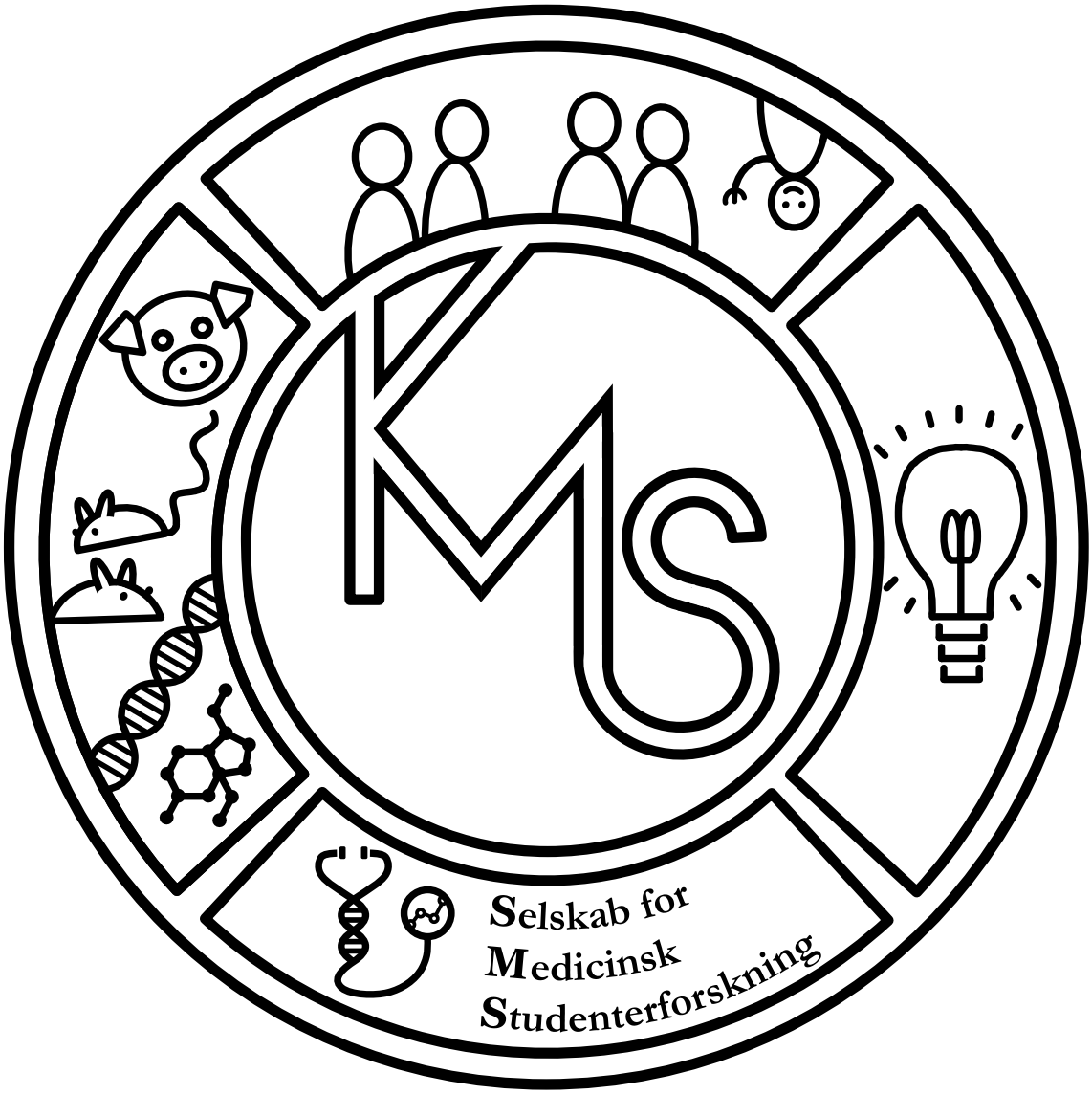
Selskab for Medicinsk Studenterforskning præsenterer

Kongres for Medicinsk Studenterforskning

Abstracts

Sandbjerg Gods, Sønderborg
9. – 12. marts 2023


KMS
Selskab for
Medicinsk
Studenterforskning

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Indhold

Velkomst

På vegne af Selskab for Medicinsk Studenterforskning ønskes I hjerteligt velkommen til den 14. nationale Kongres for Medicinsk Studenterforskning!

Vores forening har arbejdet hårdt henover det sidste år på at få stablet denne kongres på benene, og vi er meget spændte på at møde jer og høre om jeres forskning.

Formålet med kongressen er at give jer studenterforskere en mulighed for at præsentere jeres projekt i trygge rammer. De færreste af os har præsenteret vores forskning foran store forsamlinger før, så derfor går vi meget op i, at kongressen er et sted, hvor der er plads til fodfejl og læring. Ingen af os kan lave det perfekte oplæg, så derfor tager vi alle helt til Sandbjerg for at øve os. Derfor håber vi også, at I vil hjælpe og støtte op om at skabe et trygt miljø, hvor I alle får en god oplevelse.

Udover jeres præsentationer så vil der også være en masse andre aktiviteter, der har det formål, at vi skal lære hinanden at kende og hygge os. Vi er alle en form for eksperter på vores eget felt, men forskning fremmes også ved, at personer med forskellige kompetencer mødes. Vi vil derfor også opfordre jer til at tale med nogen, I ikke kender endnu, for de kan potentielt blive jeres nye samarbejdspartnere.

Tak til alle de sponsorer, som har gjort denne kongres mulig endnu en gang. Til sidst skal der lyde en kæmpestor tak til medlemmerne af Selskab for Medicinsk Studenterforskning for at have brugt deres dyrebare fritid på at sammenstykke dette års kongres. Uden dem, ingen kongres.

Jeg håber, I alle får en fantastisk kongres!

Martin Bjergskov Thomsen
Formand, Selskab for Medicinsk Studenterforskning

Program

Torsdag d. 9. marts

16.45 – 17.30	Ankomst og indkvartering	
17.40 – 17.45	Velkomstdrink	
17.45 – 18.00	Velkomst	Martin Bjergskov Thomsen *Formand, Selskab for Medicinsk Studenterforskning*
18.00 – 19.00	Aftensmad	
19.10 – 19.55	Foredrag *Medicinalindustriens magt, ghostwriting og snyd*	Niels Holmark Andersen *Klinisk lektor, Aalborg Universitet*
20.00 – 22.00	Teambuilding	

Fredag d. 10. marts

7.00 – 8.00	Løb eller yoga	
8.00 – 9.00	Morgenmad	
9.00 – 10.20	Oral session 1 - Hjerte-lunge	Chairs: Bo Løfgren Camilla Bang Hoeks
10.20 – 10.35	Frugt, vand og kaffe	
10.35 – 12.00	Oral session 2 - Epidemiologi	Chairs: Julie Schmidt Kirsten Woolpert
12.00 – 13.00	Frokost	
13.00 – 14.30	Poster session 1 - Epidemiologi	Chairs: Anne Marie Nybo Andersen Simon Bertram Flæng
	Poster session 2 - Hjerte-lunge	Chairs: Elisabeth Bendstrup Niels Moeslund
14.30 – 15.00	Tid til at kigge på posters og stille spørgsmål	
15.00 – 15.15	Frugt, vand og kaffe	
15.15 – 16.15	Networking og sparring	
16.15 – 16.30	Kaffe og kage	
16.30 – 18.00	Oral session 3 - Mor og barn	Chairs: Stine Yde Nielsen Mads Andersen
18.30 – 19.30	Aftensmad	
20.00 – 22.00	Pubquiz	

Lørdag d. 11. Marts

7.00 – 8.00	Løb samt morgenbadning og sauna	
8.00 – 9.00	Morgenmad	
9.00 – 10.30	Oral session 4 - Grundforskning	Chairs: Estéfano Pinilla Jonathan Yde
10.30 – 10.45	Frugt, vand og kaffe	
10.45 – 12.15	Poster session 3 - Intern medicin og kirurgi	Chairs: Henning Grønbæk Mathias Thygesen
	Poster session 4 - Grundforskning	Chairs: Louiza Bohn Thomsen Demet Özcan
12.15 – 12.30	Tid til at kigge på posters og stille spørgsmål	
12.30 – 13.30	Frokost	
13.30 – 14.45	Oral Session 5 - Psykiatri og neurologi	Chairs: Christina Shen-Zhuang Nielsen Trine Nielsen
14.45 – 15.45	Kaffe og kage	
15.45 – 17.15	Oral session 6 - intern medicin og kirurgi	Chairs: Niels Henrik Buus Jens Kristian Bælum
18.45 – 19.00	Velkomstdrink	
19.00 – 22.15	Gallamiddag	Festtaler: Henning Grønbæk *Klinisk lærestolsprofessor,* *Aarhus Universitetshospital*
23:00 – 02:00	Liveband	
03.00	Natmad	

Søndag d. 12. marts

8.00 – 9.00	Udtjekning	
9.30 – 10.30	Morgenmad	
10.45 – 11.45	Foredrag *Hypnose i medicinsk øjemed*	Kim Oechsle *Metakognitiv hypnoterapeut, Aarhus*
11.45 – 11.50	Afslutningstale	Martin Bjergskov Thomsen *Formand for Selskab for Medicinsk Studenterforskning*
11.50 – 12.30	Kaffe, frugt og sandwich til turen samt afrejse	

Taksigelser

Selskab for Medicinsk Studenterforskning vil gerne takke alle sponsorerne for deres flotte bidrag, uden hvilke Kongres for Medicinsk Studenterforskning 2023 ikke var mulig.

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Institut for Biomedicin, Aarhus Universitet

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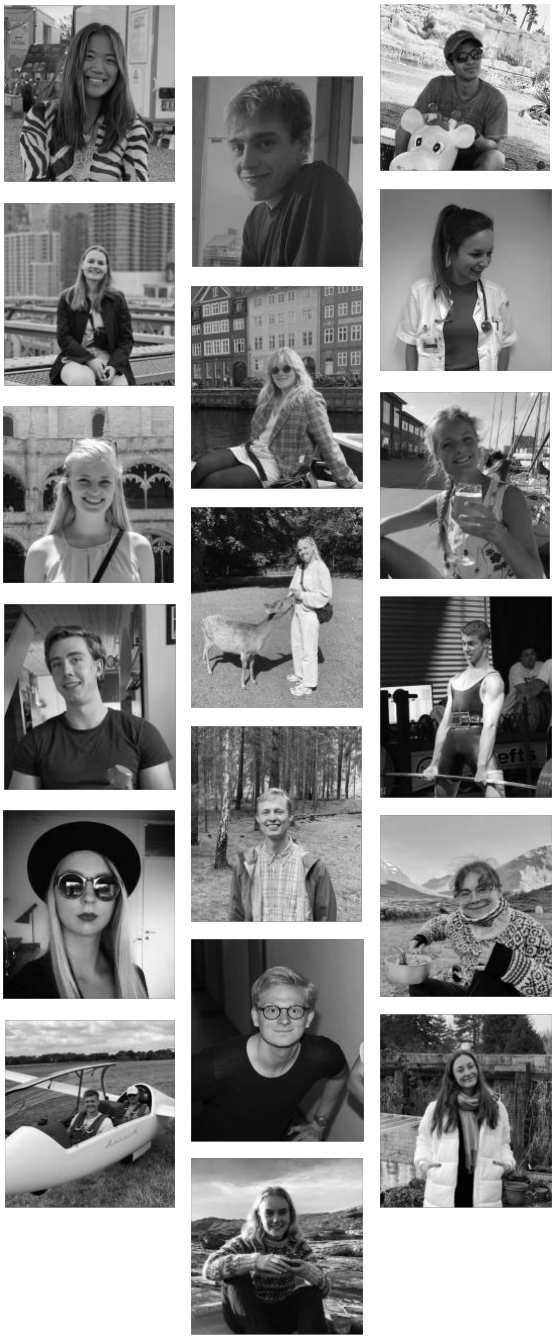

Chairs

Oral session 1

Bo Løfgren, professor, Aarhus Universitet
Camilla Bang Hoeks, læge**,** ph.d.-studerende, Aarhus Universitet

Oral session 2

Julie Schmidt, postdoc, Aarhus Universitet
Kirsten Woolpert, MPH, ph.d.-studerende, Aarhus Universitet

Oral session 3

Stine Yde Nielsen, adjunkt, Aarhus Universitet
Mads Andersen, ph.d.-studerende, Aarhus Universitet

Oral session 4

Estéfano Pinilla, Cand Pharm, postdoc, Aarhus Universitet
Jonathan Yde, læge, ph.d.-studerende, Aarhus Universitet

Oral session 5

Christina Shen-Zhuang Nielsen, læge, ph.d.-studerende, Aarhus Universitet
Trine Nielsen, læge, ph.d.-studerende, Syddansk Universitet

Oral session 6

Niels Henrik Buus, klinisk professor, lektor, Aarhus Universitetshospital
Jens Kristian Bælum, speciallæge i kirurgi, Odense Universitetshospital

Postersession 1

Anne Marie Nybo Andersen, professor, Københavns Universitet
Simon Bertram Flæng, læge, PhD, Aarhus Universitetshospital

Postersession 2

Elisabeth Bendstrup, klinisk lærestolsprofessor, Aarhus Universitetshospital
Niels Moeslund, læge, PhD, Aarhus Universitetshospital

Postersession 3

Henning Grønbæk, klinisk professor, Aarhus Universitetshospital
Mathias Thygesen, læge, ph.d.-studerende, Aarhus Universitetshospital

Postersession 4

Louiza Bohn Thomsen, professor, Aalborg Universitet
Demet Özcan, ph.d.-studerende, Aarhus Universitetshospital

Oversigt over sessioner

List of talks

Orale sessioner

O.1 Hjerte-lunge

O-1.1

Pernille Schjødt Hansen

Treatment of malignant pleural effusion with pressurized intrathoracic aerosol chemotherapy (PITAC)

PS Hansen[1] *M Graversen*[1, 2] *MB Mortensen*[1, 2, 3]

[1]Odense PIPAC Center (OPC) and Odense Pancreas Center (OPAC), Odense University Hospital, Odense, Denmark

[2]Department of Surgery, HPB and Upper GI Section, Odense University Hospital, Odense, Denmark

[3]Institute of Clinical Research, Faculty of Health Sciences, University of Southern Denmark, Odense, Denmark

BACKGROUND: Malignant pleural effusion (MPE) is a debilitating condition caused by advanced cancer disease. The patients suffer from different symptoms but dyspnea is a major problem and the life-expectancy is short. Current first-line treatments are inefficient and patients need repeated procedures. PITAC is a minimal invasive procedure inspired by intraperitoneal chemotherapy where antitumor agents are applied in the pleural space. PITAC is theorized to be feasible and effective in the treatment of MPE.

