with and without urgency urinary incontinence (UUI). The urinary microbiome has never been examined in healthy children or in children with UUI. Thus, that is the purpose of this study.

Methods
This case-control study will include 30 healthy children and 30 children with UUI, both boys and girls, all pre-adolescent and aged 6-10 years. Participants with UUI have never been subjected to medical treatment. A midstream urine sample is collected for DNA extraction and 16S rRNA gene sequencing, through which the quantity and species of bacteria are determined.

Results
Outcome: We aim to describe the urinary microbiome of healthy children and children with UUI, who have not recently undergone antibiotic treatment. We expect to see a difference between healthy children and children with UUI in terms of urinary microbiome composition. Moreover, we expect no differences between boys and girls within subgroups because sex hormone production is limited in pre-adolescent children.

Conclusion
Perspective: Abnormal urinary microbiome composition may be a biomarker for or causal agent in UUI in children.

The Urinary Microbiota of Preadolescent Children with and without Urgency Urinary Incontinence

Fredsgaard, L.[1,2,5], Thorsteinsson, K.[1,2,4], Ammitzbøll, N.[1,2], Chai, Q.[2,3], Pedersen, LM.[2,4], Hagstrøm, S.[1,2,4], Arenholt, L.[1,2,5]

Background

Through many years, the urine was thought to be sterile in the absence of a urinary tract infection. However, the emergence of 16S rRNA gene sequencing has proven that a healthy bladder has its own microbiota [1]. In adults, studies suggest that the urinary microbiota plays a role in maintaining bladder health. Likewise, differences in the urinary microbiota has been observed among women with and without urgency urinary incontinence (UUI) [2]. The urinary microbiota has never been examined in healthy children or in children with UUI [3].

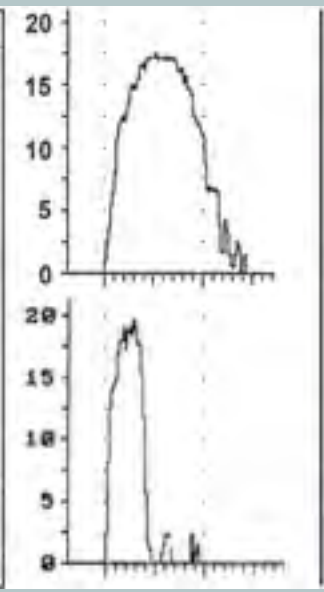
We aim to

1) Describe the urinary microbiota of healthy preadolescent children
2) Compare the urinary microbiota of healthy boys to the urinary microbiota of healthy girls
3) Describe the urinary microbiota of preadolescent children with UUI
4) Compare the urinary microbiota of healthy children to that of children with UUI
5) Investigate if there is an association between urinary microbiota composition and UUI severity

Materials and Methods

This case-control study will include 30 children with UUI and 30 healthy children, all aged 6-10 years and preadolescent. Boy:girl ratio is 1:1.

CASES	CONTROLS
INCLUSION CRITERIA	
Diagnosed with UUI Medically treatment naive Negative dipstick test Negative urine culture Does not receive systemic drugs on a daily basis	No diseases of the genitourinary tract Negative dipstick test Negative urine culture Does not receive systemic drugs on a daily basis
EXCLUSION CRITERIA	
Antibiotic treatment within the last three months More than one UTI per year Current UTI Known structural abnormalities of the urinary tract	Antibiotic treatment within the last three months More than one UTI per year Current UTI Known structural abnormalities of the urinary tract Abnormal voiding pattern by uroflowmetry Daytime urinary incontinence more than once per month



To investigate the composition of the urinary microbiota, midstream urine samples are collected and analyzed by 16S rRNA gene sequencing. All participants will complete a questionnaire regarding bowel function, bladder function, and signs of puberty. Voiding patterns are assessed by frequency-volume charts and uroflowmetry. Participants with UUI will have their UUI severity assessed by a VAS score and the "Dry Pie" ("Tørfisken") UUI severity quantification tool [4].

Expected outcome

We expect to see a difference between healthy children and children with UUI in terms of urinary microbiota composition. Moreover, we expect no differences between boys and girls within subgroups because sex hormone production is limited in preadolescence. We expect to find an association between UUI severity and microbiota composition.

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38. The role of the gut microbiota in women with gestational diabetes and bacterial transmission from mother to child

Louise Søndergaard Rold[1], Louise Arenholt[1,2,3], Søren Hagstrøm[1,2,4], Peter Derek Christian Leutscher[1,2], Suzette Sørensen[1,2]

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Background
Gestational diabetes mellitus (GDM) is defined as glucose intolerance with onset during pregnancy. Although GDM is a transient state, it is still associated with long-term complications in mother and child. Microbiota could be involved in the development of GDM, as GDM has been associated with dysbiosis (imbalance of microbiota) in different microbiota niches. Furthermore, this altered bacterial composition may be transferred to the infant, as these infants have a different gut microbiota compared to controls. This study aims to investigate the association between microbiota and the development of GDM, and the bacteria transmission from mother to child.

Methods
To investigate the association between microbiota and the development of GDM, we will collect samples from different microbiota niches (gut, vagina, and bladder) from pregnant women in high, low, and no risk of GDM in each trimester. Perinatal transmission will be investigated within 72 hours after birth by comparing different niches (gut, vagina, oral cavity, uterus, and bladder) from the mother with meconium and placenta from the infant. Postnatal transmission will be assessed by comparing breast milk with stool from the child. Bacterial DNA will be extracted from the samples and analyzed by 16S rRNA gene sequencing to characterize the bacterial compositions in the different niches.

Results
*

Conclusion
We expect to find altered microbiota niches in women in risk of developing GDM, and that the infant's gut microbiota is dependent of the mother's GDM state. This knowledge could be used in the prevention of GDM and treatment of both the mother and the child.

THE ROLE OF THE GUT MICROBIOTA IN WOMEN WITH GESTATIONAL DIABETES AND BACTERIAL TRANSMISSION FROM MOTHER TO CHILD

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Background

Gestational diabetes mellitus (GDM) is defined as glucose intolerance with onset during pregnancy. Although GDM is a transient state, it is associated with increased risks of developing type 2 diabetes mellitus in both mother and offspring (1-2). A common feature associated with GDM is an altered microbiota (3). However, it is not known if this altered microbiota is involved in the development of GDM or simply is a consequence of the disease state. Furthermore, it is generally believed that this altered bacterial composition can be transferred from the mother to the infant through the placenta and breast milk. For example, studies have shown that infants born from mothers suffering from GDM have an altered gut microbiota (3).

This study aims to investigate the association between microbiota and the development of GDM, and the possible bacteria transmission from mother to child.

Methods

To investigate the association between the microbiota and the development of GDM, and bacteria transmission from mother to child, we will compare the bacterial composition between different samples collected at different time points. Samples will be collected from the gut, vagina, bladder, oral cavity, uterus, and breast. To characterize the bacterial compositions in the samples, bacterial DNA will be extracted from the samples and analyzed by 16S rRNA gene sequencing.

To investigate the association between microbiota and the development of GDM, we will compare the bacterial composition in samples from the gut, vagina, and bladder from pregnant women before and after GDM normally develops.

The perinatal bacterial transmission will be investigated at birth by comparing microbiota from the gut, vagina, oral cavity, uterus and bladder from the mother with meconium and placenta from the infant. Bacteria from meconium should represent fetal microbial colonization.

The postnatal transmission will be assessed by comparing breast milk from the mother with stool from the child.

Timeline for inclusion and sample collection

Expected outcome

We expect to find altered microbiota in women before they develop GDM, and that the bacteria transmission from the mother to the child is associated with the mother's GDM state. This knowledge could be used in screening of the women before they develop GDM and in treatment, which enables early prevention and treatment with e.g. probiotics to reduce the risk in both mother and child.

Acknowledgement

We would like to thank the Steno Diabetes Center North Jutland for financial support.

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39. The Urinary Microbiota in Pre- and postmenopausal Women

Nadia Ammitzbøll[1,2], Benedikt Bau[3], Caspar Bundgaard-Nielsen[1,2], Karin Glavind[2,4], Peter Derek Christian Leutscher[1,2], Louise Thomsen Schmidt Arenholt[1,2,3], Suzette Sørensen[1,2]

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Background
Until recently, the bladder was believed to constitute a sterile environment, and the finding of bacteria in urine was considered an indication of a bladder infection. However, new culture-independent methods have identified bacteria (microbiota) in the healthy bladder. Furthermore, studies have shown that urinary microbiota differs between women with and without bladder dysfunctions, including urgency urinary incontinence (UUI). As UUI mainly affects postmenopausal women, we aimed to compare the urinary microbiota between healthy pre- and postmenopausal women.

Methods
Urine samples from 41 premenopausal and 42 postmenopausal women were collected with a catheter. Total DNA was extracted in duplicates and the bacterial DNA was investigated using 16S rRNA gene sequencing.

Results
The urinary microbiota from postmenopausal women was characterized by significant higher bacterial richness and diversity compared to premenopausal women. The urinary microbiota in both groups was dominated by the bacteria genus Lactobacillus. However, a high relative abundance of other bacteria was found in the postmenopausal women. Furthermore, we observed clustering of samples inside the two groups and in both groups of women one cluster has similarities to the urinary microbiota in the other group of women.

Conclusion
We therefore conclude that there exists a significant difference in the urinary microbiota between healthy pre- and postmenopausal women. Further studies are needed to investigate which other factors may influence the urinary microbiota besides age or menopausal status, and what role altered urinary microbiota may have in the development of bladder dysfunction.

The Urinary Microbiota in pre- and postmenopausal women

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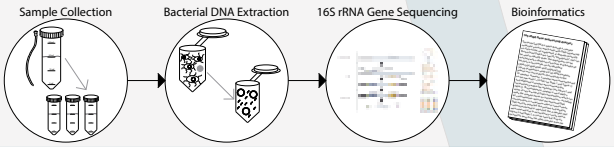
Nadia Ammitzbøll[1,2], Benedikt Paul Josef Bau[3], Caspar Bundgaard-Nielsen[1,2], Karin Glavind[2,4], Peter Leutscher[1,2], Louise Thomsen Schmidt Arenholt[1,2,3], Suzette Sørensen[1,2]

Introduction

Until recently, the bladder was believed to constitute a sterile environment, and finding of bacteria in urine was considered an indication of a bladder infection. However, new culture-independent methods have identified bacteria (microbiota) in the healthy bladder. Furthermore, studies have shown that urinary microbiota differs between healthy controls and women with bladder dysfunction, including urgency urinary incontinence (UUI) and urinary tract infection (UTI). As UUI and UTI mainly affects women who have passed the menopause, we aimed to compare the urinary microbiota between healthy pre- and postmenopausal women.

Methods

Urine samples from 41 premenopausal and 42 postmenopausal women were collected with a catheter. Total DNA was extracted in duplicates and the bacterial DNA was investigated with 16S rRNA gene sequencing using an illumina protocol targeting the V4 region.



Results

The Urinary Microbiota in Premenopausal Women is Different from that of Postmenopausal Women

When comparing the bacterial composition in urine from premenopausal women with that of postmenopausal women a statistical difference was found in alpha diversity (*figure 1A-B*).

When looking at the beta diversity, by principal component analysis (PCA), a formation of three clusters was observed (*figure 1C*). Two clusters mainly consisted of premenopausal women and one cluster dominated by postmenopausal. This indicates that a difference in urinary bacterial composition exists between pre- and postmenopausal women. The two clusters dominated by premenopausal women were primarily defined by *Lactobacillus*, whereas *Lactobacillus*, *Gardnerella* and *Prevotella* defined the third cluster. This is furthermore supported by a heatmap representation of the relative abundance of bacteria in both groups (*figure 1D*). The most highly represented bacteria genera in urine from both pre- and postmenopausal women was *Lactobacillus*, while bacteria as *Gardnerella*, *Streptococcus*, *Prevotella* and *E. Shigella* also dominated in postmenopausal women.

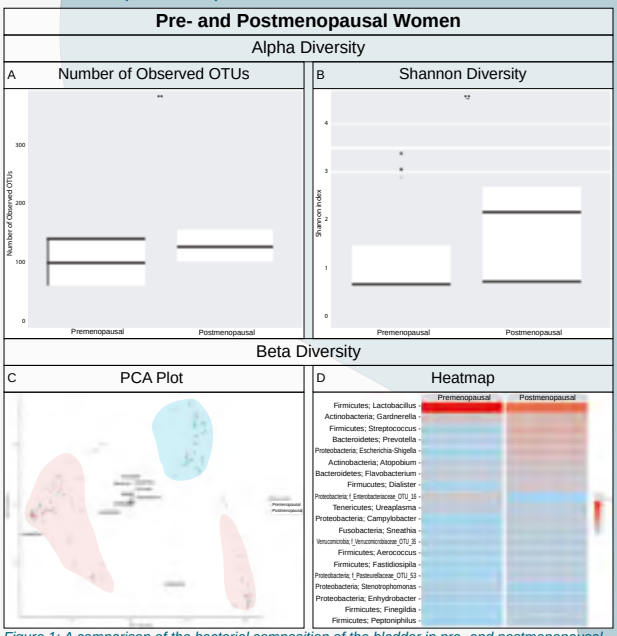


Figure 1: A comparison of the bacterial composition of the bladder in pre- and postmenopausal women. A and B) The Alpha diversity. C and D) The beta diversity.

The Urinary Microbiota of Premenopausal Women Cluster in Three Groups versus Two Groups for Postmenopausal Women

Since we observed different microbiota clustering, we analyzed the groups individually with the purpose of identifying possible variations of the core urinary microbiota for these two groups.

The bacterial composition of the premenopausal women grouped into three clusters (*figure 2A-B*). Cluster I and III are defined by *Lactobacillus*, and cluster II are defined by *Lactobacillus* and *Gardnerella*.

Postmenopausal women showed to divide into two clusters, few samples lying outside of these (*figure 2C-D*). Cluster IV are defined by *Lactobacillus* and cluster V are defined by a more diverse distribution of bacterial genera, among others *Lactobacillus*, *Streptococcus*, *Gardnerella*, *Prevotella*, *E. Shigella* and *Dialister*.

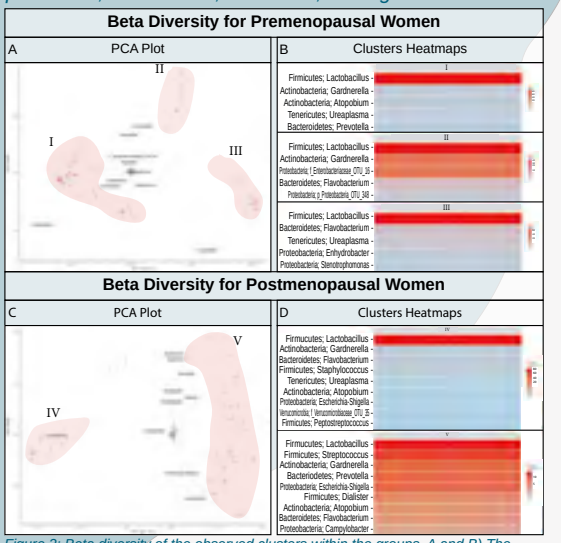


Figure 2: Beta diversity of the observed clusters within the groups. A and B) The Beta diversity of the clusters within the premenopausal women. C and D) The Beta diversity of the clusters within the postmenopausal women.

Conclusion

We therefore conclude that there exists a significant difference in the urinary microbiota between healthy pre- and postmenopausal women. The differences between the clusters within the groups indicate that other parameters despite age and menopausal status has an influence on the composition of bacteria found in the urine. Further studies are needed to investigate which other factors may influence the urinary microbiota besides age or menopausal status, and what role altered urinary microbiota may have in the development of bladder dysfunction.

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40. The urinary microbiota composition remains stable over time and under various storage conditions

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* These authors have contributed equally to this study

Background
Development of new techniques has challenged the perception of the healthy urinary tract being sterile. 16S rRNA gene sequencing has revealed large populations of bacteria in the urinary tract of healthy humans. While the role of this urinary microbiota is unknown, dysbiosis has been linked to disorders like urgency urinary incontinence and interstitial cystitis. When comparing studies it is crucial to account for possible confounders introduced due to methodological differences. Here we investigated whether storage condition or time of collection, had any impact on the urinary microbial composition.

Methods
For comparison of different storage conditions, urine was collected from five healthy donors, and analyzed by 16S rRNA gene sequencing. Next, using the same methods, the daily or day-to-day variation in urinary microbiota was investigated in nineteen healthy donors, including four women, five men, five girls, and five boys.

Results
The composition of the urinary microbiota was found to be highly resilient to changes introduced by storage temperature and storage duration. In addition, we did not observe any intrapersonal daily or day-to-day variations in microbiota composition.

Conclusion
Together our study supports flexibility in study design, when conducting urinary microbiota studies.

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The urinary microbiota composition remains stable over time and under various storage conditions

AMMITZBØLL, Nadia[1,2*], BUNDGAARD-NIELSEN, Caspar[1,2*], ISSE Yusuf[1,3], MUQTAR, Abdisalam[1,2], LEUTSCHER, Peter[1,2], ARENHOLT, Louise[1,2,4], HAGSTRØM, Søren[1,2,5], SØRENSEN, Suzette[1,2]

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*These authors have contributed equally to this study

CKF

Introduction

Development of new techniques has challenged the perception of the healthy urinary tract being sterile. 16S rRNA gene sequencing has revealed a large population of bacteria in the urinary tract of healthy humans.[1-3] While the role of this urinary microbiota is unknown, dysbiosis has been linked to disorders like urgency urinary incontinence[1-4] and urinary tract infections[5]. When comparing studies it is crucial to account for possible confounders introduced due to methodological differences.

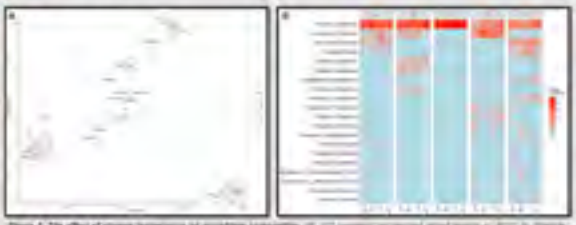
The aim of the study was to investigate whether storage condition and time of collection, had any impact on the urinary microbial composition.

Methods

For comparison of different storage conditions, urine was collected from five healthy female donors. DNA was isolated and analyzed by 16S rRNA gene sequencing.

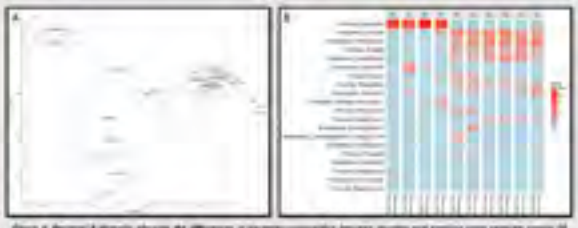
Next, using the same methods, the daily and day-to-day variation in urinary microbiota was investigated in nineteen healthy donors, including four women, five men, five girls, and five boys.

Results



Due to the risk of DNA degradation or bacterial growth, the ideal sampling strategy for urine microbiota analyses would be to purify DNA immediately after urination, or to transfer the urine samples directly to -80°C. As this is not always possible or practical in clinical settings we tested if storage of urine, at different sub-optimal temperatures, altered the microbiota composition compared to a freshly processed sample.

This study showed no significant intrapersonal difference between storage conditions regarding OTU richness and Shannon diversity (data not shown). Moreover when looking at principal component analysis (PCA) and the heatmap it appears that the intrapersonal variations are minor compared to interpersonal variations. (Figure 3 A and B).



First morning urine is often more concentrated than subsequent urine samples throughout the day. We therefore speculated that morning urine could contain higher bacterial loads, and possibly a different bacterial composition than urine collected in the evening. However, this study showed no significant difference regarding OTU richness and Shannon diversity (data not shown) when comparing urine collected in the morning and evening. A PCA and heatmap furthermore showed that urine samples maintained similar bacterial compositions regardless of collection time point (Figure 4 A and B). When comparing the samples collected in weekday and weekend no significant difference was found. (Figure 5 A and B).

Conclusion

The composition of the urinary microbiota was found to be highly resilient to changes introduced by storage temperature and storage duration. In addition, we did not observe any intrapersonal daily and day-to-day variations in microbiota composition. Together our study supports flexibility in study design, when conducting urinary microbiota studies.

References

41. Estrogen replacement therapy and the urogenital microbiota in postmenopausal women

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4. Department of Clinical Medicine, Aalborg University, Denmark

Background
Genitourinary syndrome of menopause (GSM) is caused by changes in the level of estrogen and occurs in 45% to 63% of postmenopausal women. The symptoms of GSM including vaginal dryness, and bladder symptoms such as urgency, dysuria and recurrent urinary tract infections may result in significant distress. Lack of estrogen is known to cause atrophy of the epithelial tissue in the urogenital tract as well as changes in the vaginal and urinary microbiome. Previous studies have suggested that women with GSM tend to have vaginal microbiome with low levels of lactobacilli (in both types and numbers) and higher diversity of other bacterial types. Several studies have found a significant difference in the composition of the bladder microbiota between women with GSM and asymptomatic women. The study aims to describe the vaginal and urinary microbiome in healthy postmenopausal women treated with vaginal and oral estrogen replacement therapy and postmenopausal women not treated with estrogen.