METHODS: A systematic literature search in PubMed was conducted and analyzed according to the PRISMA guidelines. The requirements for inclusion were performed PITAC treatments on humans. The studies were assessed by manual review of the abstracts followed by a full-text review. A backwards citation search was executed on the included studies to insure inclusion of all relevant studies. Literature data was supplemented by the PITAC experience obtained at Odense PIPAC Center.

RESULTS: The included studies were retrospective case series treating between 1 and 10 patients and per-forming 1-21 PITAC procedures. Overall, a total of 49 PITAC directed treatments were performed in 26 patients with pleural metastasis and/or MPE and were included in the analysis.

CONCLUSION: These small case series were heterogeneous and lacking in terms of techniques and endpoints. Large prospective studies are needed to define standard operating procedures (SOPs), safety and outcome.

ACKNOWLEDGEMENTS: The review was sponsored by Odense University Hospital, DK-5000 Odense C, Denmark, represented by Professor Michael Bau Mortensen, MD, PhD, DMSci, Upper GI & HPB Section, Department of Surgery, Odense PIPAC Center (OPC), Odense University Hospital, DK-5000 Odense C, Denmark. We declare no support and no financial relationships with any organizations that might have an interest in the submitted work.

O-1.2

Mohab Basem Abdallah

Influence of cholesterol levels on the association between use of non-aspirin non-steroidal anti-inflammatory drugs and cardiovascular events after myocardial infarction

MB Abdallah[1] *K Bonnesen*[1] *HT Sørensen*[1] *L Pedersen*[1] *M Schmidt*[1, 2]

[1]Department of Clinical Epidemiology, Aarhus University and Aarhus University Hospital, Aarhus, Denmark

[2]Department of Cardiology, Aarhus University Hospital, Denmark

BACKGROUND: The importance of cholesterol levels for the association between non-aspirin non-steroidal anti-inflammatory drug (NSAID) use and cardiovascular risks is largely unknown. We examined whether low-density lipoprotein cholesterol (LDL-C) levels influenced the association between NSAID use and cardiovascular risk after first-time myocardial infarction (MI).

METHODS: We conducted a cohort study of all adult patients with first-time MI hospitalization during 2010–2020 with a LDL-C value before discharge. Based on the latest LDL-C value, we categorized patients into a low (<3 mmol/L or <116 mg/dL) and a high (≥3 mmol/L) LDL-C group. We used multivariate Cox regression to compute hazard ratios (HRs) with 95% confidence intervals (CIs) of the association between NSAID use and a major adverse cardiovascular event (MACE: recurrent MI, ischemic stroke, and all-cause death).

RESULTS: We followed 50,573 patients for a mean of 3.5 years. The HRs for MACE comparing NSAID use with non-use were 1.21 (95% CI: 1.11–1.32) overall, 1.19 (95% CI: 1.06–1.33) in the low LDL-C group, and 1.23 (95% CI: 1.07–1.41) in the high LDL-group. The HRs for recurrent MI and ischemic stroke were comparable between the LDL-C subgroups. The HRs for all-cause death was higher in the high (1.54, 95% CI: 1.30–1.83) than in the low LDL-C group (1.22, 95% CI: 1.07–1.39).

CONCLUSION: LDL-C levels did not modify the overall increased rate of MACE associated with NSAID use after first-time MI, but did modify the association between NSAID use and all-cause death.

ACKNOWLEDGEMENTS: The project is supported by the Novo Nordisk Foundation (grant NNF19OC0054908). The authors declare no conflict of interests.

O-1.3

Caroline Damsgaard Jensen

The effects of BMP10 in pressure overload induced right ventricular failure

CD Jensen[1, 3] *JS Axelsen*[1, 3] *S Andersen*[1] *FSH de Man*[2] *A Andersen*[1]

[1]Department of Cardiology - Research, Aarhus University Hospital

[2]Department of Physiology and Pulmonology, Amsterdam Medical Centers, Amsterdam, The Netherlands

[3]Department of Clinical Medicine, Aarhus University

BACKGROUND: Pulmonary arterial hypertension (PAH) causes right ventricular (RV) failure which is the predominant cause of death. There is an unmet need for new treatment strategies to support the failing RV in these patients. Current treatment strategies only focus on dilating the pulmonary vessels even though RV function can further decline even after control of pulmonary pressure. We seek to meet this need by investigating the effects of BMP10 as a potential new treatment in an animal model of RV failure.

METHODS: Rats will undergo the pulmonary trunk banding (PTB) operation and will be randomized into three groups after the one week baseline echocardiography. Two groups will receive treatment with BMP10 or palovarotene (a drug increasing endogenous BMP10) for four weeks. The third group without treatment will do as a control group. Five weeks after surgery development of RV failure will be evaluated by echocardiography, magnetic resonance imaging and invasive pressure-volume measurements.

RESULTS: The study is ongoing and preliminary results will be presented at KMS 2023.

CONCLUSION: We seek to investigate whether BMP10 can attenuate RV failure and hereby explore the potential of a new group of targeted RV therapies for patients with PAH. As RV failure still is the predominant cause of death, targeted RV therapies will have a high impact for these patients.

ACKNOWLEDGEMENTS: The project is supported by the Novo Nordisk Foundation and further grants have been applied for. The experiments will be performed at the Department of Clinical Medicine, Aarhus University Hospital. International collaboration is established with Dr. Frances de Man, Amsterdam Medical Centre, Amsterdam, The Netherlands.

O-1.4

Thomas Skaarup Godsk

Safety and effectiveness of direct oral anticoagulants following percutaneous coronary intervention in patients with atrial fibrillation: The Western Denmark Heart Registry

T Godsk[1] *PG Thrane*[1] *KKW Olesen*[1] *M Würtz*[1] *JC Nielsen*[1, 2] *MB Mortensen*[1] *JW Eikelboom*[3] *M Maeng*[1,2]

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[3]Division of Hematology & Thromboembolism, Department of Medicine, McMaster University, Ontario, Canada.

BACKGROUND: Following percutaneous coronary intervention (PCI) in patients with atrial fibrillation (AF), guidelines recommend dual therapy with a direct oral anticoagulant (DOAC) and a platelet inhibitor for up to 1 year. However, no recommendation is given as to which DOAC should be favoured, as no head-to-head comparisons of DOACs exist. This study compared the three most common DOACs in Western Denmark.

METHODS: Patients with AF undergoing PCI between 2011 and 2017 in Western Denmark were included. The study compared 1) rivaroxaban vs apixaban, 2) rivaroxaban vs dabigatran, and 3) apixaban vs dabigatran. Endpoints were hospitalization for bleeding and major adverse cardiac events (MACE) at 1-year. MACE was a composite of myocardial infarction, ischemic stroke, and all-cause death. Crude and inverse probability of treatment weighted hazard ratios (HR_w) were calculated using Cox regression.

RESULTS: The study included 802 patients: 304 received rivaroxaban, 205 apixaban and 293 dabigatran. Use of rivaroxaban was associated with a higher risk of hospitalization for bleeding compared to apixaban (13.8% vs 9.0%; HR_w 0.48 (0.27 – 0.85)) and dabigatran (13.8% vs 7.6%; HR_w 0.56 (0.32 – 0.99)). Dabigatran and apixaban had comparable risk of bleeding (HR_w 1.16 (0.53 – 2.53)).

CONCLUSION: Rivaroxaban, apixaban, and dabigatran may differ substantially concerning risk of bleeding and MACE in AF patients undergoing PCI. These results highlight a need for a randomized trial in this setting.

ACKNOWLEDGEMENTS: We would like to thank the Department of Cardiology, Aarhus University Hospital.

O-1.5

Mathilde Emilie Kirk

Repetitive pulmonary emboli and inhibited fibrinolysis induce persistent thrombi without pulmonary hypertension in pigs

ME Kirk[1, 2] *VT Merit*[1, 2] *MD Lyhne*[1, 3] *JV Hansen*[1, 2] *SJ Dragsbaek*[1, 2] *CCE Pedersen*[4] *JE Nielsen-Kudsk*[1, 2] *A Andersen*[1, 2]

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BACKGROUND: Chronic thromboembolic pulmonary hypertension (CTEPH) is a life-threatening complication in survivors of acute pulmonary embolism (PE). CTEPH is characterized by unresolved thrombi and persistently increased mean pulmonary arterial pressure (mPAP). The exact underlying pathophysiological mechanisms remain unclear. We hypothesized that repetitive PE and inhibited fibrinolysis in pigs would induce chronic thrombi and pulmonary hypertension resembling CTEPH.

METHODS: Six Danish slaughter pigs was included. Consecutive autologous PE was injected after baseline evaluation and repeated after tree, six and ten days. Tranexamic acid was administered daily to inhibit fibrinolysis. After one month a long-term evaluation was performed and tissue samples from the lungs were acquired. Effects of the interventions were evaluated by computed tomography pulmonary angiography (CTPA), bi-ventricular pressure-volume loops, right heart catheterization, and blood gasses.

RESULTS: Each pig received 3 [2-4] emboli each day of induction resulting in a total number of 12±3 emboli per animal. CTPA showed persistent, large, and central clots at follow up. Cloth burden was calculated by Modified Miller Score, where all pigs received the highest possible score of 20 points. Compared to baseline, mPAP increased at follow up (20.5±2.4 vs 17.2±2.2 mmHg, p=0.0514). Pulmonary vascular resistance and right ventricular function were normalized at follow up.

CONCLUSION: Repetitive pulmonary emboli and inhibited fibrinolysis in pigs induced chronic pulmonary emboli and increased the pulmonary pressures, but without sustained pulmonary hypertension. This may suggest that additional factors are involved in the development of CTEPH after acute PE.

ACKNOWLEDGEMENTS: Collaborations on this project are established with Dr. Manudeep Kalra, Harvard Medical School, and Dr. Takayuki Jujo, Osaka University, for radiological and histological analysis. This work was supported by The Danish Heart Foundation [21-R148-A9883-22190]; Director Emil C. Hertz and wife Inger Hertz Foundation [KJR 13016]; The A.P. Moeller Foundation [L-2021-0064, 18-L-0102]; and The Laerdal Foundation for Acute Medicine (3374).

O-1.6

Marie-Louise Beier Guldfeldt

Molecular autopsy in cases of suspected sudden cardiac death

MB Guldfeldt[1] *MK Larsen*[2] *TS Nielsen*[2] *HK Jensen*[1, 3]

[1]Department of Cardiology, Aarhus University Hospital

[2]Department of Forensic Medicine, Aarhus University

[3]Department of Clinical Medicine, Health, Aarhus University

BACKGROUND: Sudden cardiac death is a global health problem mainly caused by ischemic heart disease. Inherited cardiac diseases account for a smaller proportion in mostly young patients. In some cases, the cause of death remains unexplained after a conventional forensic autopsy. In a molecular autopsy, a pathogenic variant can be found in cases of sudden unexplained deaths possibly explaining the cause of death. This study investigates in what degree molecular genetic testing contributes with new knowledge.

METHODS: A total of seventy patients suspected of sudden cardiac death were included. Medical records, autopsy reports and molecular test results were evaluated, and patients were divided into an "autopsy negative" group (i.e. unknown cause of death after autopsy) or "autopsy positive" group. Descriptive statistics were performed and compared within the two groups. The overall diagnostic yield of genetic test results was calculated.

RESULTS: A pathogenic variant was found in six patients resulting in an overall diagnostic yield of 11.1% with no difference between groups. In the autopsy negative group, a pathogenic variant was found in four patients (18.2%). The pathogenic variant was considered clinically relevant in two patients. The main finding of molecular autopsy was variants of uncertain significance.

CONCLUSION: Molecular autopsy serves as a valuable diagnostic tool. In time, an increased number of gene variants will be reclassified as either pathogenic, likely pathogenic, or benign as evidence grows. This may help explain the cause of death in cases of sudden unexplained deaths and prevent future deaths.

ACKNOWLEDGEMENTS: Nothing to declare.

O-1.7

Mark Andreas Eggertsen

Sodium bicarbonate and calcium chloride for the treatment of hyperkalemia-induced cardiac arrest: a randomized, blinded, placebo-controlled experimental study

ME Eggertsen[1, 2] *CM Johannsen*[1, 2] *A Kovacevic*[2] *MF Vallentin*[3] *LM Vammen*[1, 2] *LW Andersen*[1, 2, 3] *A Granfeldt*[1, 2]

[1]Department of Anesthesiology and Intensive Care, Aarhus University Hospital, Denmark

[2]Department of Clinical Medicine, Aarhus University, Denmark

[3]Prehospital Emergency Medical Services, Central Denmark Region, Aarhus, Denmark

BACKGROUND: Current international guidelines recommend the use of calcium chloride and sodium bicarbonate in patients with hyperkaliemia-induced cardiac arrest, despite evidence being limited. The aim of this study was to evaluate the efficacy of calcium chloride, sodium bicarbonate, the combination, or placebo on return of spontaneous circulation (ROSC) in an animal model of hyperkalemia-induced cardiac arrest.

METHODS: Hyperkalemia was induced by a continuous infusion of potassium chloride over 45 minutes followed by a potassium chloride bolus to induce cardiac arrest. A no flow period of 7 minutes was followed by basic- and subsequently advanced life support. The first intervention dose was administered after the 5th rhythm analysis, and a defibrillation attempt was made at the 6th rhythm analysis. A second dose was administered after 7th rhythm analysis if ROSC was not achieved by that time.