Methods
A cross-sectional study will be conducted with enrollment of 80 asymptomatic postmenopausal women: 40 in replacement therapy (20 local and 20 oral) and 40 without therapy. A vaginal swab and a urine sample will be collected from each participant. Bacterial composition will be analyzed by 16s rRNA sequencing technique

Results
No results available yet

Conclusion
Understanding the role of Estrogen treatment in the development of urogenital microbiota may lead to an improved understanding of this very complex system. Recognition of healthy microbial growth may change our view on the use of antibiotics and their potentially harmful effects on healthy bladder and vaginal microbiota

Estrogen replacement therapy and the urogenital microbiota in postmenopausal women

Nagham Hamed[1] • Karin Glavind[2] • Suzette Sørensen[3, 4] • Peter Leutscher[3, 4] • Louise Arenholt[1, 3]

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[2]Department of Obstetrics and Gynecology, Aalborg University Hospital
[3]Center for Clinical Research, North Denmark Regional Hospital
[4]Department of Clinical Medicine, Aalborg University

Background

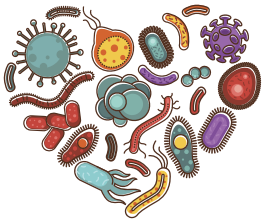
Genitourinary syndrome of menopause (GSM) may be caused by changes in the level of estrogen and occurs in 45% to 63% of postmenopausal women. The symptoms of GSM including vaginal dryness, and bladder symptoms such as urgency, dysuria and recurrent urinary tract infections may result in significant distress. Lack of estrogen is known to cause atrophy of the epithelial tissue in the urogenital tract as well as changes in the vaginal and urinary microbiota.

Previous studies have suggested that women with GSM tend to have vaginal microbiota with low levels of lactobacilli (in both types and numbers) and higher diversity of other bacterial types.

Several studies have found a significant difference in the composition of the bladder microbiota between women with GSM and asymptomatic women

Aim

To describe the vaginal and urinary microbiota in healthy postmenopausal women treated with vaginal and oral estrogen replacement therapy and postmenopausal women not treated with estrogen.



Good and bad bacteria

Methods

80 asymptomatic postmenopausal women

40 with estrogen treatment		40 without estrogen treatment	
Urine	Vaginal swab	Urine	Vaginal swab
Bacterial composition by 16s rRNA	Bacterial composition by 16s rRNA	Bacterial composition by 16s rRNA	Bacterial composition by 16s rRNA

Results

No results available yet.

Perspectives

Understanding the role of Estrogen treatment in the development of urogenital microbiota may lead to an improved understanding of this very complex system. Recognition of healthy microbial growth may change our view on the use of antibiotics and their potentially harmful effects on healthy bladder and vaginal microbiota.

Microbiome in urine and vagina

NORTH DENMARK REGIONAL HOSPITAL

Cannabis/Cannabinoider

42. Use of cannabis among cancer patients receiving palliative care – a qualitative interview study

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Denmark

Background
There is an increased focus on use of cannabis in a medical context, primarily for pain relief. There is only sparse information on the prevalence of cannabis use among terminal cancer patients in Denmark. An American study shows that 20-30% of patients with cancer use legalized cannabis. In Denmark, cannabis is legally accessible by a physician prescription only. However, a majority of terminal cancer using cannabis obtain the products from the illegal market. The purpose of this study is to collect information about use of cannabis among terminal cancer patients followed in palliative care.

Methods
Qualitative research interviews with a semi structured interview guide are conducted, recorded and subsequently transcribed. The analysis process takes three steps: naive reading, structure analysis, critical interpretation and discussion. Patients referred to the palliative care team at the North Denmark Regional Hospital and using cannabis for treatment will be included in the study. The patients receive oral and written information on the project and signed informed consent is obtained prior to participation. Patients who are delirious, brain damaged, moribund or suffering from dementia are excluded.

Results
The main reason for the use of cannabis is hope is hope for a cure. Some of the statements were: “That it (cannabis) can kill the cancer – that is what I am hoping for”; “we panicked to such an extent when I got the diagnosis of being incurably ill, that we wanted to try anything in to see if I could recover”; “I want to do it all, because I want to live”. The participants further state that they do experience symptom relief, especially when it comes to sleep, unrest and pain. None of the included patients experienced side effects to cannabis.

Conclusion
Patients in palliative care obtain the products from the illegal market hoping for a cure. The participants state that they do experience symptom relief, especially when it comes to sleep, unrest and pain.

JEG VIL JO GERNE LEVE

Buchwald, D.[1] • Brønnum, D.[2] • Leutscher, P. D. C.[2,3] • Melgaard, D.[2]

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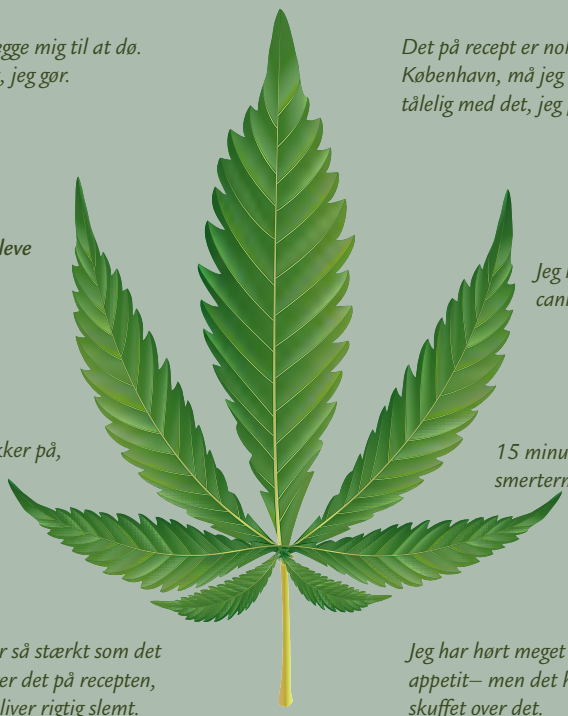
[2]*Center for Klinisk Forskning, Regionshospital Nordjylland*
[3]*Klinisk Institut, Aalborg Universitet*

Anvendelse af cannabis blandt palliative cancerpatienter
– et kvalitativt interviewstudie

Jeg ville ikke bare give op og lægge mig til at dø. Man må kæmpe, og det er det, jeg gør.

Det på recept er nok ikke så godt som det, jeg fik i København, må jeg indrømme. Men min hverdag er tålelig med det, jeg får nu.

*Det eneste, **jeg vil, er at kæmpe for at leve** – er det så svært at forstå?*



Jeg har haft meget uro og spekulationer, så cannabis hjalp mig til at sove om natten.

Det skal stoppe canceren – og jeg er sikker på, det nok skal lykkes.

15 minutter efter jeg har taget det, forsvinder smerterne.

Det, lægen skriver ud, er ikke nær så stærkt som det på det sorte marked. Men jeg tager det på recepten, og så har jeg det andet, hvis det bliver rigtig slemt.

Jeg har hørt meget om, at det kan hjælpe på ens appetit– men det har ikke hjulpet – så jeg er lidt skuffet over det.

BAGGRUND

Der er fokus på anvendelse af cannabis i en medicinsk kontekst, specielt som smertelindring. Der er kun sparsom viden om danske patienter i palliativ behandling og deres anvendelse af cannabis. Størstedelen af de patienter, der anvender cannabis, skaffer det på det illegale marked.

Formålet med dette studie var at indsamle viden om baggrunden for anvendelse af cannabis blandt patienter, der er tilknyttet palliativt team.

METODE

20 patienter med cancer tilknyttet palliative team på Regionshospital Nordjylland, og som anvender cannabis, blev inkluderet i studiet.

Delirøse, demente, moribunde og hjerneskadede patienter blev ikke inkluderet.

Patienterne afgav skriftligt informeret samtykke. Kvalitative forskningsinterviews med en semistruktureret interviewguide blev gennemført, optaget og transskriberet.

Analyseprocessen inkluderede 3 trin: Naiv læsning, strukturanalyse og fortolkning.

RESULTATER

Håb om helbredelse.

Ud af 20 patienter oplevede:
- 14 patienter bedring af nattesøvn
- 10 patienter lindring af angst og uro
- 7 patienter smertelindring
- 2 patienter lindring af kvalme
- 2 patienter ikke nogen form for lindring

I blandt 7 patienter, der startede med at købe illegal cannabis og senere skiftede til lægeordineret medicinsk cannabis, rapporterede alle, at det illegale cannabis havde markant bedre virkning end det medicinske cannabis.

Der blev kun rapporteret sparsomme bivirkninger som mundtørhed og dårlig smag.

KONKLUSION

Dette studie viser, at patienter, der modtager palliativ behandling, opsøger cannabis på det illegale marked i håbet om at opnå helbredelse.

En stor del af patienterne oplever lindring af symptomer som forringet nattesøvn, uro, smerter og kvalme.

Patienterne rapporterer, at medicinsk cannabis ikke har samme effekt som cannabis købt på det illegale marked.

REGIONSHOSPITAL NORDJYLLAND
– i gode hænder

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43. Use of Cannabinoid Therapy in Patients with Refractory Chronic Pain – a Retrospective Observational Registry Study of Patients Followed in a Danish Pain Management Clinic

Tina Horsted[1], Karoline Juul Hesthaven[1,2], Dorthe Brønnum[2], Peter Derek Christian Leutscher[2,3]

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2. Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark
3. Department of Clinical Medicine, Aalborg University, Denmark

Background
Different strategies are applied for treatment of complex pain disorders. However, some patients do not obtain sufficient pain relief despite of comprehensive conventional treatment options. In addition, conventional pain relieving drugs are commonly causing various side effects, which may cause further impairment of daily functionality and reduction of quality of life. In this context, cannabinoids are considered a supplementary therapy. However, there is an absence of knowledge on efficacy and tolerability. The aim of this study is therefore to explore the efficacy and tolerability of cannabinoids among patients with refractory chronic pain. Furthermore, this study aims to assess reduction of conventional drugs and associated side effects following initiation of cannabinoid therapy.

Methods
A retrospective observational registry study will be conducted in a population of 1800 patients with refractory pain, who have started cannabinoid therapy in a Danish pain management clinic during a period from March 15 2016 until June 30 2018. Complete data from the patient medical record, including referral diagnosis, co-morbidity, conventional drug regimen, patient pain complaints, quality of life and sleep plus functional level before and after initiation of cannabinoid therapy, will be abstracted for further statistical analysis.

Results
It is anticipated that the results of the study will be ready for dissemination by second half of 2019.

Conclusion
It is expected that results from this study will add new information on efficacy and tolerability among patients receiving cannabinoid therapy against refractory pain manifestations. Furthermore, this study will apply guidance when cannabinoids are prescribed as an add-on pain relieving therapy to these patients with the aim of improved quality of life.

Use of Cannabinoid Therapy in Patients with Refractory Chronic Pain – A Retrospective Observational Registry Study of Patients Followed in a Danish Pain Management Clinic

Tina Horsted[1], Karoline Juul Hesthaven[1,2], Dorthe Brønnum[2], Peter Derek Christian Leutscher[2,3]

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[3] Department of Clinical Medicine, Aalborg University, Denmark

Background

Different strategies are applied for treatment of complex pain disorders. However, some patients do not obtain sufficient pain relief. In addition, conventional pain relieving drugs are commonly causing various adverse reactions, which may cause further impairment of daily functionality and reduction of quality of life. In this context, cannabinoids are considered a supplementary therapy. However, there is an absence of knowledge on efficacy and tolerability.