RESULTS: 52 pigs were included in the study. Sodium bicarbonate significantly increased the number of animals achieving ROSC (24/26 (92%) vs 13/26 (50%), OR: 14.0, 95%CI [1.89; 295], P=.03) and time to ROSC was significantly shorter in this group (HR: 3.52, 95%CI [1.35;10.3], P=.013). There was no effect of calcium chloride on the number of animals achieving ROSC (19/26 (73%) vs 18/26 (69%), OR: 1.36, 95%CI [0.29;6.59], P=.70) or time to ROSC (HR: 1.51, 95%CI [0.50;4.71], P=.46)

CONCLUSION: Administration of sodium bicarbonate significantly increased the number of animals achieving ROSC and decreased time to ROSC. There was no effect of calcium chloride on the number of animals achieving ROSC or time to ROSC.

ACKNOWLEDGEMENTS: Thanks to my research group Cecilie Munch Johannsen, Alexander Kovacevic, Mikael Fink Vallentin, Lauge Mørk Vammen, Lars W. Andersen and a special thanks to my main supervisor, Asger Granfeldt. Thanks to the scholarship from Aarhus Universitet and the grant from Aase og Ejnar Danielsens Fond.

O.2 Epidemiologi

O-2.1

Anna Glenn Ullum

Are professional cleaners able to recognize hand eczema? A questionnaire-based study

AG Ullum[1] *FB Sedeh*[1] *GBE Jemec*[1] *KS Ibler*[1]

[1]Department of Dermatology, Zealand University Hospital, Roskilde

BACKGROUND: Cleaners have an increased risk of developing hand eczema (HE) due to exposure to wet work and cleaning products. For adequate treatment, affected individuals must seek early medical attention to reduce the risk of chronicity, and recognition of symptoms is essential. However limited data exists regarding cleaner's ability to recognize HE. The study aims to examine cleaners' ability to recognize HE and disease severity and to compare the results to healthcare workers (HCW).

METHODS: Cleaners and HCW were invited to participate. The study was based on a questionnaire containing 16 questions regarding participants demographics, self-reported history of HE and self-evaluated knowledge of HE. A validated photographic severity guide for chronic hand eczema (CHE) with four different severity groups (almost clear, moderate, severe, very severe) was used in order to test participants ability to recognize and assess HE. Answers were collected through structured interviews.

RESULTS: 281 of 350 participated in the study. Among cleaners and HCW the proportion of recognized HE was 41.3% and 57.7% respectively of "almost clear HE", 81.3% and 92.0% of "moderate HE", 85.0% and 94.5% of "severe HE" and 82.5% and 97.0% of "very severe HE". Cleaners had statistically significant lower ability to recognize HE compared to HCW, however they more often assessed very severe HE correctly ($P \leq 0.001$). 36.3% of cleaners and 24.9% of HCW reported to have had HE.

CONCLUSION: The cleaners had a low ability to recognize HE. More awareness about HE is needed in this high-risk population to improve self-management skills and reduce the risk of chronic HE through earlier medical intervention. The true prevalence of HE may be higher if cleaners underestimate their symptoms.

ACKNOWLEDGEMENTS: Nothing to declare.

O-2.2

Christine Møberg

Prognostic biomarkers in patients with metastatic mucosal melanoma treated with immune checkpoint inhibitors – a retrospective evaluation

C Møberg[1] *T Steiniche*[2] *L Bønnelykke-Behrndtz*[3] *H Schmidt*[1]

[1]Department of Oncology, Aarhus University Hospital

[2]Department of Pathology, Aarhus University Hospital

[3]Department of Plastic and Breast Surgery, Aarhus University Hospital

BACKGROUND: Metastatic mucosal melanoma is a rare disease with a poor prognosis due to late diagnosis and low treatment response. Unfortunately, knowledge on prognostic biomarkers of metastatic mucosal melanoma is scarce. Our study investigates potential prognostic tumor tissue biomarkers in patients with metastatic mucosal melanoma.

METHODS: Our study was based on data from the Danish Metastatic Melanoma Database. 46 metastatic mucosal melanoma patients treated with immune checkpoint inhibitors were included. Diagnostic tumor tissue was stained using immunohistochemistry for biomarkers including PD-L1 expression, and markers of innate and adaptive immune cells. Data was analyzed with survival analysis using overall survival and progression free survival as endpoints.

RESULTS: Results will be presented at the KMS 2023.

CONCLUSION: This study sheds light on a rare disease with a poor survival outcome. The implications are a better understanding of the disease and thereby grounds for further investigation.

ACKNOWLEDGEMENTS: The project have received funding from the following funds: Kræftafdelingens Forskningsfond, Lizzi og Mogens Staal Fonden, Slagtermester Max Wørzner og Hustru Inger Wørzners Mindelegat til fordel for forskning i kræft, A. P. Møller Fonden, Helga og Peter Kornings Fond og Agnethe Løvgreens Legat.

O-2.3

Emil Kyvsgaard

Low mortality of COVID-19 in patients with B cell lymphoma after bispecific CD3 x CD20 therapy

ER Kyvsgaard[1, 2] *K Grønbæk*[1, 2] *M Hutchings*[1] *CU Niemann*[1] *C Riley*[1] *LH Damm*[3] *S Husby*[1, 2]

[1]Dept. of Hematology, Rigshospitalet, Copenhagen, Denmark

[2]Biotech Research and Innovation Center (BRIC), University of Copenhagen, Copenhagen, Denmark

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BACKGROUND: Patients with hematological malignancies and hematopoietic cell transplantation recipients are known to be at an increased risk of morbidity and mortality after COVID-19 infection. Especially patients treated with CAR-T for B-cell malignancies have been shown to have poor outcomes after COVID-19, resulting in a case mortality rate of 41.1%. However, outcomes after COVID-19 infection in patients treated with CD20xCD3 bispecific antibodies, which has similar side effects, has not been reported.

METHODS: A total of 107 patients who received bispecific antibodies in Denmark were assessed. Using clinical data from electronic health charts, the national Danish database of microbiology (MiBA), and the national drug- and vaccination registry (SharedMedicineCard), we collected data on date of positive COVID-19 test, quantitative PCR-determined COVID-19 variant, symptoms, reactivations, resolution of disease (either clinical, confirmed by negative PCR test or death), vaccination status and treatment.

RESULTS: At the time of analysis 3 of 23 patients infected with COVID-19 had died, only one due to COVID-19. COVID-19 case mortality rate was 4.3% (95% CI 0.77% to 21.0%). Nine out of 23 COVID-19 infected patients had at least one reactivation, with the mean number of reactivations being 2.7 (95%CI 0.63 to 4.7) with a range from 1 up to 9 reactivations. The median time to clinical resolution was 21 days (IQR: 44.5) and the median time to virologic (PCR) resolution was 106.5 days (IQR: 78.5).

CONCLUSION: It seems relatively safe to prescribe bispecific CD20xCD3 antibodies for lymphoma for patients who have been vaccinated for COVIC-19 with the currently circulating virus variants. Data on COVID-19 outcomes in larger cohorts treated with bispecific antibodies is warranted.

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O-2.4

Nanna Philbert Engel-Andreasen

Utilization of biologics used for plaque psoriasis: a descriptive study

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BACKGROUND: Administrative healthcare databases and clinical quality databases are important resources in drug utilization research, including psoriasis research. In this study we described the use of biologics for psoriasis by using two different nationwide Danish data sources i.e., the health care registries, based on administrative activity reporting and the clinical database, Dermbio, based on clinicians reporting clinical details from patient encounters.

METHODS: We included all adult psoriasis patients who received biologics between 2011 and 2018. In each data source we accessed patient characteristics and investigated drug utilization patterns by three different approaches: 1) Identifying first choice drugs over time, 2) describing switching patterns in the first, second, third and fourth treatment episodes and 3) investigating drug survival using Kaplan Meier analysis and the proportion of patients covered method.

RESULTS: Of 1 878 psoriasis patients in the health registries and 2 264 in Dermbio, 1 593 patients were found in both data sources. Adalimumab was most frequently registered as first choice in both data sources. However, important differences in the results were revealed in other drug use measures. For example, in drug survival assessed by Kaplan-Meier analysis, 55% were still using ustekinumab 12 months after initiation of treatment according to the health registries, compared to 78% in Dermbio.

CONCLUSION: Our study revealed incongruence in drug use between two nationwide data sources. This highlights that the validity of the used approach for assessing exposure, length of treatment episodes and treatment discontinuation must be evaluated before choosing data sources in drug utilization research.

ACKNOWLEDGEMENTS: This study was funded entirely by means of the department of clinical pharmacology and pharmacy, University of Southern Denmark.

O-2.5

Elisabeth Solmunde

Low-dose aspirin prescriptions and breast cancer recurrence: a Danish nationwide cohort study with up to 23 years of follow-up

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BACKGROUND: Low-dose aspirin inhibits platelet aggregation through inhibition of the cyclooxygenase enzymes. Platelets are thought to play a role in tumorigenesis by promoting tumor cell survival and metastatic growth. As such, aspirin may have a beneficial effect on breast cancer prognosis. We evaluated the association between aspirin use and breast cancer recurrence and death up to 23 years after primary diagnosis.

METHODS: We included all women with an early breast cancer during 1996-2004 registered in the Danish Breast Cancer Group. We obtained information on aspirin prescriptions from the Danish National Prescription Registry. We followed the women until the first of recurrence, death, second cancer, or end of 2018. We fit Cox regression models to compute crude and adjusted hazard ratios (aHRs) with 95% confidence intervals (CI), using landmark analyses starting follow-up at years 5, 10 and 15 after diagnosis.

RESULTS: Among 21684 women with 245,309 person-years of follow-up, 4939 had a recurrent breast cancer. Aspirin users had a reduced risk of recurrence (5-year landmark aHR=0.85 (0.72-1.00); 10-year landmark aHR=0.88 (0.74-1.04), 15-year landmark aHR=0.92 (0.67-1.27). Longer duration of aspirin use was associated with a reduced risk of recurrence. Aspirin users had lower incidence of recurrence, but higher incidence of death.

CONCLUSION: We find a reduced risk of breast cancer recurrence in aspirin users compared with nonusers. This is likely due to competing risks given the higher cumulative incidence of death in aspirin users.

ACKNOWLEDGEMENTS: Elisabeth Solmunde is funded by the Danish Cancer Society (R320-A18464-B5768) and the Independent Research Fund Denmark (1149-00013B). This work was supported by grants to Deirdre Cronin-Fenton from the Danish Cancer Society ("Knæk Cancer" R147-A10100).

O-2.6

Melina Sofie Jensen

2-[18F]FDG-PET/CT in cancer of unknown primary tumour (CUP)

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BACKGROUND: Cancer of unknown primary tumour (CUP) accounts for about 3-5% of cancer diagnoses. As median survival is usually less than a year, fast and accurate diagnostic methods are needed to ensure correct treatment as early as possible. This retrospective register-based cohort study aims to investigate the impact of 2-[18F]FDG-PET/CT on survival and detection rate in patients with cancer of unknown primary tumour (CUP), by comparing it to the conventional diagnostic imaging method CT.

METHODS: All patients who received the CUP diagnosis at Odense University Hospital from 2014-2017 were included. Patients receiving a 2-[18F]FDG-PET/CT were assigned to the 2-[18F]FDG-PET/CT group and patients only receiving a CT were assigned to the CT group. Detection rates were calculated as the proportion of true positive findings on both scans. Survival was calculated using Cox-regression and Kaplan-Meier estimates. Propensity scores were calculated to adjust for potential referral bias.

RESULTS: 193 patients were included, of this 159 in the 2-[18F]FDG-PET/CT group and 34 in the CT group. Detection rates were 36.48% in the 2-[18F]FDG-PET/CT group and 17.65% in the CT group (p=0.012). Median survival time was 7.4 (95% CI: 0.4-98.7) months in the 2-[18F]FDG-PET/CT group and 3.8 (95% CI: 0.2-98.1) months in the CT group. Survival in the 2-[18F]FDG-PET/CT group showed a crude HR of 0.63 (p=0.024) and an adjusted HR of 0.68 (p=0.087) compared to CT.

CONCLUSION: This study found a significantly higher detection rate in 2-[18F]FDG-PET/CT compared to CT. The study found no significant difference in survival between the 2-[18F]FDG-PET/CT group and the CT group, although a tendency towards longer survival in the 2-[18F]FDG-PET/CT group was observed.

ACKNOWLEDGEMENTS: This research was supported by University of Southern Denmark. The authors have no relevant financial or non-financial interests to disclose. The draft is currently being reviewed by L Eckhoff, C Kristiansen, P Thye-Rønn, KE Olsen and R Bahij. The people mentioned above are expected to be co-authors of the finished manuscript, although fulfilment of authorship requirements is still pending.

O-2.7

Fanny Asmussen

Infection and risk of late breast cancer recurrence: A Danish population-based cohort study

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BACKGROUND: About 17% of 10-year breast cancer survivors develop breast cancer recurrence. Yet, risk factors for such "late" recurrence are not fully understood. Immune dysregulation has been associated with regrowth of tumor cells, and lab studies suggest that antibiotic-induced disturbances of the gut microbiota disrupt immunologic signaling and stimulate neoplastic progression. We aim to investigate the association between antibiotic use and hospitalization for infection and risk of late recurrence.

METHODS: We will conduct a population-based cohort study of women diagnosed with non-metastatic breast cancer during 1987-2004, who were without recurrent disease 10 years after diagnosis. Using registry data patients will be classified as exposed if they redeemed >1 antibiotic prescriptions or had >0 hospitalization for infection after primary diagnosis. We will use Cox regression to calculate hazard ratios associating hospitalization for infection or antibiotic use with late breast cancer recurrence.

RESULTS: We will include 20,315 Danish 10-year breast cancer survivors. Analysis is ongoing, and results will be presented at the congress.

CONCLUSION: Our findings will contribute to knowledge on late breast cancer recurrence and could potentially identify women at increased risk. Such knowledge may help improve breast cancer prognosis.

ACKNOWLEDGEMENTS: This study is funded by the Independent Research Fund Denmark and the Danish Cancer Society.

O.3 Mor-barn

O-3.1

Christina Louise Winther

Growth pattern and immunization status in liver transplanted children

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BACKGROUND: Severe chronic liver diseases in children are associated with an increased mortality, and some children need a liver transplantation (LTX) to survive. Previous studies have reported non-protective levels of antibodies against vaccine-preventable diseases in children at LTX. The aim of this study was to examine the post-LTX immunization status of childhood vaccines and the effect of booster vaccines.

METHODS: Danish children (0-18 years) who had undergone LTX between 1990 and 2022 were eligible for inclusion. Age at LTX, sex, diagnosis, pre-LTX vaccination status, vaccines administered post-LTX and antibody levels of the childhood vaccines measured post-LTX were recorded retrospectively. If unavailable, new antibody levels were measured. Booster vaccines were administered if needed, and antibody levels were measured again minimum 1 month post-revaccination.

RESULTS: Post-LTX, the number of patients with non-protective levels of antibodies were 12 (26.7%) for morbillivirus, 8 (18.6%) for rubella virus, 20 (47.6%) for mumps, 12 (26.7%) varicella-zoster virus, 2 (11.8%) for Streptococcus pneumoniae, 13 (86.7%) for Haemophilus influenzae type B, 6 (54.5%) for Clostridium tetani, 7 (70%) for Corynebacterium diphtheriae and 9 (39.1%) for poliovirus.
Results on booster vaccinations will be presented at the congress.

CONCLUSION: Most Danish liver transplanted children had non-protective levels of antibodies against vaccine-preventable diseases post-LTX. Therefore, vaccination response should be implemented as a routine measurement post pediatric LTX followed by booster vaccinations if needed.

ACKNOWLEDGEMENTS: No conflicts of interest to be reported, this study was conducted through in-kind services.

O-3.2

Amalie Foldager

Sexually transmitted diseases and fecundability – A prospective cohort study

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BACKGROUND: Infection with sexually transmitted diseases (STDs) can have severe consequences for the female reproductive system. Untreated STDs can cause pelvic inflammatory disease which can lead to scarring and narrowing of the cervix and lower uterus, thus complicating the ability to conceive. However, it is uncertain to what extent STDs are associated with fecundability and whether recency of the infection plays a role.

METHODS: In two prospective cohort studies (SnartGravid and SnartForaeldre) of 10,475 Danish female pregnancy planners, we will evaluate the association between previous infection with chlamydia trachomatis (CT), genital herpes simplex virus (HSV), and human papillomavirus (HPV) with fecundability. We will estimate fecundability ratios and 95% confidence intervals using proportional probabilities regression models, adjusted for potential confounders.

RESULTS: At study entry, 2,433 (23.2%) of female participants had been infected with CT, 695 (6.6%) with genital HSV, and 1,200 (11.5%) with HPV. During 12 months of follow-up, 6,549 (62.5%) female participants achieved pregnancy, 2,686 (25.6%) did not achieve pregnancy, and 1,240 (11.8%) were lost to follow-up. The study is ongoing, and analyses are yet to be conducted.

CONCLUSION: We expect to present results describing the association between STDs and fecundability.

ACKNOWLEDGEMENTS: SnartGravid and SnartForaeldre are financed by National Institute of Child Health and Human Development and Department of Clinical Epidemiology, Aarhus University Hospital and Aarhus University.

O-3.3

Emma Sinkbæk Juuel

Human choriogonadotropin (hCG) remnant 4-6 weeks after pregnancy loss – a sub-study on the Copenhagen Pregnancy Loss Cohort (COPL)

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BACKGROUND: hCG stimulates ovaries and placenta to produce progesterone and is crucial in pregnancy. At least 25% of pregnancies result in a pregnancy loss (PL) before 22 weeks of gestation and the knowledge of hCG wash out following PL is limited. A better understanding of this could improve the clinical handling and timing of a future pregnancy. Thus, we aim to investigate the level of hCG 4-6 weeks post-PL and its association with ultrasonic findings and menstrual cycle.

METHODS: This research project is carried out as a sub-study under the Copenhagen Pregnancy Loss Cohort (COPL), an unselected, prospective cohort study including 1 500 couples experiencing PL of a confirmed intrauterine pregnancy before 22 weeks of gestation. Primary objective end points of this research project are serum-hCG from day of the PL and 4-6 weeks later. Secondary end points include a 3D scan of the uterus 4-6 weeks post-PL and information on day of menstrual cycle.

RESULTS: Data collection and analysis is ongoing. Analysis of blood samples will be performed at the Department of Clinical Biochemistry at Herlev Hospital. All collected data and material will be pseudo-anonymized and recorded in a RedCap database.

CONCLUSION: Conclusion is expected in February 2023. Data, analysis and conclusion to be presented in March 2023 at KMS.

ACKNOWLEDGEMENTS: For giving me the opportunity to join such an important and exciting project, a special thanks to my COPL colleagues and to my academic supervisors: Primary investigator on COPL Henriette Svarre Nielsen, professor at the University of Copenhagen and consultant at the unit for recurrent pregnancy loss, Hvidovre Hospital and Project Coordinator/Post. Doc. Tanja Schlaikjær Hartwig, MD, PhD, Hvidovre Hospital. COPL is primarily funded by BioInnovation Insitute and by Ole Kirk's Fund.

O-3.4

Lotte Bjerre Lassen

Communicating with parents in telephone triage – does the quality of communication depend on socioeconomic position? A combined observational and register-based study in Denmark

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BACKGROUND: The pathways linking socioeconomic position (SEP) and health status are complex, and communication may be a mediator of their relationship. We aim to explore if parental SEP affects the quality of communication when parents call out-of-hours (OOH) primary care services (PCS) on behalf of their children.

METHODS: We performed a combined observational and register-based study. Telephone calls to the Danish OOH primary care services concerning children were collected. The calls were evaluated on five communicative parameters. We added register data about parental SEP: ethnicity, educational level, labour market affiliation, and household disposable income. To investigate possible associations between the socioeconomic parameters and sufficient communication, logistic regression analyses were performed.

RESULTS: The calling parent being an immigrant or descendant significantly lowered the odds of receiving a sufficient rating on the parameter 'Ensures that the caller agrees on the triage decision and advice given and is accommodating in case of disagreement' (OR: 0.33, 95% CI: 0.15-0.74). There was a general trend of immigrants and descendants being less likely than Danes of receiving a sufficient rating across all five communication parameters. No other significant associations were found.

CONCLUSION: The statistically significant finding of poorer odds of sufficient communication for parents of non-Danish origin calls for further investigations. Other parameters estimating parental SEP do not appear to affect the quality of telephone communication when contacting the OOH PCS.

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O-3.5

Emil Krogh

MRI Showed Increased Lung Volumes In Fetuses With Transposition Of The Great Arteries

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BACKGROUND: Children with complex congenital heart defects (CHD) have significantly decreased brain size before birth and are at increased risk of neurodevelopmental impairment compared to children born without CHD. Knowledge about intrauterine growth of other organs in fetuses with CHD is limited.

METHODS: 8 fetuses with transposition of the great arteries (TGA) without other concomitant diseases and 42 fetuses without CHD were MR-scanned once or twice at gestational age 30-39 weeks. A blinded observer measured lung volumes and compared those with and without TGA using difference in means, linear regression, Mann-Whitney U-testing, and correcting for Estimated Fetal Weight. Intra- and inter-observer reliability were assessed through Intraclass Correlation Coefficient and Bland Altman Plots.

RESULTS: Mean lung volume for fetuses without TGA was 76.9cm^3 (95%CI: 71.1; 82.7cm^3) and for TGA-fetuses 103.3cm^3 (95%CI: 86.2; 119.8cm^3). The lung size in fetuses with TGA, was larger than the fetuses without TGA with a mean difference of 0.01cm^3/g (95%CI: 0.002; 0.012.86cm^3/g), p=0.004 when corrected for Estimated Fetal Weight. Intraclass Correlation Coefficient of the lung volume measurements was 0.96.

CONCLUSION: Surprisingly, TGA-fetuses had larger lung volumes than those without a congenital heart defect. This warrants further investigation. Overall, there was a high reliability of the lung volume measurements. However, the small number of cases in this project should be considered.

ACKNOWLEDGEMENTS: Nothing to declare.

O-3.6

Ulla Bismark Kullab

Perineal resuturing versus conservative treatment for dehisced perineal tears and episiotomies – A systematic review and meta-analysis

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BACKGROUND: Perineal wound dehiscence is associated with complications that severely affects the women, such as infections, perineal pain, dyspareunia, and affected sexual function. Currently, few studies have examined secondary repair of first- and second-degree perineal wound dehiscence. Thus, there is no consensus on the optimal treatment option for dehisced perineal wounds.

METHODS: To evaluate whether resuturing or conservative treatment of first- and second-degree dehisced perineal wounds and episiotomies is the optimal treatment modality in terms of postoperative healing time and other secondary outcomes. A systematic literature search using PubMed, Embase and Cochrane databases. All included studies were evaluated with SIGN methodology checklist, with the purpose to assess the study quality.

RESULTS: Three RCTs were included. Only two small sample sized studies presented data regarding healing time for both the resuturing and conservative treatment group. However, no significant difference was found between the two groups at four to six weeks healing time (RR 1.16, 95%, CI 0.53–2.52). One study found that women in the resutured group experienced a significant reduced healing time and higher satisfaction with looks of the wound healing at three months compared to the conservative treatment group.

CONCLUSION: We found no significant differences in the healing time between the resuturing group and the conservative treatment group. A well-designed, large, prospective randomized controlled trial is needed to evaluate the optimal treatment modality for dehisced perineal wounds.

ACKNOWLEDGEMENTS: Nothing to declare.

O-3.7

Bea Brix Pedersen

Organisation and training of the pediatric cardiac arrest teams in Denmark: a nationwide cross-sectional study

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BACKGROUND: Pediatric in-hospital cardiac arrest is associated with high morbidity and mortality. Studies show that to achieve the best outcomes from pediatric CPR, treatment by a multidisciplinary cardiac arrest team, is important. The organization and training of these teams vary and there is no data on the optimal structure of a cardiac arrest team. This study aims to describe the current organization and training of cardiac arrest teams for cardiac arrest in children, in Danish hospitals.

METHODS: This is a nationwide cross-sectional study including all hospitals in Denmark with a pediatrics department. Hospitals without a pediatrics department was excluded in the study. A questionnaire was emailed to the head of the resuscitation committee at the invited hospitals.
The questionnaire was developed by the research group and was reviewed by three hospital CPR educators to identify any obscurities before distribution to the hospitals.

RESULTS: Preliminary results shows that the composition of pediatric cardiac arrest teams is highly variable across Danish Hospitals. We have found major differences in composition of the cardiac arrest teams on total number, profession of the staff, medical specialties, and seniority of the team physicians. Furthermore, results indicate an important lack of training in pediatric resuscitation in the Danish hospitals.

CONCLUSION: This study found a high variability in pediatric cardiac arrest team composition and training across Danish hospitals. Furthermore, there is a significant lack of training in pediatric resuscitation.

ACKNOWLEDGEMENTS: Nothing to declare.

O-3.8

Eva Kristine Ruud Kjær

Detection of circulating tumor-derived material in peripheral blood of pediatric sarcoma patients: A systematic review

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BACKGROUND: Detection of circulating tumor-derived material (cTM) in the peripheral blood (PB) of cancer patients has been shown to be useful in early diagnosis, prediction of prognosis, and disease monitoring. However, it has not yet been thoroughly evaluated for pediatric sarcoma patients.

METHODS: We searched the PubMed and EMBASE databases for studies reporting the detection of circulating tumor cells, circulating tumor DNA, and circulating RNA in PB of pediatric sarcoma patients. Data on performance in identifying cTM and its applicability in diagnosis, and evaluation of tumor characteristics, prognostic factors, and treatment response was extracted from publications.

RESULTS: A total of 79 studies were assigned for the present systematic review, including detection of circulating tumor cells (116 patients), circulating tumor DNA (716 patients), and circulating RNA (2,887 patients). Circulating tumor cells were detected in 76% of patients. Circulating DNA was detected in 63% by targeted NGS, 66% by shallow WGS, and 79% by digital droplet PCR. Circulating RNA was detected in 37% of patients.

CONCLUSION: Of the cTM from Ewing's sarcoma and rhabdomyosarcoma ctDNA proved to be the best target, whereas copy number alterations or patient specific micro RNAs were the most promising targets for osteosarcoma. However, further investigations are needed to obtain consensus on clinical utility.

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O.4 Grundforskning

O-4.1

Johanne Frost Teilmann

Impact of radial head arthroplasty diameter on elbow joint kinematics evaluated by dynamic radiostereometric analysis

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BACKGROUND: Radial head arthroplasty (RHA) is used in the treatment of complex elbow dislocation fractures. Improper RHA size may result in pain, joint stiffness, and osteoarthritis, which is likely caused by unfavorable biomechanical changes. The aim of this experimental cadaver study was to evaluate elbow kinematics after insertion of different sizes of radial head implants by use of dynamic radiostereometric analysis (dRSA).

METHODS: 8 cadaveric donor arms were examined in neutral and supinated positions with dRSA during a motor-controlled elbow flexion-extension movement. Bone models were obtained from CT. The elbows were examined before and after RHA. The collateral ligaments were kept intact by use of a step-cut humerus osteotomy for repeated exchange and test of RHA head diameters of native size, +2mm and -2mm. Primary effect parameters were radio-capitellar joint kinematics in six degrees of freedom.

RESULTS: The anatomical sized and undersized RHA diameter did not reveal statistically significant different radio-ulnar and anterior-posterior kinematics in the radiocapitellar joint compared to the native elbow in both forearm positions. With the forearm in a loaded supinated position, an oversized RHA shifted the radial position radially ($p<0.001$). All the RHA sizes showed increased joint distraction ($p<0.05$) in the radiocapitellar joint compared to the native elbow in both forearm positions.

CONCLUSION: These results suggest that RHA diameter of anatomical size or undersized maintain radiocapitellar kinematics. In contrast, an oversized RHA seemed to cause kinematic change. The increased joint distraction suggests the anatomical stemlength overlengthened the radius as compared with the native bone.