Aim

This study aims to explore the efficacy and tolerability of cannabinoids among patients with refractory chronic pain. Furthermore, to assess reduction of conventional drugs and associated side effects following initiation of cannabinoid therapy.

Method

A retrospective observational registry study will be conducted in a population of 1800 patients with refractory pain, who have started cannabis-based treatment in a Danish pain management clinic during a period from March 15 2016 until June 30 2018. Cannabinoid products manufactured at Glostrup Pharmacy were prescribed to 1500 patients, while 300 patients were prescribed medical cannabis.

Complete data from the patient medical record, before and after initiation of cannabinoid therapy, will be abstracted for further statistical analysis.
For further details about data see table 1.

Assessment of efficacy and tolerability of cannabinoids

Primary parameter	Secondary parameters	Demographics	Diagnosis	Conventional treatment	Cannabis-based treatment
Pain (NPRS*:0-10)	Quality of sleep	Gender	Referral diagnosis	Type of drug	Product
	Quality of life	Age	Subtypes of diagnosis	Dosage	Dosage
	Functional level		Co-morbidity	Administration	Administration
				Adverse reactions	Adverse reactions

Table 1 *Different categories of study data from the patient medical record. Data was registered during each consultation in the clinic. *Numeric Pain Rating Scale.*

Results

Study results will be disseminated by second half of 2019.

Conclusion

It is expected that results from this study will add new information on efficacy and tolerability among patients receiving cannabinoid therapy against refractory pain manifestations. Furthermore, this study will apply guidance when cannabinoids are prescribed as an add-on pain-relieving therapy to these patients with the aim of improved quality of life.

CKF CENTRE FOR CLINICAL RESEARCH North Denmark Regional Hospital

NORTH DENMARK REGIONAL HOSPITAL

44. Patient Survey of Measurement Tools to Assess Pain and Quality of Life in Palliative Care

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2. Palliative Team, North Denmark Regional Hospital, Hjoerring, Denmark

Background
Palliative patients typically experience pain with different intensities, frequencies, duration and location. Therefore, it is important to detect measurement tools with the ability to cover different aspects of pain but also, it has to be relevant for the patients. The aim of this study is to identify which validated measurement tools for pain and quality of life the patients find most relevant and easy to fulfill.

Methods
A literature search suggest these measurement tools: Short Form Brief Pain Inventory (SF-BPI) and Short Form McGill Pain Questionnaire (SF-MPQ), The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and EORTC QLQ Core 15 Questions for Patients in Palliation (EORTC QLQ-C15-PAL). EORTC QLQC30 contains 30 questions and EORTC QLQ-C15-PAL contains 15 questions. Twenty patients in palliative care will be included; ten patients who have never used cannabis and ten patients who are experienced cannabis users. Patients are included from North Denmark Regional Hospital during a two months period from September-October 2018. Written informed consent was obtained from each patient. The patients fulfilled the four questionnaires and an evaluation form. The evaluation form covers patients' opinion about relevance, comprehensibility and time duration of the questionnaires. The questionnaires are color coded, and is referred by color. Outcome from the four questionnaires and
evaluation form are analyzed.

Results
Results will be presented at the Research Symposium 2018.

Conclusion
The results from the present study will be included in a future open-label study focusing on the effect of cannabis in patients in palliative care.

Patient Survey of Measurement Tools to Assess Pain and Quality of Life in Palliative Care

Karoline Juul Hesthaven[1], Kristina Winter[2], Dorte Melgaard[1]

[1] *Centre for Clinical Research, North Denmark Regional Hospital, Hjoerring, Denmark*

[2] *Palliative Team, North Denmark Regional Hospital, Hjoerring, Denmark*

Background

Palliative patients typically experience pain with different intensities, frequencies, duration and location. Therefore, it is important to detect measurement tools with the ability to cover different aspects of pain but also, it has to be relevant for the patients.

Aim

The aim of this study is to identify which validated measurement tools for pain and quality of life the patients find most relevant and easy to fulfill.

Method

A literature search suggest these measurement tools: Short Form Brief Pain Inventory (SF-BPI) and Short Form McGill Pain Questionnaire (SF-MPQ), The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and EORTC QLQ Core 15 Questions for Patients in Palliation (EORTC QLQ-C15-PAL). EORTC QLQ-C30 contains 30 questions and EORTC QLQ-C15-PAL contains 15 questions

Twenty patients in palliative care will be included; ten patients who have never used cannabis and ten patients who are experienced cannabis users. Patients are included from North Denmark Regional Hospital during a two months period from September-October 2018.

Written informed consent was obtained from each patient. The patients fulfilled the four questionnaires and an evaluation form. The evaluation form covers patients' opinion about relevance, comprehensibility, time duration and overall opinion of the questionnaires. The four themes are categorized as "not at all" = 0 point, "okay" = 1 point and "suitable" = 2 points. The higher the score, the more convenient questionnaire.

The questionnaires are color coded, and is referred by color. Outcome from the four questionnaires and evaluation form are analyzed.

Figure 1 *The four color coded questionnaires (blue: SF-BPI, green: SF-MPQ yellow: EORTC QLQ-C30 and pink: EORTC QLQ-C15-PAL) and the evaluation form.*

Results

Out of six participants, a total of four patients answered all five questionnaires. Preliminary results shows that patients with cancer in palliative care have a slight preference for SF-BPI and EORTC-QLQ-C15-PAL.

Evaluation of Pain Questionnaires and Quality of life Questionnaires

	SF-BPI[a]	SF-MPQ[b]	EORTC-QLQ-C30[c]	EORTC-QLQ-C15-PAL[d]
Time duration score	6	6	6	7
Relevance score	4	3	5	7
Comprehensibility score	4	4	6	8
Overall score	3	2	5	5
Total score	**17 out of 32**	**15 out of 32**	**22 out of 30***	**27 out of 32**

Table 1 ***Results from evaluation form of the four questionnaires***

Each questionnaire have a maximum point score of 32, due to participation of four patients. *Only 30 points were able because of a missing answer.
a: Short Form Brief Pain Inventory, b: Short Form McGill Pain Questionnaire , c: The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire, d: The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire Core 15 Questions for Patients in Palliation

Perspectives

More participants are needed for further results. The results from the present study will be included in a future open-label study focusing on the effect of cannabis in patients in palliative care.

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45. Cannabinoids as Add-on Therapy to Cancer Patients Receiving Conventional Palliative Treatment – an Open-label Study of Efficacy and Tolerability

Kristina Winter[1], Karoline Juul Hesthaven[2], Dorte Melgaard[2], Dorte Buchwald[1], Dorthe Brønnum[2], Torben Breindahl[3], Peter Hindersson[3], Peter Derek Christian Leutscher[2,4]

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Background
Almost half of cancer patients referred to the palliative team at the North Denmark Regional Hospital report an already initiated self-administration of cannabis products purchased online or an interest in a prescription to the pharmacy by the attending physician. The aim of this project is to assess knowledge, attitude and practice (KAP) regarding this treatment option among this group of patients, and to assess efficacy and tolerability of cannabinoid therapy as a supplement to conventional palliative treatment.

Methods
A KAP questionnaire survey will be conducted among patients referred to the palliative team. The patients enrolled in the survey are offered participation in an open-label trial irrespectively history of cannabis/cannabinoid treatment (experienced vs. naive status). It is anticipated that 120 patients will be included in the trial in which efficacy and tolerability of a cannabinoid regimen will be assessed during two subsequent phases: 14 days of uptitration followed by 28 days on stabile dosage. Dosage is reduced or discontinued if side effects occur. The patients register level of pain on daily basis. Other parameters, such as appetite, sleep, depression and quality of life are also registered by the means of various validated questionnaires. The parameters are registered on day 1, 15, 29 and 43. Blood samples are collected for measurement of cannabinoid serum concentrations.

Results
It is anticipated that the results of the survey and open-label study will be ready for dissemination by first half of 2020.

Conclusion
This study is expected to contribute with important results on cannabinoid add-on therapy to cancer patients in a course of palliation.

Cannabinoids as Add-on Therapy to Cancer Patients Receiving Conventional Palliative Treatment - An Open-label Study of Efficacy and Tolerability

Kristina Winter[1], Karoline Juul Hesthaven[2], Dorte Melgaard[2], Dorte Buchwald[1], Dorthe Brønnum[2], Torben Breindahl[3], Peter Hindersson[3], Peter Derek Christian Leutscher[2,4]

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Background

The interest in cannabinoid based medicines (CBM) has increased during the past years. Palliative Team at the North Denmark Regional Hospital report that almost half of cancer patients already initiated self-administration of CBM or have interest in a prescription by the attending physician.

Aim

The aim of this study is to assess knowledge, attitude and practice regarding CBM as treatment option among patients with cancer in palliative care. Furthermore, to assess efficacy and tolerability of cannabinoid therapy as a supplement to conventional palliative treatment.

Methods

A total of 400 patients referred to the Palliative Team at North Denmark Regional Hospital are offered participation in a questionnaire survey. This survey addresses knowledge, attitude and practice regarding CBM as treatment, either as prescribed and/or self-medication.
The following open-label clinical trial is anticipated to include 120 patients. Patients are offered participation irrespectively history of CBM as treatment (experienced vs. naive).

Primary parameter is pain measured as intensity and quality. Intensity is assessed three times daily by the patient. Pain quality and secondary parameters are assessed at baseline, day 15 and 29. Also, a follow-up is performed at day 43. Parameters are registered by patient and team, respectively, by the means of various validated questionnaires and guidelines, see table 1. Blood samples are collected for measurement of cannabinoid serum concentrations.

Parameters and measurement tools during open-label

Patient reported parameters	Tool	Team evaluated parameters	Tool
• Pain	Visual analog scale Pain questionnaire	• Pain • Nausea • Quality of sleep • Anorexia	CTCAE v. 4.0[b]
• Nausea • Quality of life • Insomnia • Anorexia	EORTC-QLQ[a] - Global Health Status	• Physical level	ECOG[c] - Performance Status
• Concentration • Depression • Insomnia • Anorexia	Major Depression Inventory	• Concentration of THC[d], CBD[e] and metabolites	Blood analysis

Table 1 *Overview of parameters and measurement tools to assess efficacy of cannabinoid therapy to patients in palliative care.*
Level of pain is registered on daily basis. Other parameters are registered on day 1, 15, 29 and 43.
a: European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire, b: Common Terminology Criteria for Adverse Events version 4.0, c: Eastern Cooperative Oncology Group, d: Tetrahydrocannabinol, e: Cannabidiol

Expected outcome

Study results of the survey will be disseminated by second half of 2020. Results from the open-label study are anticipated by second half of 2021.
This study is expected to contribute with essential new information on patients with cancer in palliative care in the context of CBM as add-on therapy. The data will translate into important information and knowledge to be passed on to practitioners, public and patients, in particular those involved in palliative care, as part of a shared decision-making process.