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O-4.2

Frederik Skov

Adaptation and Function of Liver Sinusoidal Endothelial Cells in Obesity

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BACKGROUND: Liver sinusoidal endothelial cells (LSECs) are highly specialized endothelial cells. LSECs display unique characteristics which play a prominent role in maintaining normal liver functions. LSECs become dysfunctional in multiple liver disorders, including obesity and non-alcoholic fatty liver disease (NAFLD). However, still little is known about the adaptation and metabolic changes of LSECs during disease progression. We aim to uncover key pathways involved in LSEC dysfunction during obesity.

METHODS: The LSEC phenotype were evaluated at late (15–20 weeks) stages of obesity in male control and ob/ob C57Bl/6 mice. Using an untargeted approach, we performed proteomics analysis of isolated LSECs and could validate the obtained results using immunohistochemistry, mRNA gene expression ie. qRT-PCR, and metabolic flux analysis with radioactive tracers.

RESULTS: Obesity and NAFLD was featured by a pro-inflammatory phenotype in LSECs and a decrease in junctional protein expression. LSECs displayed altered bioenergetics and increased protein expression of enzymes engaged in metabolic activities, such as fatty acid metabolism and oxidative phosphorylation. Furthermore, the endocytic capacity of LSECs was significantly altered: LSECs upregulated scavenger receptors and proteins linked with lysosome formation and trafficking.

CONCLUSION: During obesity and NAFLD, LSECs demonstrate a great variety of adaptations. Metabolic processes are altered, as well as the endocytic capacity. LSEC adaptations might play a role in modulating liver disease progression.

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O-4.3

Oskar Hørsdal

Acute Hemodynamic Effects of Molar Sodium Lactate Infusion: A Randomized Study in Healthy Human-sized Pigs

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BACKGROUND: Lactate is traditionally acknowledged as a by-product of anaerobic metabolism. Today, however, a growing burden of evidence supports its role as an important coordinator of whole-body metabolism and a preferred oxidative substrate in stressed myocardium. Exogenous lactate infusion has improved hemodynamic states and increased cardiac output (CO) and oxygenation in heart failure and shock studies. However, no exact mechanism of action has been identified explaining the hemodynamic effects of lactate.

METHODS: We did a a randomized, double-blinded crossover study on eight 60 kg pigs. The pigs received an infusion of 1 M sodium lactate for two hours and an infusion of hypertonic sodium chloride for two hours in randomized order. Infusion periods were separated by a one-hour washout period. Using a PA-catheter we did hourly measurements of CO and systemic- and pulmonary pressures. A pressure-volume catheter inserted in the left ventricle measured a variety of contractility-, afterload-, and preload measures.

RESULTS: Lactate levels increased by 9.9 mmol/L (95% CI 9.1 to 11) and CO increased by 2.0 L/min (1.2, 2.8) during lactate infusion compared with placebo. Ejection fraction (EF) increased by 16 percentage points (1.9, 31) and heart rate by 21 bpm (9.3, 32). Afterload decreased by -1.1 mmHg/ml (-2.1, -0.18) and dP/dt_{max} increased by 502 mmHg/s (278, 728). Cardiac efficiency (CE), SvO2, pH, and P-glucose also increased during lactate infusion. No changes were identified in systemic- or pulmonary pressures.

CONCLUSION: Lactate infusion increased cardiac output by decreasing afterload with no changes in MAP. It also led to improved CE, EF and oxygenation but no changes in contractility or preload. Lactate should be evaluated as a treatment fluid in patients with increased myocardial stress e.g. heart failure.

ACKNOWLEDGEMENTS: The project have received funding from the Novo Nordisk Foundation, Aase & Ejnar Danielsens Foundation and Director Emil C Hertz and Wife Inger Hertz Foundation.

O-4.4

Benedicte Bech Andersen

Itaconate – a glucose metabolite with anti-inflammatory properties in Rheumatoid Arthritis

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BACKGROUND: Rheumatoid arthritis (RA) is the most prevalent inflammatory joint disease, robustly linked to immune dysregulation. A complex dysfunction of the immune system is considered vital for its pathogenesis. This project examines and validate the anti-inflammatory effects of the glucose metabolite derivative 4-octyl itaconate (4-OI) on RA. This project will add important knowledge on how cell metabolism plays a role in both leukocytes and inflammatory fibroblasts and their crosstalk.

METHODS: Plasma and synovial fluid (SF) were collected from patients with early (n=80) and long-lasting (n=20) RA and healthy individuals (n=35). The 4-OI downstream protein HO-1 was measured in naïve patients at baseline and after 6 months. Monocultures of (n= 7) and autologous co-cultures of SF-FLS and peripheral blood mononuclear cells (PBMC) were cultured with and without 4-OI (n=7) and compared to standard treatment. Analysis by Flow Cytometry, Western Blotting, MTT assay, and ELISA was performed.

RESULTS: Our results indicate that 4-OI depress inflammation targeting both stromal and immune cells. 4-OI reduced Monocyte Chemoattractant Protein-1 (MCP-1) production in PBMC and FLS and increased HO-1 expression. Nrf2-Knock-Out FLS endorse the importance of 4-OI/Nrf2 to produce HO-1. The decrease in MCP-1 was more prominent than that of Anti-TNF and corticosteroids in vitro. High levels of HO-1 in pre-treatment patients correlate with disease activity and radiographic joint destruction.

CONCLUSION: 4-OI decreased MCP-1 production in monocytes and RA-FLS by increasing the HO-1 expression. Pre-treatment-plasma HO-1 levels were increased and correlated with clinical disease activity. Treatment with 4-OI may reduce the activity of pro-inflammatory cells and decrease disease activity in RA.

ACKNOWLEDGEMENTS: Gigtforeningen.

O-4.5

Clara Winding

Localisation and Concentration of Pro-Somatostatin 1-64 in the Rat

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BACKGROUND: Somatostatin (SST) is an inhibiting peptide hormone, which is mainly secreted from the GI-tract, the pancreas and the hypothalamus. The hormone is secreted in small amounts (pmol) with a short half-life, minutes, thus difficult to measure the plasma concentration of SST in clinical blood samples. It is therefore of interest to find a secretion analog for SST. Prosomatostatin 1-64 is thought to be a possible candidate and assumed to be secreted alongside with SST in supposedly the same amount.

METHODS: With a double immunohistochemical coloring (IHC) of different tissues of 4 rats, it is looked into, where Pro-Somatostatin 1-64 (Pro-SST 1-64) and SST are represented in the same cells. Acid Protein extraction was performed on relevant tissues. Afterwards a radioimmunoassay (RIA) was performed on fractions generated by column gel filtration to determine the Pro-SST 1-64 concentration.

RESULTS: The IHC showed that both peptides showed in tissues from the GI-tract, most abundant in the medial and proximal part of the thin intestine, as well as in the ventricle and pancreas. The RIA performed showed the concentrations of Pro-SST were highest in the medial and proximal part of the thin intestine and a bit lower in the pancreas, ventricle and colon, as the IHC suggested. The Pro-SST fractions was found to be of size 1-32 and 1-64.

CONCLUSION: SST and Pro-SST were found in the same tissues. Protein from relevant tissues were acid-based extracted, run through a gel-column and the concentrations of Pro-SST were meassured by RIA. The peptide size were mainly found to be 1-32, which may be contributed to an acid-extraction technique.

ACKNOWLEDGEMENTS: This study was undertaken at Biomedical institute (BMI) 12.2 at Panum in collaboration with the University of Copehagen. A special thanks to Bolette Hartmann and Jens Juul Holst. The study was carried out with money from BMI 12.2 general budget.

O-4.6

Sofie Rask

The joint venture of tissue homeostasis and chronicity - Characterization of PD-1hi cells in the arthritic joint

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BACKGROUND: Programmed death 1 (PD-1) is an immune checkpoint receptor expressed by activated T cells, and of major importance in maintaining peripheral tolerance. Expression of PD1 has been associated with T cells exhaustion, plasma cells differentiation and bone homeostasis. With emerging treatments engaging the PD-1 pathway in Rheumatoid Arthrits (RA), it becomes increasingly important to understand the full spectrum of this pathway.

METHODS: Synovial fluid was collected from RA patients presenting with disease flare(n=7). Cells are sorted in CD3+ PD-1hi and PD-1lo populations and bulk RNA seq performed. Post sorting, cells are restimulated with antiCD3/CD28. Supernatants are investigated using V-plex. Supernatants are added to osteoclast cultures, differentiated from synovial fluid cells and fibroblasts from the joint. Sorted cells are also stimulated in the presence of a PD-1 agonist and supernatant investigated by ELISA.

RESULTS: Preliminary results have shown, that PD1low cells have a more activated profile than the PD1hi population, PD1hi cells expressing surface markers more like Tph cells. The PD1hi cells have significantly lower cytokine production. PHEX is highly expressed in the PD1hi cells which, combined with previous research, indicates a role in bone homeostasis. Results from cultures with osteoclasts stimulated with supernatants from the sorted cells are pending.

CONCLUSION: PD1low cells have a more activated profile than PD1hi cells and express markers like Tph cells. PD1hi cells possibly play a role in bone homeostasis making a possible target in RA treatment where bone erosions play a significant role in disease progression.

ACKNOWLEDGEMENTS: I would like to thank my supervisor and co-supervisor, Bent Deleuran and Stinne Greisen for great sparring and help in the project. I thank Kim Ravnskjær and Christian Andersen from SDU for RNA sequencing. I thank lab technician Sulaiman Hussein Kassem for help in setting up the experiments. Lastly, I thank my colleagues in the Skou Building for their daily support and talks.

O-4.7

Anders Frederiksen

Comparison of 4 radiation modalities in 1 laboratory

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BACKGROUND: Radiobiological setups are challenged by precise sample positioning along depth dose profile, scattering conditions, and potential practical difficulties that must be addressed in individual designs. The aim of this study was to compare 5 different modalities of irradiation within the same biological laboratory framework. The modalities were irradiation with protons and photons of 50 keV, 280keV and 6MeV.

METHODS: To compare the 4 different modalities a water phantom was constructed which was appropriate for in vitro research with multiple irradiation modalities. The cells were placed in 1 cm depth for photons, but for protons cells were placed multiple depths to examine the increasing Liniar energy transfer (LET) in the Spread-out brag peak (SOBP). Cell survival-curves were produced using biological triplicates of clonogenic assays for 50keV photons, 280keV photons, 6MeV photons, and 85-111 MeV protons.

RESULTS: Survival curves with uncertainty areas were made for all four radiation modalities and the three positions in the proton beam. The relative biological effect (RBE) using 6MeV LINAC photons as reference modality was found to be 1.05 [0.895; 1.20] for protons at the proximal spread-out brag peak (SOBP) position, 0.950 [0.772; 1.13] at the middle SOBP position and 0.957 [0.783; 1.13] at the semi-distal SOBP position.

CONCLUSION: This study found that the impact of cell-handling, setup variations, biological variation, fitting errors etc. on the conclusion in radiobiological in vitro studies is very influential compared to the potential survival shift caused by LET differences. RBE values could be found using this setup.

ACKNOWLEDGEMENTS: Thanks to Aarhus University for funding and for help and guidance from DCPT and Eksperimentel klinisk onkologisk afdeling, AUH.

O-4.8

Emil Christensen

Donor Natural Killer Cells for the Treatment of Cancer

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BACKGROUND: Natural Killer (NK) cell-based therapies have emerged as a promising frontier in the treatment of cancer, due to the intrinsic ability of NK cells to spontaneously eliminate transformed cells and their lack of alloreactivity, making “off-the-shelf” NK-cell therapy a viable option. However, manufacture of high numbers of cytotoxic NK cells is not trivial, and limited knowledge exists regarding the biology and long-term functionality of ex vivo expanded NK cells.

METHODS: We co-cultured enriched donor-derived NK cells with irradiated feeder cells and investigated phenotypic, functional, and transcriptional characteristics of the NK cells at different time points using flow cytometry and bulk RNA sequencing.

RESULTS: The NK cells acquired increased expression of activating receptors and higher cytotoxicity against target cancer cells after one week of expansion compared to freshly isolated NK cells. NK cell cytotoxicity decreased after three weeks of expansion, along with increased expression of senescence genes. Modifying the feeder cells to express membrane-bound IL-21 enabled greater fold increase in NK cell numbers and improved cytotoxicity after three weeks of expansion, compared to unmodified feeder cells.

CONCLUSION: The NK cells acquired a highly cytotoxic profile during ex vivo expansion, but transcend into a senescent state after three weeks of culture. Modifying feeder cells with membrane-bound IL-21 increased the overall expansion and cytotoxicity of the NK cells.

ACKNOWLEDGEMENTS: A special thank you goes to my supervisor, Torben Barington, for his persistent support and guidance. Also, I want to thank the staff and students at CITCO for their moral support toward this project.

O.5 Psykiatri og neurologi

O-5.1

Emma Tubæk Nielsen

Estimation of intracranial pressure using non-invasive fundoscopy

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BACKGROUND: Intracranial pressure (ICP) is regulated by different compensatory mechanisms and rises if the threshold for effective compensation is surpassed. ICP is an important diagnostic parameter for intracranial pathologies and is measured by invasive methods. Currently, no reliable and accessible method for non-invasive ICP measurement exists. This study uses two different fundoscopes to examine the association between ICP, arteriole and venule diameter ratio (A/V ratio), and intraocular pressure (IOP).

METHODS: This study includes patients undergoing investigation for normal pressure hydrocephalus (NPH) by lumbar puncture, and patients submitted to the neurosurgical intensive care unit with a standard ICP monitoring device. IOP is measured, and a fundoscopy records the background of the retina, while a webcam records ICP changes simultaneously. The process is repeated for both fundoscopies. Patient inclusion is ongoing.

RESULTS: If available, preliminary results will be presented at the congress.

CONCLUSION: No conclusion has been obtained yet, see above. We hope to see an association between the parameters being investigated and the measured ICP.

ACKNOWLEDGEMENTS: The project has received financial support from StatuManu and EuroStar. Funduscopes and IOP measurement device are made available by StatuManu. Jakob Madsen has economic interest in this project as CEO of StatuManu.

O-5.2

Lise Lykke

The influence of neuropeptides on tone regulation of porcine retinal arterioles in vitro

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BACKGROUND: Disturbances in retinal blood flow is a common feature of retinal diseases leading to blindness. A key to prevention and treatment is clarifying the regulation of blood flow. Previous studies indicate that neuropeptides affect tone regulation of retinal arterioles, but it is unknown to which extent the effect depends on the perivascular retinal tissue.