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Diverse

46. Reliability of neuropsychological testing by videoconferencing

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Background
The use of videoconferencing in neuropsychology are more common, as it can reduce costs, and help provide better treatment and rehabilitation to rural populations. Generally, there is a lack of empirical studies in this field and most existing studies have primarily focus on patients with dementia (Brearly et al., 2017). Patients with acquired brain injury often have sensorimotor impairments, which may influence test performance. This study was conducted to determine the reliability of neuropsychological tests administered over videoconference to patients with acquired brain injury.

Methods
20 patients recruited from an inpatient neurorehabilitation centre. All completed The Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) and Block Design from Rigshospitalet in two conditions: face-to-face and videoconferencing. Afterwards the patients rated the experience on a questionnaire. The scores in the two conditions were compared using Intraclass Correlations (ICC) and limits of agreement (95%).

Results
All ICC were between moderate to excellent (.73-.94) and all significant. The tests requiring a motor response had the best ICC (.87-.94). Verbally mediated tests had an agreement between moderate to excellent ICC (.73-.94) and visually mediated tests a good agreement ICC (.76-.83). Patients were generally satisfied with the test form and felt overall comfortable.

Conclusion
Results on tests that required motor responses suggest good to excellent agreement between the two conditions. Results on verbally and visually mediated tests were more sensitive to learning effect and random error, which may have affected the results. Overall, the findings support that video-based psychological testing is a reliable alternative to face-to-face testing in patients with acquired brain injury.

Reliability of neuropsychological testing by videoconferencing

Henriette H. Kaae • Stine T. Sørensen • Cilla Guldborg • Jens Ø. Riis

Objective

The use of videoconferencing in neuropsychology has become more common, as it can reduce costs, and help provide better treatment and rehabilitation to rural populations (Clement et al, 2001Barton et al., 2011; Turner et al., 2012). Generally, there is a lack of empirical studies in this field and most existing studies have primarily focuses on patients with dementia. Verbal mediated tasks seems to have the best reliability, whereas tasks relying on a motor response show more ambiguous results (Brearly et al., 2017). Patients with acquired brain injury often have sensorim otor impairments, which may influence tests administered by videoconference. This study was conducted to determine the reliability of neuropsychological tests administered over videoconference to patients with acquired brain injury.

Methods

20 patients was recruited from an inpatient neurorehabilitation facility (Neuroenhed Nord Brønderslev, North Denmark Regional Hospital). All patients admitted between October and December 2017 were consecutively recruited for the study. To be included in the study the patients had to be able to give consent and perform a simple task to determine if patients were able to participate in neuropsychological test.

All included patients completed The Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) and Block Design from Rigshospitalet in two conditions. The patients were tested face-to-face and via. videoconferencing. In a cross design 10 patients received face-to-face first and the other 10 patients videoconferencing first. The patients was divided in to the two groups by drawing lots. Both test was performed on the same day and in videoconference there was an assistant present in the room with the patient. Afterwards the patients rated the experience on a questionnaire.
The patients' scores in the two test conditions were compared using Intraclass Correlations (ICC) and limits of agreement (95%).

Results

Out of 48 patients admitted, 20 patients were included and 28 patients were not included. Seven patients could not give consent due to aphasia. Out of the patients, who could give consent, five patients did not wish to participate, seven patients excluded because they could not perform the simple task, and nine excluded for other reasons.

All Intraclass Correlations (ICC) were between moderate to excellent (.73-.94) and all were significant. The tests requiring a motor response had the best ICC (.87-.94) between conditions. Whereas verbally mediated tests had an agreement between moderate to excellent ICC (.73-.94) and visually mediated tests had a good agreement ICC (.76-.83).

The questionnaire showed that all patients were generally satisfied with the test form and overall felt both comfortable and safe with the use of videoconference. In addition, 40 % of the patients reported to have never tried videoconferencing of any kind before.

Table 1 - Descriptive data

	All patients (N: 48)	Included patients (N:20)
Age	Mean: 65,21 years Range: 30-87	Mean: 62 years Range: 20-73
Male/female	Male: 39 (81,25%) Female: 9 (18,75%)	Male: 18 (90%) Female: 2 (10%)

Results - Intraclass Correlations between videoconference and testing in person: 20 patients

Test (max score)	ICC	Confidence interval (95%)		Sign.	Scores		Mean Differences	Limits of agreement (95%)	
		Lowest	Highest		Min.	Max.		Lower	Upper
List Learning (40)	.81	.53	.93	<.001	11	39	-0,95	-12,61	10,71
Story Memory* (24)	.73	.33	.89	.003	7	24	0,85	-7,48	9,18
Figure Copy (20)	.91	.78	.96	<.001	7,5	18,5	-0,20	-3,94	3,54
Line orientation*1 (20)	.83	.56	.93	<.001	5	20	0,42	-4,85	5,69
Picture Naming* (10)	.76	.36	.91	.001	8	10	-0,25	-1,11	0,61
Semantic Fluency (-)	.81	.46	.93	<.001	2	24	-2,05	-8,69	4,59
Digit Span* (16)	.90	.68	.96	<.001	5	12	-0,60	-2,54	1,34
Coding* (89)	.94	.85-98	.98	<.001	2	48	-1,05	-9,48	7,38
List Recall (10)	.82	.57	.93	<.001	0	9	-0,65	-5,12	3,82
List Recognition* (20)	.94	.86	.98	<.001	12	20	-0,15	-2,56	2,26
Story Memory* (12)	.89	.72	.96	<.001	0	12	0,5	-3,40	4,40
Figure Recall (20)	.87	.67	.95	<.001	0	19	0,4	-6,93	7,73
Block Design -RH (12)	.92	.81	.97	<.001	2	12	-0,4	-3,61	2,81

*Not Normal Distribution
*N = 19

Conclusion

The study showed overall moderate to excellent consistency between the two test conditions (in person and via videoconferencing).
Results on tests that required motor responses suggest good to excellent agreement between the two conditions. Results on verbally and visually mediated tests were more sensitive to learning effect and random error, which may have affected the results.

Overall, the findings support that video-based psychological testing is a reliable alternative to face-to-face testing in patients with acquired brain injury.

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47. Histopathological examination of the effect of oxygen on lung tissue in pigs

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Background
When critically ill patients are submitted, the first line of treatment is often oxygen, by either nose, mask or respirator. Unfortunately, numerous studies have shown that oxygen per se is toxic to lung tissue. If sufficient gas-exchange cannot be achieved by adding oxygen to the inhaled air, it may be necessary to use an extracorporeal membrane oxygenator (ECMO). The ECMO used in this case is a device with very little resistance against the blood, and driven by the arterial blood pressure. It frees the blood from CO2. The blood is oxygenated without movements of the lungs, but 100 % oxygen blown into the lungs. If it is possible to show that 100%oxygen blown into the lungs for 5 hours combined with the pressure of 20 cm water, is safe for the lung tissue, it may be a useful alternative in treatments where it is important that the lungs is held still. For example biopsies, radiation therapy or lung operations.

Methods
Eight pigs were sedated and put on ECMO. Lung biopsies were taken before the experiment start, and after 5 hours. The biopsies were coloured after standard procedures, and valuated on size, pleurae, interstitial and parenchymatous morphology.

Results
There are no microscopically visible changes after 5 hours of treatment.
Conclusion
With no visible changes, we assume that damage is small and probably reversible. Therefore, on a morphological point of view the method may be of future use.

Histopathological examination

of the effect of oxygen on lung tissue in pigs

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Background

When critically ill patients are hospitalized, the first line of treatment is often oxygen, by nose, mask or ventilator. Unfortunately, numerous studies have shown that oxygen per se is toxic to lung tissue. Oxygen treatment cause edema, intra-alveolar hemorrhage, and fibrin deposition. This is followed by hyaline membrane formation.

If sufficient gas-exchange cannot be achieved by adding oxygen to the inhaled air, it may be necessary to use an extracorporeal membrane oxygenator (ECMO). The ECMO system in this case is pumpless, and driven by the blood pressure from a femoral artery to a femoral vein. It removes CO2 from the circulation and adds some oxygen.

More oxygen is supplied via the still standing lungs, where 100 % oxygen is insufflated with low pressure (so called apneic oxygenation technique).

Aim

If it is possible to show that 100 % oxygen blown into the lungs for 5 hours is harmless to the lung tissue, it may be a useful alternative in treatments where it is important that the lungs are held still. For example biopsies, radiation therapy or lung operations.

Methods

Seven pigs were sedated and put on ECMO. Lung biopsies were taken before the experiment and after 5 hours. The biopsies were stained after standard procedures, and microscopically valuated on size, pleura, interstitial and parenchymatous morphology.

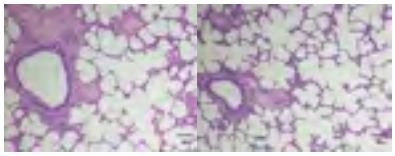
Results

There are no microscopically visible changes after 5 hours of treatment

Conclusion

With no visible changes, we assume that damage is small and probably reversible. Therefore, on a morphological point of view the method may be of future use. It may in the future be of much value in situations where still held lungs are necessary for biopsies or operations to be performed.

Lung tissue of normal appearance

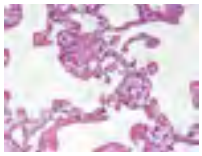


Before oxygen — After 5 hours of oxygen
No difference

Lung tissue with some stasis

Before oxygen — After 5 hours of oxygen
No difference

Lung tissue with many hyaline membranes



(Rosai and Ackerman´s surgical pathology).
None are seen in the lung tissue from the investigated pigs.

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RHN/MH/1018

48. Sygepleje dokumentationens betydning i den medicinske patients behandling

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Baggrund
Der er ikke udarbejdet overordnede retningslinjer, for hvad sygeplejedokumentation skal indeholde, ligesom der ikke er megen evidensbaseret viden på området. Et enkelt studie beskriver sygeplejerskers oplevelse af deres dokumentation som værende overdreven, upræcis, inkonsekvent, gentagende og ufuldstændig. Formålet med dette studie er at undersøge: - Hvad patienter, læger og sygeplejersker finder væsentligt at dokumentere i journalen. - Hvorledes målrettet dokumentation evt. kan forbedre behandlingen. - Hvorvidt der dokumenteres unødvendige informationer.

Metode
Der bliver udført semi-strukturerede fokusgruppeinterviews med patienter med hjertesygdomme og læger og sygeplejersker tilknyttet kardiologisk afdeling. Disse tre grupper har stor indsigt og holdning til hjerte patienters behandling og sygeplejedokumentation. Indledningsvis vil der blive udført semistrukturerede pilot interviews med en informant fra hver af de tre aktørgrupper. Fagpersonerne skal have min. 5 års erfaring, mens patienter skal være indlagte eller være i et ambulant forløb med deres hjerte sygdom. Kardiologisk afsnit på Regionshospital Nordjylland Hjørring danner ramme for studiet. Informanterne afgiver informeret samtykke. Hovedtemaer vil blive identificeret i hvert enkelt interview, samt analyseret. Dette vil ske ud fra Kvales teorier og metoder.

Resultater
Det forventes, at resultatet af studiet, vil kunne give ny viden på området som kan bruges til at udarbejde overordnede retningslinjer, for hvad sygeplejedokumentation bør indeholde.