METHODS: Porcine retinal arterioles with perivascular retinal tissue were mounted in a wire myograph and the tone was recorded after the addition of increasing concentrations of either neuropeptide Y (NPY), vasoactive intestinal polypeptide (VIP), calcitonin gene related peptide (CGRP), substance P (SP) or insulin. The experiments were repeated after removal of the perivascular retinal tissue.

RESULTS: NPY induced contraction, and VIP and CGRP induced relaxation of the retinal arteriole in the presence of perivascular retinal tissue, but the effect disappeared after the perivascular retinal tissue had been removed. Insulin induced relaxation of arterioles both in the presence and absence of perivascular retinal tissue whereas SP had no effect on the tone of retinal arterioles.

CONCLUSION: The vasoactive effects of NPY, VIP and CGRP depend on the perivascular retinal tissue, whereas the effect of insulin is independent of this tissue. The findings may help elucidate the mechanism of action of the studied peptides on the tone regulation of retinal arterioles in health and disease.

ACKNOWLEDGEMENTS: This project was funded by the VELUX Foundation. The authors declare no conflict of interests.

O-5.3

Stine Bogetofte Thomasen

Overall survival amongst patients with neurofibromatosis type 1 and malignant peripheral nerve sheath tumor

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BACKGROUND: Patients with neurofibromatosis type 1 (NF1) have a lifetime risk of 8-13% of developing malignant peripheral nerve sheath tumor (MPNST). MPNSTs are highly aggressive sarcomas that are difficult to detect and have often metastasized at the time of diagnosis. The prognosis is poor, with high mortality and poor treatment outcomes. This descriptive study will provide new knowledge on the survival of NF1-associated MPNST and compare it to sporadic MPNST within Denmark.

METHODS: The study is based on two cohorts: 1) Patients with NF1 from the two Danish National Centers of Expertise for NF1, and 2) All patients diagnosed with MPNST from the national Danish sarcoma database. Dead and alive patients will be included with an observation period from year 2000-2020. Data collected are demographics, NF1 characteristics and MPNST characteristics, including treatment and survival. The primary endpoint is overall survival.

RESULTS: 150 patients are included in the study. Out of those, 30 patients were identified with NF1 and MPNST. In the NF1-MPNST subgroup, 10 (33.3%) are still alive, median age at death was 44.9 (15.5-59.1), and median age at diagnosis of MPNST was 35.6 (12.8-67.5). In the sporadic MPNST subgroup, 56 (47.5%) are still alive, median age at death was 62.4 (13.7-92.3), and median age at MPNST diagnosis 52.2 (3.4-92.7). Further data and results will be presented at the meeting.

CONCLUSION: Patients with NF1 associated MPNST are younger than patients with sporadic MPNST. Further data on NF1-associated MPNST compared to sporadic MPNST will be presented. Results from the study will highlight differences in overall survival between the two subgroups.

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O-5.4

Mette Krabsmark Borbjerg

The stability of Perception Threshold Tracking for long session evaluation of small and large fiber function

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BACKGROUND: Previous research has proven that epidermal- and transcutaneous stimulation can investigate the function of large and small nerve fibers (i.e., in diabetes) individually using different electrodes. This study aimed to determine the stability of the perception thresholds when using such electrodes. This assessment is valuable for future research investigating nerve fiber function using the technique for long-session experiments.

METHODS: Twenty healthy volunteers participated in the study. The perception threshold of large and small nerve fibers was estimated 30 times during 60 minutes. A threshold was established every other minute, alternating between the two electrodes. The stimulus duration was 1 ms and the interstimulus interval was 1.5-2.5 seconds. Linear regressions of the perception threshold as a function of time were performed. The slopes were used as an estimate of habituation and were compared between the electrodes.

RESULTS: The slope was significantly larger when assessed by the pin electrode (Median: 0.020 [0.009; 0.030] mA/trial) than when assessed by the patch electrode (Median: 0.005 [0.001; 0.018] mA/trial) (p=0.017, paired t-test). During the session, a total increase in perception threshold of approximately 55% and 1% were seen for the pin and patch electrode, respectively.

CONCLUSION: Both fiber-types showed significant perception threshold increases. The higher slope of the pin electrode indicated that the small sensory nerve fibers are more prone to habituation than large sensory nerve fibers, and that habituation should be considered during prolonged experiments.

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O-5.5

Anna Clausen

Retinal artery occlusion as a potential independent marker of incident dementia in a Danish national cohort

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BACKGROUND: Retinal artery occlusion (RAO) is a vision threatening disease associated with cerebral vascular dysfunction. Early detection of patients in risk of dementia could allow for prevental treatment, hence, this study was to investigate RAO as an independent biomarker of incident dementia.

METHODS: In a nationwide, 20 year retrospective cohort study, we identified 3 115 898 participants, aged 55 or older, identified through the Danish national health registries. We calculated incidence rate (IR) and HR (hazard rate) for all-cause dementia, Alzheimer's disease (AD) and vascular dementia (VD) a crude model and a model adjusted for age, sex, marital status and comorbidity.

RESULTS: IR of dementia was 4.0 and 1.2 per 1000 person-years at risk (PYR) in individuals exposed for RAO (106 of 36 212 PYR) and unexposed participants (41 124 of 33 494 470 PYR), respectively. HR and 95% confidence interval of incident dementia was 1.16 (1.03-1.30) and 1.02 (0.90-1.15) for patients with RAO in the crude and adjusted model. The same pattern was present for AD and VD as isolated endpoints.

CONCLUSION: Although individuals with RAO had a higher risk of incident dementia compared with unexposed individuals in a nationwide cohort, this was not statistical significant when shared risk factors were taken into account.

ACKNOWLEDGEMENTS: The VELUX Foundation funded this study. The authors declare no conflicts of interest.

O-5.6

Astrid Ibsen Bruun

Impact of workload on GP burnout – a survey and register-based study in Danish general practice

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BACKGROUND: Burnout is common among general practitioners (GPs). Previous studies have found an association between high workload and burnout among doctors. The aim was to assess the risk of burnout among Danish GPs in relation to self-reported and register-based workload.

METHODS: A questionnaire provided information on working hours and burnout status. Burnout was measured using the Maslach Burnout Inventory (MBI). A composite burnout score of quartile points was calculated. Register data provided information on number of services and patient characteristics and list size. Association between composite burnout score and workload was estimated with binomial regression analyses adjusting for the GPs' age and gender, and social deprivation score of their patient lists.

RESULTS: In total 312 Danish single-handed GPs were included. Results showed that working more than 5 days a week in practice increased the risk of a high burnout score ($RR_{adjusted}$ = 2.06, 95% CI [1.21—3.51]). Working more than 7.5 hours a day slightly increased the risk of a high burnout score, highest among GPs working 8.5-9.5 hours a day ($RR_{adjusted}$ = 2.01, 95% CI [0.90—4.51]). There was no association between number of services and risk of burnout.

CONCLUSION: Working more than 5 days a week in practice significantly increased the risk of burnout in Danish GPs. Working more than 7.5 hours a day tended to increase the risk. We found no association between a high number of services and increased risk of burnout.

ACKNOWLEDGEMENTS: The authors would like to thank all the GPs who completed the questionnaire. Additional thanks to Kaare Rud Flarup for help with data management. The study was funded by the General Practitioners' Education Foundation (PLU-fonden) and The Lundbeck Foundation.

O-5.7

Marc Alberg Sørensen

The effect of long-term antipsychotic drug treatment for schizophrenia on metabolic markers and diabetes

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BACKGROUND: Antipsychotics (AP) are used to treat schizophrenia. Studies show that AP side effects, such as metabolic disturbances, are associated with an increased risk of diabetes (DM). The limitations of these studies are often small cohorts and short follow-up, making it harder to register metabolic disturbances occurring over time. We aim to examine real-world patients with long follow-up and frequent measurements of metabolic parameters to detect side effect variations from different AP treatments.

METHODS: We will perform a retrospective cohort study using data from blood samples and medicine lists from all patients registered with schizophrenia in the central region of Denmark from 2016-2022. We will find all HbA1c, cholesterol and BMI measurements. Outcomes are measurement rates and changes in metabolic markers during AP treatment and the development of DM. We will analyse associations and risk differences between specific AP treatments and DM development. We use STATA for statistical analyses.

RESULTS: Results are pending. Preliminary results will be presented at KMS 2023 if available.

CONCLUSION: By investigating different AP types and doses' long-lasting effects on metabolic parameters and the risk of DM development, new treatment plans for specific patient groups might be preferential. This knowledge will be of great clinical relevance.

ACKNOWLEDGEMENTS: This project has received funding from the Lundbeck Foundation. The authors have nothing to declare.

O-5.8

Ida Astrup Kaaber

Peripheral blood biomarkers in Traumatic Brain and Spinal Cord Injury

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BACKGROUND: Traumatic brain injury (TBI) and spinal cord injury is notoriously difficult to characterize due to the heterogeneous nature of the disease and the treatment is largely symptomatic rather than proactive. This has led to extensive research of potential biomarkers for improving monitoring and outcome prediction. This study aims to investigate the correlation between serum-levels of CNS biomarkers and functional outcome in a realistic trauma setting in which these biomarkers would be used.

METHODS: Serum samples from 418 trauma patients (>17 years) were analyzed for the levels of CNS derived biomarkers at three different time points. The cohort consisted of 113 TBI patients, 96 patients with spinal cord injury and 209 patients with other traumatic mechanisms of injury. The samples were analyzed using the ultra sensitive Single Molecule Array technology. Predictive modelling will be used to address the correlation between biomarker levels, trauma severity and functional outcome.

RESULTS: This study is by November still in the process of gathering data and is yet to present any results. We expect to be able to present the results of our data analysis and conclusions at the congress in March 2023.

CONCLUSION: See above.

ACKNOWLEDGEMENTS: This study is funded by the Danish Victims Foundation and Aarhus University Hospital.

O.6 Intern medicin og kirurgi

O-6.1

Kasper Ørnsvig Christensen

Early development of tendinopathy in elite athletes - Clinical and ultrasonographic findings

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BACKGROUND: Our current knowledge on the treatment of chronic tendinopathy has improved in recent years. In contrast, the early development of tendinopathy is sparsely elucidated. The aim of this prospective observational study was to examine the change of clinical and imaging parameters over the course of 12 months in elite athletes with early (<3 months) Achilles and patellar tendinopathy.

METHODS: 65 elite athletes with Achilles- or patella tendon tendinopathy (<3 months) were examined at three timepoints (0, 3, and 12 months). All examinations included physical testing, questionaries (VISA- and NRS pain scores), ultrasonographic- and magnetic resonance imaging. Here, only ultrasonographic (thickness and echogenicity) and clinical outcomes were reported.

RESULTS: Elite athletes with early-phase tendinopathy had clinically relevant improvements on VISA- (15 points) and NRS- (2.0 points) pain scores at the 3-months follow-up which remained during the study period. Tendinopathic Achilles- and patella tendons had greater thickness than the contralateral tendon at inclusion. Injured Achilles tendons reduced in thickness while injured patella tendons remained larger. Tendon echogenicity was reduced in tendinopathic patella tendons at inclusion.

CONCLUSION: These results suggest that symptoms of both tendons improved clinically in the short and long-term but only Achilles improved morphologically. Patellar tendon thickness and echogenicity remained largely unchanged. The study was unable to find significant associations between morphology and symptoms.

ACKNOWLEDGEMENTS: This study is funded by Team Denmark and the International Olympic Committee (IOC).

O-6.2

Maiken Kruse Kristensen

Latent tuberculosis infection and average lifespan

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BACKGROUND: 25% of the world population are estimated to have a latent tuberculosis infection thereby representing a large reservoir from which the disease can reactivate with severe illnes and transmission as the fatal consequences. However, little is known about the lifetime consequences of tuberculosis infection on general health besides the risk of reactivation.

METHODS: We conducted a restrospective follow-up study on a cohort of individuals tested with Purified Protein Derived(PPD) skin test in 1999-2000 in the capital of Guinea Bissau. The groups of PPD-positive and -negative were sought out to determine who have died during the follow-up period and to investigate subjects still alive in terms of reactivation/active TB disease events, risk factors for TB, immunological reactivity towards Mycobacterium tuberculosis (Mtb) and socioeconomic factors.

RESULTS: 375 individuals were identified and included out of the original sample size of 1271. The average lifespan of the PPD-positive group was 51 years and slightly lower in the PPD-negative group with 48 years (p=0.380). Cox-regression showed a hazard ratio for death in PPD-positive of 1.02 (P=0.914). The original groups consisting of either households to a TB-case or households to a matched control were stronger predictors of death. Being a case household showed a hazard ratio for death of 1.30 (P=0.141).

CONCLUSION: We found no difference in the average lifespan or survival based on PPD-status, but the trend of case households being associated with negative effects on survival may suggest that residual con-founding such as immunosuppression at baseline is blurring potential associations.

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O-6.3

Emilie Lauridsen

Soluble CD163 as marker of liver fibrosis in liver transplant recipients

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BACKGROUND: Soluble CD163 (sCD163) is a marker of liver fibrosis in various liver diseases. However, it remains unknown whether the plasma sCD163 level reflects liver fibrosis in patients who have undergone liver transplantation. This study aims to investigate the associations between the non-invasive fibrosis measures; plasma sCD163, the FIB-4 score, and FibroScan liver stiffness in liver transplant recipi-ents.

METHODS: This project is a sub-study of the Danish Comorbidity in Liver Transplant Recipients (DACOLT) study and consists of 109 liver transplant recipients recruited from Aarhus University Hospital. Associations between variables were tested using Spearman's rank correlation and multiple linear regres-sion analysis. For this study FibroScan stiffness is considered as golden standard for liver fibrosis.

RESULTS: Plasma sCD163 correlated modestly with the liver stiffness (rho = 0.38, p 2.67 (n = 12), indicating high risk of advanced fibrosis, had a normal median liver stiffness of 6.7 kPa (range 3.0-10.2).