Konklusion
Hvis formålet med studiet opfyldes, vil man have viden som kan bruges til at effektivisere sygeplejedokumentationen, gøre den mere præcis og muligvis også mere brugbar i behandlingen af patienten. Dermed være med til at kunne optimere patientens behandling, og dermed resultat af denne.

Sygepleje dokumentationens betydning i den medicinske patients behandling

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Baggrund

Sygepleje dokumentationen foregår elektronisk. Enten i foruddefinerede skemaer, med krav om dokumentation af udførte handlinger eller målte værdier. Ellers skrives dokumentation i fritekstfelter, hvor oplysninger, der ikke passer ind i skemaer, kan noteres under foruddefinerede overskrifter. Dokumentationen i fritekstfelterne kan f.eks. omhandle psykosociale forhold.

Der er ikke udarbejdet overordnede retningslinjer for, hvad sygeplejedokumentation skal indeholde i fritekstfelterne, ligesom der ikke er megen evidensbaseret viden på området. Et enkelt studie beskriver sygeplejerskers oplevelse af deres dokumentation som værende overdreven, upræcis, inkonsekvent, gentagende og ufuldstændig.

Formålet med dette studie er at undersøge:

- Hvad patienter, læger og sygeplejersker finder væsentligt at dokumentere i journalen.
- Hvorledes dokumentation kan effektiviseres ved at synliggøre eventuel unødvendig dokumentation, som dermed kan reduceres eller undgås.
- At udfærdige en vejledning med anbefalinger for, hvad der skal noteres i sygeplejedokumentationen.

Metode

Studiet vil afdække de betydningsfulde indholdsmæssige elementer i sygeplejedokumentation, og dermed vil studiet tage udgangspunkt i det kvalitative spændingsfelt.

Der bliver udført semi-strukturerede fokusgruppeinterviews med patienter med hjertesygdomme samt med læger og sygeplejersker tilknyttet Kardiologisk Afsnit. Disse tre grupper formodes at have stor indsigt og holdning til hjertepatienters behandling og sygeplejedokumentation.

Indledningsvis vil der blive udført semistrukturerede pilotinterviews med en informant fra hver af de tre aktørgrupper.

Inkluderede fagpersonerne skal have minimum 5 års erfaring, mens patienter skal være indlagte eller være i et ambulant forløb med deres hjertesygdom.

Kardiologisk Afsnit på Regionshospital Nordjylland Hjørring danner ramme for studiet.

Informanterne afgiver informeret samtykke.

Hovedtemaer vil blive identificeret i hvert enkelt interview, sammenholdt med alle interviews samt analyseret. Dette vil ske ud fra Kvales teorier og metoder.

Perspektivering

Dette studie om sygeplejedokumentation forventes at bidrage med:

- At skabe ny viden om sygeplejedokumentationen set fra patienter, læger og sygeplejerskers synsvinkel.
- Synliggøre dokumentationens vigtighed i behandlingen af patienten og dermed vigtigheden af at prioritere dokumentationen i en travl arbejdsdag.
- Der vil være behov for yderligere forskning på området. Dette studie vil være et bidrag til at oparbejde et evidensbaseret vidensgrundlag indenfor området.

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49. Tibialis posterior dysfunction - an contributing factor to forefoot deformities? a parametric study

Morten Bilde Simonsen[1,2,3], Aysun Yurtserver[2], Kim Hørslev-Petersen[4], Peter Derek Christian Leutscher[2,3], Rogerio Pessoto Hirata[1], Michael Skipper Andersen[5]

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3. Department of Clinical Medicine, Aalborg University, Denmark
4. King Christian 10th Hospital for Rheumatic Diseases, Denmark
5. Department of Materials and Production, Aalborg University, Denmark

Background
Pain and malalignment of the feet are common among patients with rheumatoid arthritis and over 85% of patients with rheumatoid arthritis experience painful feet at some point during the disease. Further, dysfunction of the tibialis posterior muscle has been reported with a prevalence of 64% among patients with rheumatoid arthritis. Redundancy in the physiological function between different muscles gives the central nervous system multiple possibilities in order to perform the same movement. However, if pain is present, the central nervous system might choose a compensation strategy that potentially could lead to further injury. Therefore, in order to recommend the best treatment, in-depth insight into the complex foot function is crucial. We combined experimental and computational approaches to investigate which muscles would compensate during experimentally induced pain in the tibialis posterior muscle.

Methods
Twelve healthy participants participated in the study. Experimental pain was induced in the tibialis posterior muscle via injection of hypertonic saline. The participants' gait was captured by motion capture. Musculoskeletal models were used to systematically investigate compensation mechanisms in the lower leg when tibialis posterior was recruited less as a consequence of the induced pain.

Results
This study demonstrated that experimental tibialis posterior muscle pain and simulated reduced tibialis posterior muscle strength caused altered muscle recruitment and made flexor digitorum longus and flexor hallucis longus muscles compensate for the impairment of the tibialis posterior muscle.

Conclusion
These results suggest that tibialis posterior dysfunction is a contributing factor to the forefoot deformities observed in patients with rheumatoid arthritis.

Tibialis posterior dysfunction - an contributing factor to forefoot deformities? a parametric study

*MB Simonsen[1,2], A Yurtsever[2], K Hørslev-Petersen[3], P Leutscher[2], and RP Hirata[1], MS Andersen[4]

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1

Tibialis posterior dysfunction is the most common cause of adult acquired flatfoot

- Tibialis posterior dysfunction is common among patients with rheumatoid rheumatoid arthritis.
- Redundancy in the muscular system gives the central nervous system multiple solutions in order to perform the same movement.
- Musculoskeletal modelling can be used as a tool to systematically investigate compensation mechanisms when a muscle becomes dysfunctional.

2

Methods

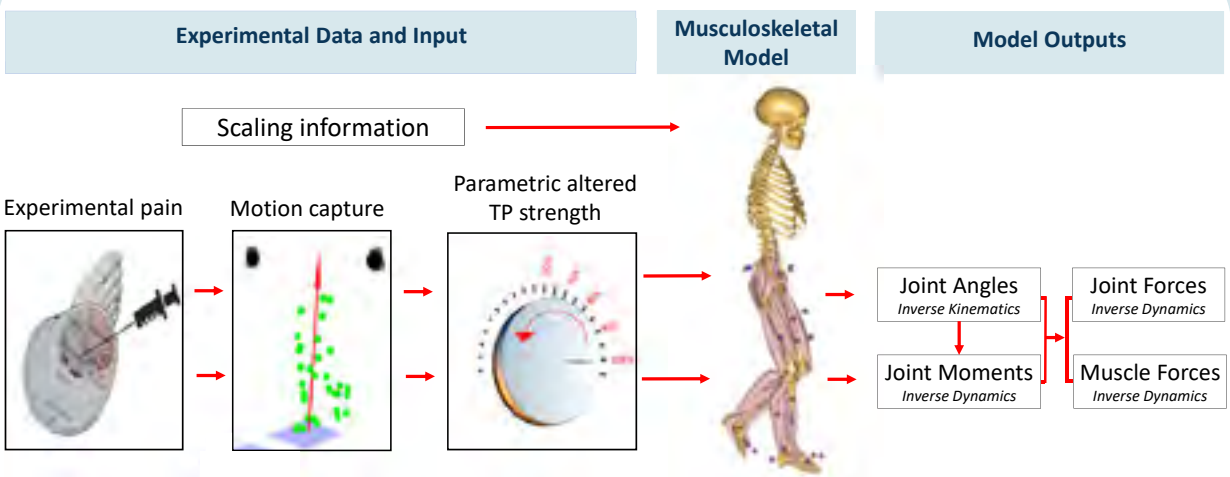

Figure 1: Overview of the study design and analysis workflow. An AnyBody musculoskeletal model (Lund et al., 2015) was used to perform inverse dynamic analysis of experimental data with TP pain and reduced TP muscle strength.

3

Results

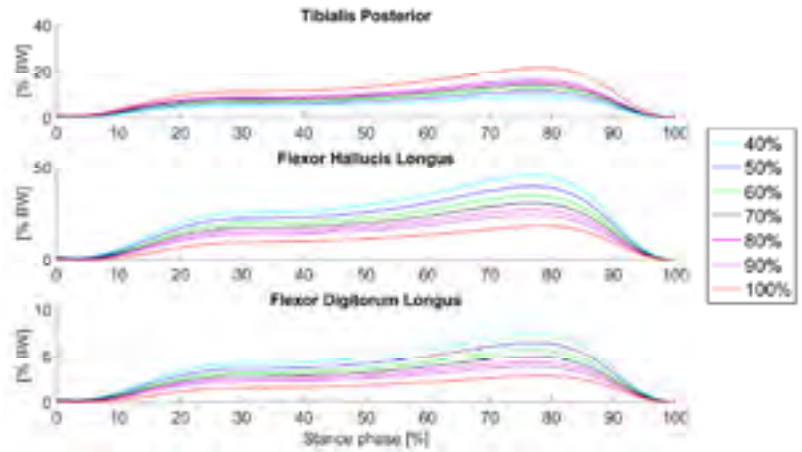

Figure 2: Mean muscle force of selected muscles of the lower leg for 100, 90, 80, 70, 60, 50 and 40% of default TP muscle strength

4

Conclusion

- Reduced tibialis posterior muscle strength caused altered muscle recruitment
- Flexor digitorum longus and flexor hallucis longus muscles compensated for the impairment of tibialis posterior.
- This might be a contributing factor to the forefoot deformities observed in patients with rheumatoid arthritis.

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NORTH DENMARK REGIONAL HOSPITAL
TrygFonden
The Danish Rheumatism Association

50. Evaluation of Shear Wave Ultrasound Elastography (SWUSE) for Differentiation of Lung Atelectasis – a Methodological Pilot Study

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Background
Lung atelectasis is one of the most common radiographic chest abnormalities. Chest X-ray is usually adequate for detection of atelectasis and CT scanning is required to establish diagnosis. When pleural effusion is present, drainage under ultrasound guidance is usually next step. Ultrasound-based-elastography is widely used to access severity of lever fibrosis as fibrosis effects lever tissue elasticity. One can assume that lung elasticity is changing, when atelectasis develops and that lung elasticity can be measured. It is of interest if measurement can be used to differentiate the cause.

Methods
All patients, aged over 45 years diagnosed with pleural effusion and atelectasis will be included in the study. The study takes place at the Department of Pulmonary Medicine, from September 2018 to March 2020. 60 patients will be included. Patients will be subject to the standard diagnostic protocol for newly diagnosed pleural fluid and atelectasis. SWUSE of the atelectatic lung will be carried out during the standard ultrasound (US) examination prior to drainage or diagnostic pleuracentesis with the patient in the sitting position and following successful drainage, if possible. Two-dimensional shear-waveelastrography 2D-SWE available in the US system (Arietta V70TM Hitachi Aloka) will be compared to the real-time 2D-SWE used for assessment of liver stiffness (AixplorerTM Supersonic Imaging). US data will be analyzed in comparison with other clinical data.

Results
To be gathered.

Conclusion
Ultrasound is a gold standard for diagnosis and treatment of pleural pathology. There is no established role of SWUSE in diagnostic assessment of lung tissue pathology. Despite obvious difficulties, this technique seems promising.

Should we look for more?

Evaluation of Shear Wave Ultrasound **Elastography** (SWUSE) for Differentiation of **Lung Atelectasis** – a Methodological Pilot Study

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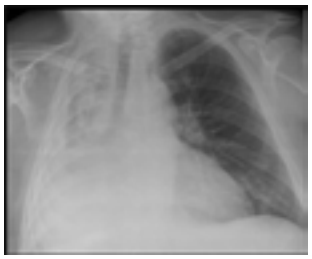
Background

Lung atelectasis is one of the most common radiographic chest abnormalities.[1] Chest X-ray is usually adequate for detection of atelectasis and CT scanning is required to establish diagnosis. When pleural effusion is present, drainage under ultrasound guidance is usually next step.[2]

Atelectasis of the right lung fig.1



Elastography-based imaging techniques have received substantial attention in recent years for non-invasive assessment of tissue mechanical properties.[3] The technique takes advantage of changed soft tissue elasticity in various pathologies to yield information that can be used for diagnostic purposes. Ultrasound-based-Elastography is for example widely used to access severity of lever fibrosis as fibrosis effects lever tissue elasticity.[4] However, there is no established role of SWUSE in assessment of lung tissue pathology.

We assume that lung elasticity is changing, when atelectasis develops and that lung elasticity can be measured.

Aims

1. To investigate feasability of lung elasticity measurements.
2. To access whether these measurements can add additional value to differentiate the cause of atelectasis.

Materials and Methods

All patients, aged over 45 years diagnosed with pleural effusion and atelectasis will be included in the study. The study takes place at the Department of Pulmonary Medicine of the North Denmark Regional Hospital from September 2018 to March 2020. 60 patients will be included.

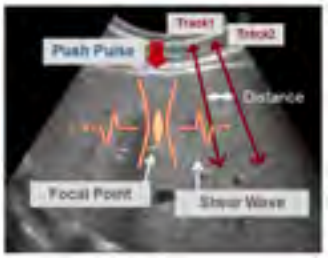
Patients will be subject to the standard diagnostic protocol for newly diagnosed pleural fluid and atelectasis. SWUSE of the atelectatic lung will be carried out during the standard ultrasound (US) examination prior to drainage or diagnostic pleuracentesis with the patient in the sitting position and following successful drainage, if possible.

Elastography measurements will be carried out using two-dimensional shear-wave-elastrography 2D-SWE (Arietta V70™ Hitachi Aloka) available at the Department of Pulmonary Medicine and the real-time 2D-SWE (Aixplorer™ Supersonic Imaging) available at the Department of Gastroenterology.

US data will be analyzed in comparison with other clinical data.

Shear Wave Elastography measurement in a small region of interest (ROI) in the liver fig. 2 .

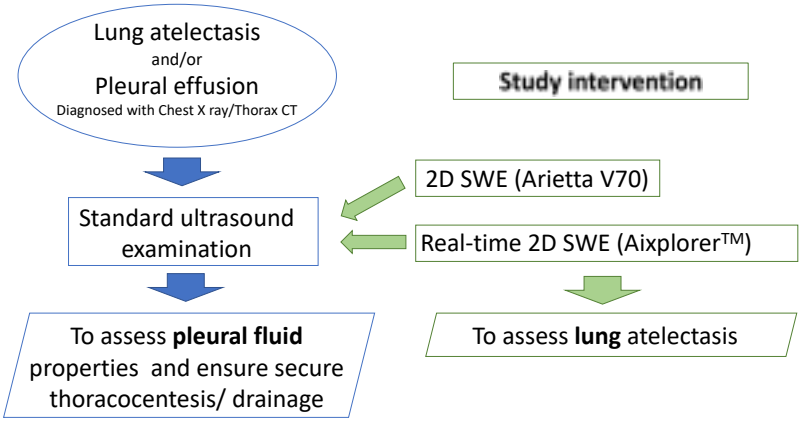
Point Shear Wave Elastography



Display item	Unit	Description
VS	m/s	Shear wave propagation velocity (median of Vs group)
IQR	m/s	Interquartile range of Vs group (width of median ± 25%)
VsN	%	Vs efficacy rate
Depth	Mm	ROI center depth

Acoustic Radiation Force (ARF) Impulse "Push Pulse" induces displacement of tissue at the focal point. Transmission is stopped. Shear Wave is generated at the edge of ARF and propagates off-axis. Propagation speed calculated from detected time of arrival by tracking pulses.

Flow chart to illustrate the place of SWUSE in the diagnostic process of lung atelectasis/pleural effusion fig. 3



Results

Are pending … Preliminary results are expected november 2019, final results - may 2020.

Perspectives

Ultrasound is a gold standard for diagnosis and treatment of pleural pathology.[2] The diagnostic role of ultrasound in assessment of other pulmonary diseases is rising, in particular in the acute setting (e.g. BLUE-protocol and FALLS-protocol)[5]. Despite obvious difficulties, SWUSE seems to be promising supplement in the assesement of lung pathology.

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51. The prevalence of patients undergoing repeated computed tomography scanning within a 12 weeks period – a retrospective study in the North Denmark Region

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Background
The number of computed tomography (CT) scans performed in Denmark have increased by more than 200% over the last 10 years. A CT scan is exposing the patient to a higher dose of irradiation in comparison to a conventional x-ray. As a result, patients undergoing repeated CT scans are at increased risk of developing radiation induced cancer. The aim of this study is to determine the prevalence of patients in the North Denmark Region who had been examined by more than one CT scan within a 12 weeks period.

Methods
SKS code UXCD data were used for the study. The data were extracted by the Business Intelligence (BI) unit at the North Denmark Region and representing the period from November 1. 2014 through February 28 2016.

Results
Data are now been analyzed statically.

Conclusion
We expect that the study will provide important results to describe the prevalence of repeated CT scans in the North Denmark Region. This information will be used to reduce number of CT scans, which can be considered as having been repeated unnecessarily from a clinical standpoint. It follows that a reduction in CT scans will decrease the overall risk of radiation induced cancer.

The prevalence of patients undergoing repeated computed tomography scanning within a 12 weeks period – a retrospective study in the North Denmark Region

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Background

The number of computed tomography (CT) scans performed in Denmark have increased by more than 200% over the last 10 years [1.1]. A CT scan is exposing the patient to a higher dose of irradiation in comparison to a conventional x-ray. As a result, patients undergoing repeated CT scans are at increased risk of developing radiation induced cancer [1.2].

Aim

The aim of this planned study is to determine the prevalence of patients undergoing repeated computed tomography (CT) scanning within a 12 weeks period from November 1st 2014 until February 28th 2016.

Methods

In this study a repeated CT scan is defined as a CT scan being performed within a 12 weeks period.
The study emphasizes on all abdominal scans (SKS coded UXCD) (Figure 1)

Results and perspectives

Data are now being analyzed statiscally.
We expect that the study will provide important results to describe the prevalence of repeated CT scans in the North Denmark Region. This information will be used to reduce number of CT scans, which can be considered as having been repeated unnecessarily from a clinical standpoint. It follows that a reduction in CT scans will decrease the overall risk of radiation induced cancer.
Is it welfare that a contry like Denmark have 230 CT scanners (figure 2). Or is it welfare that we actually think of how we use them, in the best way for the patients and in a way that we reduces the risk of radiation induced cancers and with the lowest cost?

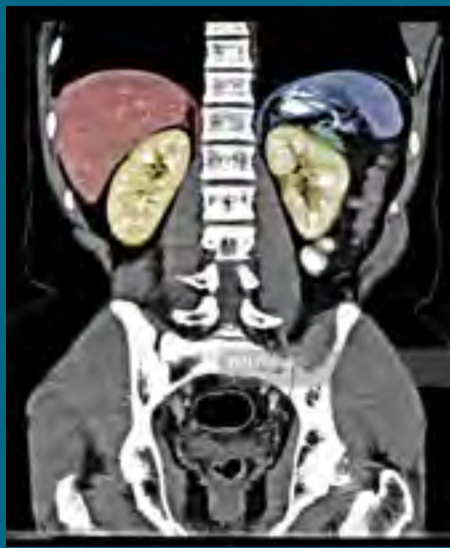

Figure 1: **CT-scan of the Abdomen (UXCD)**

Figure 2: **230 CT scanners = welfare**
Image borrow from "ugeskrift for læger"

1.1. Waltenburg Hanne. (2014). Stigende brug af CT.

1.2. Griffey, R. T., & Sodickson, A. (2009). Cumulative radiation exposure and cancer risk estimates in emergency department patients undergoing repeat or multiple CT. *American Journal of Roentgenology*, *192*(4), 887–892. http://doi.org/10.2214/AJR.08.1351

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52. Når lægen selv skriver journalen - afprøvning af nyt journal koncept med hybrid af klik- og tekstfelter

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Baggrund

Patientsikkerhed prioriteres højt på danske hospitaler. Det er i den forbindelse vigtigt for afsnittets læger at den primære patientjournal foreligger tidligst muligt i det akutte indlæggelsesforløb.
På Regionshospital Nordjylland arbejder vi med nye metoder til at gøre journaloptagelsen lettere for lægen og samtidigt sikre at journalen er tilgængelig uden forsinkelse. Klikjournal, som et nyt koncept, er en hybrid metode, hvor lægen skriver indlæggelsesnotatet med både klik- og tekstfelter, hvorefter notatet er synligt i samme øjeblik det gemmes.

Metode

I dette projekt vil læger i Klinisk Basis Uddannelse (KBU-læger) gennem 2 måneder udelukkende bruge Klikjournal ved journaloptagelse i Modtagelsen på Regionshospital Nordjylland.
Vi undersøger derefter brugertilfredsheden hos den journalskrivende læge, hos afsnittets læger som arbejder med indlæggelsesnotatet og vi sammenligner tidsfaktorer for journaloptagelse med Klikjournal og konventionel journaloptagelse.

1. Fokusgruppeinterview
   De journalskrivende KBU-læger deltager i fokusgruppeinterview med hver 2-4 deltagere. Udvalgte temaer vedrørende brugertilfredshed diskuteres.
2. Journal audit
   Kvaliteten af indlæggelsesnotater undersøges af 3-4 erfarne læger, som hver gennemgår 3 klikjournaler skrevet af KBU-læger og vurderer indholdet og formen af indlæggelsesnotatet.
3. Analyse af tidsforbrug
   Dataudtræk fra logging af aktivitet i journalsystemet analyseres. Tidsfaktorer fra patientens indlæggelse indtil indlæggelsesnotatet er tilgængeligt i journalen sammenlignes for Klikjournal og konventionel journaloptagelse.