CONCLUSION: Plasma sCD163 levels correlate with liver stiffness in liver transplant recipients. The lack of correlation between FIB-4 and liver stiffness questions the applicability of FIB-4. This underlines the need for rethinking the non-invasive measurement of liver fibrosis in this patient group.

ACKNOWLEDGEMENTS: The project is supported by the Novo Nordisk Foundation and the Department of Infectious Diseases, Rigshospitalet, Denmark.

O-6.4

Andia Cheneymann

The Clinical Discrepancy of Detecting Very Low Bone Mineral Density in Cardiac CT Scans

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BACKGROUND: On routine cardiac CT scans, bone mineral density (BMD) from the thoracic spine can be eligible for osteoporosis screening with quantitative CT (QCT) technology, however BMD cut-off values for clinical diagnosis have been established with measurements from the lumbar spine. As physiological BMD increases cranially, we wanted to quantify the difference in lumbar and thoracic BMD measured by QCT, and the clinical discrepancy created from assessing very low BMD in the thoracic spine.

METHODS: In this cross-sectional study, paired QCT analysis was done on cardiac CT and abdominal CT for each patient respectively to measure thoracic and lumbar spine BMD. BMD analysis was conducted using QCT software with asynchronous phantom-based calibration. Diagnostic cut-off values for lumbar spine are set at very low BMD 120, equivalent to categorizing BMD into osteoporosis T< –2.5, osteopenia T –1.0.

RESULTS: In 177 participants thoracic BMD vs. lumbar BMD was 16% higher (16±19 mg/cm^3), p<0.001. Thoracic BMD was 137±37 mg/cm^3, lumbar BMD was 122±39 mg/cm^3. 14% had very low BMD, 35% had low BMD and 45% had normal BMD. If diagnostic cut-offs was applied to thoracic BMD, 27% would be reclassified, and 10% would be overlooked of having very low BMD. To keep equivalent fractions in each group, thoracic cut-off values should be increased to very low BMD 134.

CONCLUSION: Establishing BMD cut-off values for thoracic spine could make a large amount of CT scans eligible for osteoporosis screening. However, we need adjusted cut-offs for thoracic spine in order to not wrongfully diagnose a substantial amount of individuals.

ACKNOWLEDGEMENTS: The Danish Osteoporosis Foundation, The Danish Council for Independent Research (DFF–7025–00103), the Danish Heart foundation (15-R99-A5837–22920), the Hede Nielsen Foundation, Acarix A/S (unrestricted grant) and Mrs. Lily Benthine Lunds Foundation of 1.6. 1978 supported this project. The authors would like to thank all study participants and the clinical staff involved in this project.

O-6.5

Maria Theilgaard

The role of B-cells in immune related adverse events in cancer patients treated with checkpoint inhibitors

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BACKGROUND: While checkpoint inhibitors (CPI) have clearly changed the prognosis of multiple cancers, patients treated with CPI's, are at major risk of developing immune-related adverse events (irAEs). There are few reliable biomarkers for predicting or guiding clinical management as there is a fine balance between stopping unwanted immune responses and hampering anti-tumor immunity. Emerging evidence points towards an important role of B cells in irAEs and we wish to study their role in irAE development.

METHODS: Cancer diagnosed patients with irAEs grade 3-4, due to CPI treatment, were included as cases. As controls metastatic malignant melanoma patients receiving CPI's experiencing grade 0-1 irAE within 14 days, were selected. Cases had blood samples drawn at irAE diagnosis and in controls just before 2nd or 3rd treatment. Fresh whole blood was analysed using flow cytometry. Clinical data including cancer diagnosis, treatment, irAE and irAE management were accessed using the patient medical chart.

RESULTS: We included 23 patients as cases and 13 patients as controls. A simple gating strategy showed that the B-cell count in each group differed with -464.81 events 95%-CI (-4833.64;3904.04) p= 0.623(Mann-Whitney) and the frequents of B-cells of CD45+ cells differed -0.464 (-1.265;0.337) p=0.319. In addition were the proportional difference of the B-cell subsets of B-cells found:
CD21low 3.322 (-4.949;11.593), p=0.705,
IgD+ B-cells -7.491 (-21.715;6.733), p=0.762
IgD- B-cells 7.490 (-6.751;21.731), p=0.762

CONCLUSION: The initial analysis revealed no significant differences between cases and controls neither in count or proportion of B-cells in general nor in rough divided B-cell subset.

ACKNOWLEDGEMENTS: Thanks to:

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- Kasper for moving to Copenhagen with me ♥

O-6.6

Lisa Beicker Salling

Construct validity of a novel simulator for guide wire navigation in antegrade femoral nailing

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BACKGROUND: Simulation of surgical procedures has become a cornerstone in modern post-graduate training and has been extensively explored the last few decades. The major advantage of simulation-based surgical skill training is that it allows the acquisition of skills in a safe environment and without compromising patient safety. In the present study, we aimed to establish the construct validity of an antegrade femoral intramedullary nailing simulator by testing novices and expert faculty.

METHODS: Novices and expert faculty were verbally introduced to the simulator and the designated tasks. The measured scoring criteria were: Start Point Distance [mm] from the predefined entry point), End Point Distance [mm], Trajectory of the K-wire compared with the predefined entry wire, Number of fluoroscopic images as well as procedural efficiency measures.

RESULTS: In total, 12 novices and 18 experts were enrolled in the present study. Two-way ANOVA analysis showed high inter-person variability accounting for 38-61% of the observed total variation of the simulator-measured outcomes. Moreover, all participants improved their scores from case 1 to case 2. The level of surgical experience, i.e. being a novice or an expert, accounted for 9-25% of the total variation and these results were statistically significant for the majority of the measured outcomes.

CONCLUSION: All but one of the basic outcome measures were able to detect statistical significant differences assessing the total available data of novices and experts performing two Kirschner wire navigation tasks with the IMN simulator. This finding underlines the construct validity of the simulator.

ACKNOWLEDGEMENTS: We thank the participating physicians and students who participated in the study and granted its publication.

O-6.7

Rikke Spragge Ekblond

Changes in glucose tolerance in people with cystic fibrosis after initiation of first-generation CFTR modulator treatment

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BACKGROUND: Cystic fibrosis transmembrane conductance regulator (CFTR) modulators have been shown to have a beneficial effect on pulmonary function and nutritional status in eligible patients with cystic fibrosis (CF), but their effect on glucose tolerance is not yet fully understood. In the current study, we evaluated the change in glucose tolerance and insulin secretion after first-generation CFTR modulator treatment (ivacaftor with lumacaftor or tezacaftor) in adults with CF.

METHODS: We performed a longitudinal observational study with an oral glucose tolerance test performed at baseline and after three years of follow-up. The test comprised glucose, C-peptide and insulin measured at fasting, 1-hour and 2-hours and HbA1c at fasting. We compared changes in glucose tolerance and insulin secretion from baseline to three-year follow-up using paired Wilcoxon signed rank tests and Wilcoxon rank sum tests.

RESULTS: Among 55 participants, 37 (67%) were treated with a first-generation CFTR modulator for a median of 21 months. Glucose levels were unchanged in both the treated and untreated group. In the treated group, C-peptide declined, yet no significant differences in glucose, insulin and C-peptide levels were observed between the groups. HbA1c increased in both groups, whereas HOMA-IR changed in opposite directions (p=0.04). No change in insulin sensitivity indices were detected within the groups.

CONCLUSION: Treatment with first-generation CFTR modulators, mainly tezacaftor/ivacaftor, did not seem to have a strong impact on glucose tolerance nor improve insulin secretion in adults with CF. However, CFTR modulators may still have a beneficial effect on insulin sensitivity.

ACKNOWLEDGEMENTS: The project was funded by the Danish Cystic Fibrosis Foundation.

Postersessioner

P.1 Epidemiologi

P-1.1

Anna Bjerager Arnesen

Use of antibiotics and the frequency of invasive bacterial infections in preterm neonates in East Denmark – a retrospective cohort study

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BACKGROUND: Invasive bacterial infections are associated with high morbidity and mortality in preterm neonates, who are vulnerable to infection, due to their immature immune system. The unspecific symptoms and lack of biomarkers to rule-out infection at onset, leads to unnecessary treatments and hereby related side-effects.

METHODS: The study is an observational, retrospective cohort study. Patient data will be obtained from all Departments of Neonatology in East Denmark, using the shared electronic health platform, Sundhedsplatformen. All neonates with a gestational age between 28-36 weeks, who received antibiotic treatment during their first admission will be included. Data will be analyzed using RStudio and presented using appropriate descriptive statistics.

RESULTS: The study aims to investigate current use of antibiotics, the frequencies of early and late onset sepsis and the risk of reinfection. The importance of risk factors and intrapartum antibiotics will be explored. The obtained data will be identified based on administration of antibiotic treatment which is consistently registered in the electronic health platform. The data collection is ongoing and preliminary results will be presented at KMS 2023.

CONCLUSION: This study provides new knowledge on the frequency of invasive bacterial infections, including epidemiological aspects of our current use of antibiotics in preterm neonates in East Denmark, which no previous study has evaluated.

ACKNOWLEDGEMENTS: The study is partly funded by Ulrikka Nygaard, Rigshospitalet, and by the Research Fund of Northern Zealands Hospital.

P-1.2

Nanna Marker Madsen

The risk of developing diabetes during antipsychotic drug treatment: Potential risk differences between specific antipsychotic drugs

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BACKGROUND: Antipsychotics (AP) are the main pharmacological treatment of schizophrenia. Unfortunately, meta-analyses have shown that almost all AP increase the risk for developing diabetes. However, this knowledge is based on randomized clinical trials why it only represents 20% of patients seen in everyday clinical settings. Therefore, we aim to investigate 1) the actual risk of developing diabetes for real world patients treated with AP and 2) whether there are risk differences between specific AP.

METHODS: We will perform a retrospective cohort study based on Danish nationwide healthcare registers. It will include individuals receiving a schizophrenia diagnosis between 1999-2019 and a non-exposed control-group. Outcomes will be 1) diagnosis of diabetes and 2) treatment with an antidiabetic drug. We will calculate the rate of developing diabetes and analyze the associations with AP treatment including potential risk differences between specific AP. Statistical analyses will be performed in STATA.

RESULTS: No results are ready yet.

CONCLUSION: Conclusion is pending.

ACKNOWLEDGEMENTS: This project has received funding from the Lundbeck Foundation. The authors have nothing to declare.

P-1.3

Ida Marie Melsen

Time trends in the use of opioids for elderly patients undergoing hip fracture surgery in 1997-2018: a population-based cohort study

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BACKGROUND: Hip fractures are a major public health concern with about 7000 patients hospitalized yearly in Denmark. Opioids are a mainstay in the pain management of hip fracture patients but have severe side effects. Focus on the risks of opioid use has led to a general decline in opioid prescription in Denmark but little is known about the tendency in acute pain management and hip fracture surgery. Therefore, we aim to examine time trends in opioid use for elderly patients undergoing hip fracture surgery.

METHODS: Using Danish nationwide registers patients undergoing their first hip fracture surgery during 1997-2018 will be identified. Patients redeeming an opioid during the 6 months before surgery will be excluded. Prevalence rates of opioid use will be calculated for the four quarters after the surgery by two-year calendar periods. Prevalence rate ratios will be calculated using Poisson regression. The trends in the use of the most common types of opioids will also be investigated.

RESULTS: The analysis is currently in progress, and results will be presented at the congress.

CONCLUSION: Knowledge of opioid use for hip fracture patients undergoing surgery will contribute to the improvement of future treatment strategies, especially regarding pain management and opioid dependency, and help optimize care for this fragile patient group.

ACKNOWLEDGEMENTS: The project is funded by Fonden af 17-12-1981.

P-1.4

Ditte Vestergaard Hansen

Socioeconomic Position and the Risk and Prognosis of Venous Thromboembolism Following Stroke – A Population-based Cohort Study

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BACKGROUND: Stroke is associated with an increased risk of venous thromboembolism (VTE), and is linked with an adverse prognosis, including increased mortality, bleeding, and pulmonary hypertension. Studies have shown that low socioeconomic position (SEP) is associated with both stroke and VTE. However, to our knowledge, no study has investigated whether a socioeconomic gradient regarding post-stroke risks and prognosis of VTE exist.

METHODS: We aim to examine the effect of SEP on post-stroke risk and prognosis of VTE. To investigate this, we will conduct a nationwide, population-based cohort study including patients with first-time stroke in Denmark from 2004 to 2021. We will examine the risk of VTE within one year after stroke, and the prognosis in patients with VTE one year after VTE. SEP is determined by education, income, and employment status. We will calculate and compare the risk and prognosis of VTE according to SEP groups.

RESULTS: No results to present.

CONCLUSION: No conclusion to present.

ACKNOWLEDGEMENTS: Nothing to declare.

P-1.5

Anine Sophia Eriksen

The Long-Term Outcome of the Thyroid Function in Patients with Graves' Disease: A Nationwide Danish Register Study

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BACKGROUND: Graves' disease (GD) is an autoimmune thyroid disease characterized by the presence of thyroid stimulating hormone receptor antibodies. GD is a leading cause of hyperthyroidism, and it is treated with either antithyroid drugs, radioactive iodine, or total thyroidectomy. Little is known about the long-term course of GD based on epidemiological data. The aim was to evaluate the long-term outcome of the thyroid function in patients diagnosed with Graves' disease in a nationwide setting.

METHODS: This was a register-based cohort study. We retrieved data from The Danish National Patient Registry and The Danish National Prescription Registry on individuals >18 years of age with an ICD-10 diagnosis of GD or thyroid associated ophthalmopathy (TAO) in the period 1995-2018. We investigated baseline characteristics, incidence of GD/TAO, prevalent ATD-users, surgery-free survival, and levothyroxine-free survival. Statistical analyses were carried out using Stata(R) 17.0 (StataCorp).

RESULTS: Data analyses are currently ongoing. Results will be presented at KMS in March 2023.

CONCLUSION: The results will provide a better understanding of the long-term thyroid function in patients with GD. This may lead to improved clinical care in terms of more elaborate patient information about the prognosis of the disease.

ACKNOWLEDGEMENTS: This study is supported from the Foundation of Musikforlæggerne Agnes and Knut Mørk. The authors declare no conflict of interest.