Resultater

*

Konklusion

Perspektiv: Dette projekt vil give indsigt i fordele og udfordringer ved at arbejde med Klikjournal hvad angår brugertilfredshed, kvalitet af indlæggelsesnotatet og tidsfaktor for tilgængeligheden af indlæggelsesnotatet.
Lægernes erfaring med og mening om Klikjournal vil få betydning for den fremtidige udvikling af Klikjournal og skabeloner generelt i journalsystemet i Region Nordjylland.

NÅR LÆGEN SELV SKRIVER JOURNALEN

AFPRØVNING AF NYT JOURNALKONCEPT MED HYBRID AF KLIK- OG TEKSTFELTER

Maika Shakar[1] • Camilla Stefansen[2] • Dorthe Brønnum[3] • Peter Leutscher[3,4]

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Introduktion

Patientsikkerhed prioriteres højt på danske hospitaler. Det er i den forbindelse vigtigt for afsnittets læger, at den primære patientjournal foreligger tidligst muligt i det akutte indlæggelsesforløb. På Regionshospital Nordjylland arbejder vi med nye metoder til at gøre journaloptagelsen lettere for lægen og samtidigt sikre, at journalen er tilgængelig uden forsinkelse. Klikjournal, som et nyt koncept, er en hybrid metode, hvor lægen skriver indlæggelsesnotatet med både klik- og tekstfelter, hvorefter notatet er synligt i samme øjeblik det gemmes.

Metode

Klikjournal bliver afprøvet i Akutmodtagelsen på Regionshospital Nordjylland i efteråret 2018. Derefter undersøges lægernes tilfredshed, kvaliteten af indlæggelsesnotater og tidsforbrug.

Læger i Klinisk Basis Uddannelse (KBU-læger) bruger Klikjournal i 2 måneder ved journaloptagelse i Modtagelsen

Fokusgruppeinterview
De journalskrivende KBU-læger deltager i fokusgruppeinterview med hver 2-4 deltagere. Udvalgte temaer vedrørende brugertilfredshed diskuteres.

Journalaudit
Kvaliteten af indlæggelsesnotater undersøges af 3-4 erfarne læger, som hver gennemgår 3 klikjournaler skrevet af KBU-læger og vurderer indholdet og formen af indlæggelsesnotatet

Analyse af tidsforbrug
Dataudtræk fra logging af aktivitet i journalsystemet analyseres. Tidsfaktorer fra patientens indlæggelse indtil indlæggelsesnotatet er tilgængeligt i journalen sammenlignes for Klikjournal og konventionel journaloptagelse.

Perspektiv

Dette projekt vil give indsigt i fordele og udfordringer ved at arbejde med Klikjournal, hvad angår brugertilfredshed, kvalitet af indlæggelsesnotatet og tidsfaktor for tilgængeligheden af indlæggelsesnotatet.
Lægernes erfaring med og mening om Klikjournal vil få betydning for den fremtidige udvikling af Klikjournal og skabeloner generelt i journalsystemet i Region Nordjylland.

REGIONSHOSPITAL NORDJYLLAND
– i gode hænder

RHN/MH/1018

53. A study of patients' and relatives' need of nursing in healthcare undergoing historical changes

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5. Aarhus University, Denmark

Background
The demographic, economic and technological development in the welfare state of Denmark brings changes to the healthcare system, including a shorter hospitalization period. Therefore, an increasing number of patients are being treated at home, facilitated by the development of e.g. telemedicine solutions. This change the roles of the patient and the relatives and may affect the relationship between the patient, the relatives and the nurse. This development may call for a new understanding of treatment and nursing. Aim To examine the lived experience of being a patient at home and how the new setting is affecting the relationship between patient, relative and nurse, and how concepts as autonomy, relations, responsibility and communication affects the new role of being a patient

Methods
10 semi-structured interviews with patients receiving treatment and nursing at home. Relatives were interviewed in a focus group, as was the case with the nurses taking care of the patients. The data was analyzed with a hermeneutical approach. University of Southern Denmark has given IRB approval

Results
Preliminary findings: Trends indicate that it requires competent and responsible patients to receive treatment at home while the patients experience a higher degree of freedom and the possibility of being able to continue daily life. Furthermore the relationship with the nurse being responsible for the treatment at home seems to influence how this is perceived as safe for the patient.

Conclusion
When the patients are offered treatment at home, it causes them to take on a big responsibility to keep control on the process. Some patients possess certain competencies, which Means, that they can assess when the treatment need adjustment. Contacts to Health professionals must be few and close The patients experiences that they can continue daily routines and relations to the community Freedom and flexibility - being treated at home, allows the patient to control their own time. Maintain daily life despite being treated at home

A study of patients' and relatives' needs of nursing in healthcare undergoing historical changes

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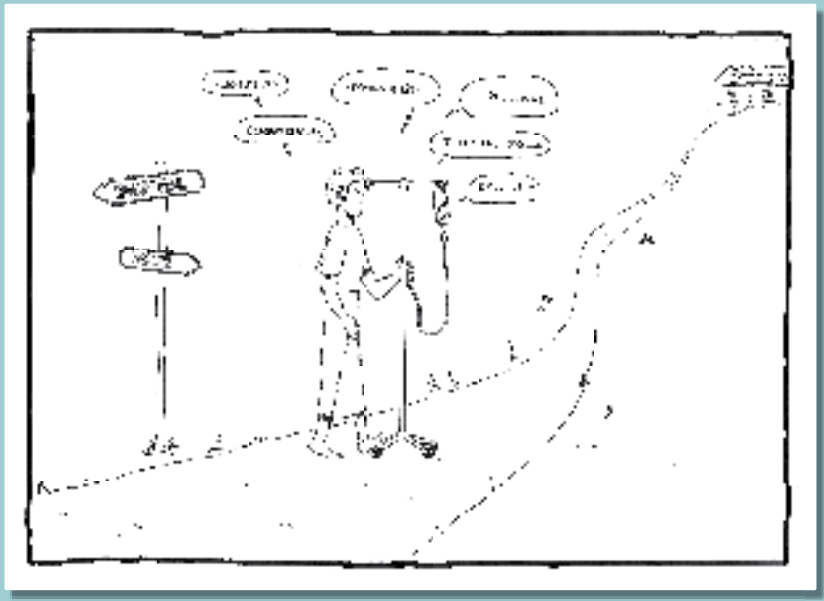
Background

The demographic, economic and technological development in the welfare state of Denmark brings changes to the healthcare system, including a shorter hospitalization period. Therefore, an increasing number of patients are being treated at home, facilitated by the development of e.g. telemedicine solutions. This change the roles of the patient and the relatives and may affect the relationship between the patient, the relatives and the nurse. This development may call for a new understanding of treatment and nursing.

Aim

To examine the lived experience of being a patient at home and how the new setting is affecting the relationship between patient, relative and nurse, and how concepts as autonomy, relations, responsibility and communication affects the new role of being a patient



Methods

10 semi-structured interviews with patients receiving treatment and nursing at home. Relatives were interviewed in a focus group, as was the case with the nurses taking care of the patients. The data was analyzed with a hermeneutical approach. University of Southern Denmark has given IRB approval

Preliminary findings

Trends indicate that it requires competent and responsible patients to receive treatment at home while the patients experience a higher degree of freedom and the possibility of being able to continue daily life. Furthermore the relationship with the nurse being responsible for the treatment at home seems to influence how this is perceived as safe for the patient.

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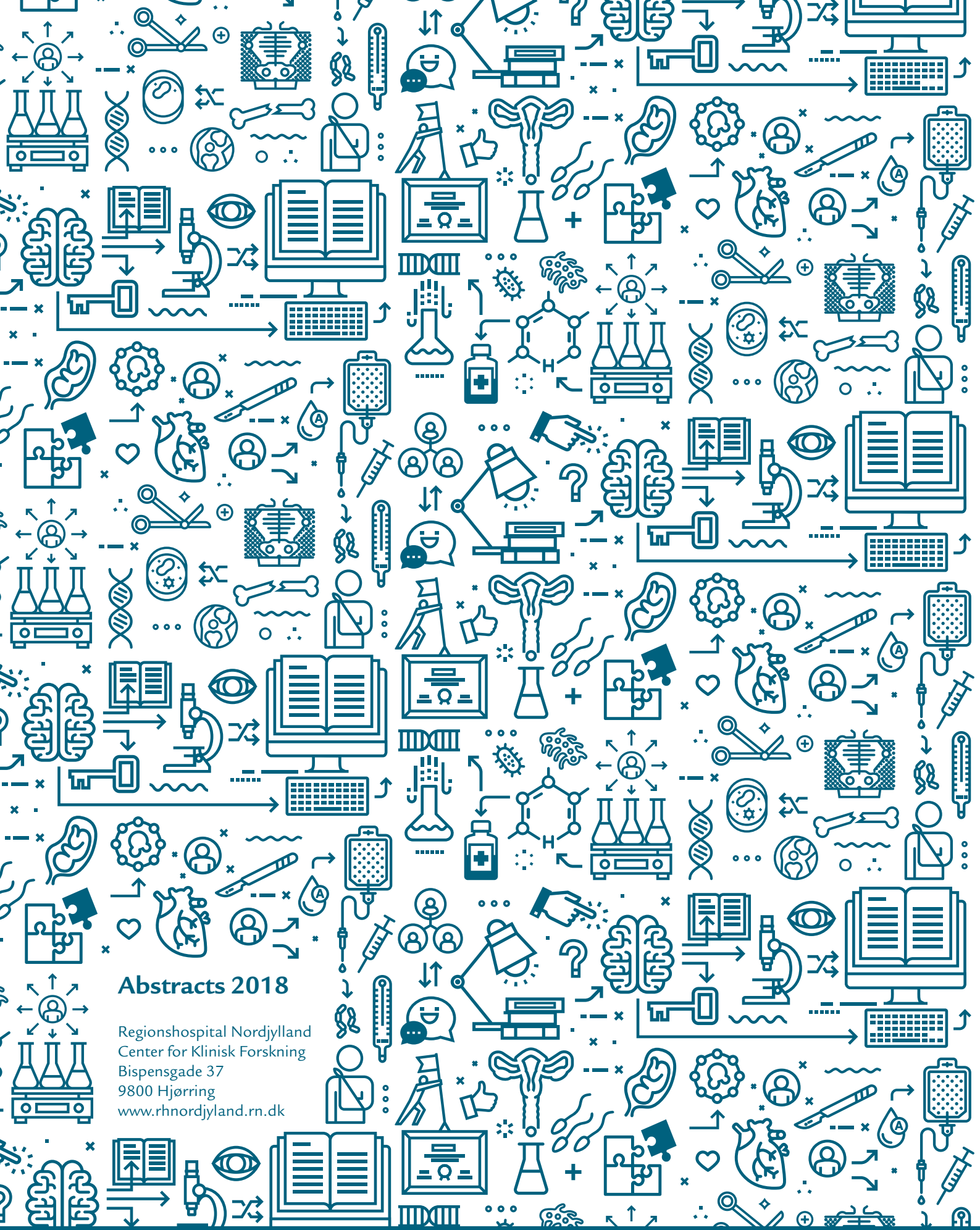

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