P-1.6

Katrine Dorn Brodersen

Prognostic impact of COVID-19 infection and vaccination on myocardial infarction survival

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BACKGROUND: Coronavirus disease 2019 (COVID-19) is associated with an increased risk of myocardial infarction (MI) within the first 12 months following infection. Small studies suggest that MI may also have a worse prognosis in recently COVID-19 infected patients. Therefore, our aim is to compare the prognosis of MI in individuals with versus without a recent COVID-19 infection, and to examine whether this association is modified by vaccination status.

METHODS: Using Danish registries, we will conduct a population-based cohort study comprising all adults with a first-time MI between 2020 and 2022. Comparing the patients with and without recent COVID-19 before their MI, we will calculate adjusted relative risks of death within 30 days and 1 year after MI as well as secondary outcomes. Furthermore, we will stratify the analyses according to vaccination status as well as age, sex, type of MI, comorbidity burden, COVID-19 variant, and COVID-19 admission.

RESULTS: Our analyses are currently in progress. If available, we will present preliminary results.

CONCLUSION: As very little is known on the outcomes of MI after COVID-19 infection and vaccination, this study may provide important knowledge of major clinical and public health relevance. Additionally, the results may be of great value in relation to assessment of vaccine safety.

ACKNOWLEDGEMENTS: This project is supported by a scholarship from Aarhus University Research Foundation.

P-1.7

Chenghao Gu

Outcome and complications in external ventriculostomy drainage in intraventricular hemorrhage patients, what we need to know

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BACKGROUND: External ventricular drainage (EVD) has been shown as an effective treatment to lower the case fatality rate in intraventricular hemorrhage (IVH) patients. However, EVD treatment of IVH is associated with significant challenges, i.e., obstructions and infections. Although EVD is widely used, patient outcomes and complication rates of using EVD for IVH treatment are not fully elucidated. This study aims to describe the outcomes and complication rates of EVD in patients suffering from IVH.

METHODS: This study is a historical, descriptive, multi-center cohort registry study. All patients with primary or secondary IVH treated with at least one EVD from 2016 to 2021 at Aarhus- and Odense University Hospitals are included. Patients are identified through the Danish National Patient Register by combining procedural code for EVD with relevant IVH diagnoses. Data will be recorded by reviewing individual medical records and stored in a REDCap database. Analysis will be performed.

RESULTS: Results will be presented at KMS 2023 if ready.

CONCLUSION: This study will outline the clinical challenges and unmet needs to be addressed and provide a historical reference base for comparison of future trial endpoints testing new technologies and solutions.

ACKNOWLEDGEMENTS: There are no known competing financial interests or personal relationships that could have appeared to influence the work reported.

P-1.8

Guilian Birindwa

Project title: Impact of colonoscopy history on outcomes of FIT-based colorectal cancer screening: A Danish population-based cohort study

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BACKGROUND: Colorectal cancer (CRC) is one of the most common forms of cancer in Denmark, affecting approximately 5,200 people every year. As a result, all citizens between the ages of 50 and 74 are invited to a CRC screening every second year. Increased FIT positivity and the subsequent demand for colonoscopies have resulted in capacity issues in the surgical and gastroenterological departments. Effective use of colonoscopies is therefore needed.

METHODS: This will be a registry-based observational cohort study where patients with a negative colonoscopy before FIT-screening participation will be compared to individuals without any previous colonoscopy. FIT-positive prevalence proportion and prevalence proportion ratio according to colonoscopy history will be calculated, along with prevalence proportions and prevalence proportion ratios for low-risk adenomas, medium/high-risk adenomas, and CRC detected at screening colonoscopy.

RESULTS: A potential reduced risk of a positive FIT and CRC following a negative colonoscopy performed before participation in screening for CRC could potentially be used to inform future guidelines. As a result, these findings could reduce the number of colonoscopies, and thereby increase the cost-effectiveness of the screening program.

CONCLUSION: A potential reduced risk of a positive FIT and CRC following a negative colonoscopy performed before participation in screening for CRC could potentially be used to inform future guidelines.

ACKNOWLEDGEMENTS: Danish Cancer Society.

P-1.9

Signe Mortensen

Characteristics and Outcomes for High-Risk Patients Undergoing General Anesthesia in Denmark

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BACKGROUND: Around 20% of patients receiving general anesthesia in Denmark have severe underlying comorbidity (specifically, an American Society of Anesthesiologists [ASA] classification of III or IV), which puts them at an increased risk of post-operative complications and mortality. However, the data published on this patient population is minimal. Therefore, we aim to describe the patient population receiving general anesthesia in Denmark and identify predictors of poor outcomes.

METHODS: Using data from Danish registers, we will conduct a nationwide observational study of adult patients (>18 years) undergoing surgery with general anesthesia in 2020 and 2021. The Danish Anaesthesia Database will be the main source. First, we will provide a comprehensive description of the patient population using descriptive statistics. Second, we will describe post-operative outcomes and determine which patient factors predict poor outcomes.

RESULTS: Results have yet to be obtained.

CONCLUSION: Our ambition is that the results of the study will provide valuable descriptions of the patient population receiving general anesthesia in Denmark and, furthermore, will aid in identifying high-risk patients. This will allow clinicians to better tailor clinical care.

ACKNOWLEDGEMENTS: Nothing to declare.

P-1.10

Cecilia Majlund Hansen

The interaction between hip fracture and multimorbidity on the risk of infection

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BACKGROUND: About 15% of Danish hip fracture (HF) patients sustain an infection within the first 30 days. Infection is associated with high mortality and morbidity. Multimorbidity is highly prevalent in HF patients and increases the risk of HF as well as mortality and infection after HF.
It is however largely unknown, how large proportion of infection risk is attributable to a synergistic effect of multimorbidity and HF.

METHODS: The aim of this population-based cohort study is to examine the interaction between HF and multimorbidity on the risk of postoperative infection. Using nationwide Danish medical registries, we will establish a cohort of about 92,000 HF patients operated between 2004 and 2018 and an age/sex matched comparison cohort. We will examine the risk of infection within one month and one year and calculate the interaction contrast and the attributable fractions using incidence rates.

RESULTS: The study is a research year project with start February 1st, 2023, and therefore has no results to be presented yet. Findings from this study can potentially identify subgroups of HF patients that are at increased risk of postoperative infection whose prognosis is likely to be improvable.

CONCLUSION: No conclusion has been made yet. Our hypothesis is that the interaction of HF and multimorbidity increases the risk of infection beyond what is explained by their additive effects.

ACKNOWLEDGEMENTS: The project is funded by The Independent Research Fund Denmark (DFF). Thanks is given to my main supervisor Professor, DMSc, PhD, MD Alma B. Pedersen, and co-supervisor MD, PhD student Nadia R. Gadgaard from the Department of Clinical Epidemiology, Aarhus University for helping securing enrollment and funding of the project and Professor Christina Vandenbroucke-Grauls from Amsterdam University Medical Center for international collaboration.

P-1.11

Emma Christophorou Hansen

Determinants of Antibody Response to a fourth vaccine dose and an omicron-based bivalent fifth vaccine dose in Solid Organ Transplant Recipients: Results from the Prospective Cohort Study COVAC-Tx

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BACKGROUND: Solid Organ Transplant (SOT) recipients receives immunosuppressants, which causes a higher risk of infections and reduces the effects of vaccines. The antibody response to a fourth, but especially the fifth bivalent vaccines against SARS-CoV-2 in SOT recipients is undetermined, and will be the focus. Furthermore, we want to evaluate the time between vaccine administrations and at last, how the antibody response correlates to the risk and severity of breakthrough infections with Covid-19.

METHODS: This study is prospective and includes SOT recipients who have received a fourth and fifth vaccine dose. By using SARS-CoV-2 IgG II Quant assay (Abbott Laboratories) with a cut of at 7.1 BAU/mL the Anti-spike S1 IgG response is measured. Blood samples will be collected before and after their vaccination. The participant's positive Covid-19 test results, the variant, any treatment and hospitalizations will be registered. When data collection is finished, statistical analyses will be initiated.

RESULTS: This study is a research year project from Oct. 1 2022 until Jun. 30, 2023, and therefore in progress. The blood samples from hopefully all the participants are currently being collected, and data collection will soon be finalized. As now 372 SOT recipients have received their fourth dose, and 247 have received the fifth and bivalent dose either BA1 or BA4+5. Preliminary results and conclusions will be presented at the congress.

CONCLUSION: Our hypothesis is that SOT recipients have an improved antibody response after a bivalent omicron-containing booster vaccine and duration of these protective antibodies is expected to be longer in relation to those after monovalent booster dose. Conclusions is yet to be made, see above.

ACKNOWLEDGEMENTS: Odense University Hospital, Department of Infectious Diseases. Funds have been applied for, but no response has yet been received.

P-1.12

Hanna Sissel Foldager Jeppesen

Traumatic lesions of the arteries of the cervical vertebras (aa. Vertebralis) after traffic accidents and acts of violent: A Danish register-based cohort study

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BACKGROUND: Traumatic injury of the aa. Vertebralis (AV) of the neck after traffic accidents or acts of violent is rarely diagnosed. The diagnose can be challenging as of the anatomy of the neck and lack of initial symptoms. Acute and late risks are dead or long-lasting disability due to stroke. The extend of non-diagnosed injuries and late sequalae is unknown. We aim to describe and report the incidence and sequalae seen after blunt force trauma to the AV and if there are any predisposing factor.

METHODS: A register-based study including all patients involved in traffic accidents or acts of violence, who developed signs of acute injury to the AV treated at Aarhus University Hospital (AUH) from 2019-2023. Data is collected from AUH local trauma database. Association between injury to the AV and late deaths (up to 12 months), blood clots, bleeding, or brain infarcts will be investigated. Each group will be compared with a matched control group. Data is collected from Lands Patient Registret (LPR).

RESULTS: The project is expected to start in February 2022 and data processing will still be active at the time of the conference. Thus, no results nor conclusion can be made at this point. If available, preliminary results and conclusions will be presented at the KSM23.

CONCLUSION: See above.

ACKNOWLEDGEMENTS: The project is funded by Offerfonden.

P-1.13

Emma Brink Henriksen

Cancer survivors' work status the first three years after diagnosis – a register based study

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BACKGROUND: In the past decades there has been a significant increase in the number of cancer survivors, of whom many are of working age. A cancer diagnosis is associated with increased sick leave, unemployment and a decline in overall earnings. Hence, there is a growing demand for rehabilitation measures to help cancer survivors maintain or return to work. This project aims to study cancer survivor's work status the first three years after cancer diagnosis compared to controls of the general population.

METHODS: Cancer cases and matched controls are identified through The Danish Cancer Registry and Statistics Denmark respectively and in a 1:5 ratio. They are divided into 11 categories based on the Nordic Cancer Statistic's classification. Within each category analyses will be made on work status in cancer cases one and three years after time of diagnosis as well as work participation in numbers of weeks working during the first and the third year after diagnosis.

RESULTS: The study is planned to commence in February 2023, why no results can be presented at this point. If any preliminary results are available, they will be presented at the KMS 2023.

CONCLUSION: By analyzing the different cancer diagnoses separately we hope to provide knowledge on groups of patients at high risk of leaving the labor market. A knowledge that can help health care professionals in their support and advise to patients in their process to return to work.

ACKNOWLEDGEMENTS: This study has received funding from the Novo Nordisk Foundation.

P-1.14

Ida Bergholdt Jul Christiansen

Associations between General Practitioner factors and video use in out-of-hours General Practice – A register-based study

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BACKGROUND: At out-of-hours general practice services (OOH-GPS), video was implemented at the start of the Covid-19 pandemic. Video use has the potential to reduce patient waiting time, general practitioner (GP) workload, the cost of primary care, and increase patient satisfaction. The decision to use video or not lies with each GP. There are major variations in video use among GPs at the OOH-GPS. We will explore if GP-related factors e.g., age, sex, seniority is associated with this variation in OOH-GPS.

METHODS: Data from the OOH-GP registration system, Authorization registries, Statistics Denmark, and the Danish National Health Service Register is used. Descriptive analysis will be conducted to calculate the proportion of video consultations per 100 telephone contacts. Linear regression analysis will be used to investigate associations between GP video user rate and GP factors. We adjust for case mix, using patient factors such as age, sex, and comorbidity.

RESULTS: The study is currently under conduction.

CONCLUSION: The study is currently under conduction.

ACKNOWLEDGEMENTS: The study received funding from the Lundbeck Foundation.

P-1.15

Heidi Rimer

2-[18F]FDG-PET/CT in cancer of unknown primary tumour (CUP)

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BACKGROUND: Cancer of unknown primary tumour (CUP) accounts for about 3-5% of cancer diagnoses. As median survival is usually less than a year, fast and accurate diagnostic methods are needed to ensure correct treatment as early as possible. This retrospective register-based cohort study aims to investigate the impact of 2-[18F]FDG-PET/CT on survival and detection rate in patients with cancer of unknown primary tumour (CUP), by comparing it to the conventional diagnostic imaging method CT.

METHODS: All patients who received the CUP diagnosis at Odense University Hospital from 2014-2017 were included. Patients receiving a 2-[18F]FDG-PET/CT were assigned to the 2-[18F]FDG-PET/CT group and patients only receiving a CT were assigned to the CT group. Detection rates were calculated as the proportion of true positive findings on both scans. Survival was calculated using Cox-regression and Kaplan-Meier estimates. Propensity scores were calculated to adjust for potential referral bias.

RESULTS: 193 patients were included, of this 159 in the 2-[18F]FDG-PET/CT group and 34 in the CT group. Detection rates were 36.48% in the 2-[18F]FDG-PET/CT group and 17.65% in the CT group (p=0.012). Median survival time was 7.4 (95% CI: 0.4-98.7) months in the 2-[18F]FDG-PET/CT group and 3.8 (95% CI: 0.2-98.1) months in the CT group. Survival in the 2-[18F]FDG-PET/CT group showed a crude HR of 0.63 (p=0.024) and an adjusted HR of 0.68 (p=0.087) compared to CT.

CONCLUSION: This study found a significantly higher detection rate in 2-[18F]FDG-PET/CT compared to CT. The study found no significant difference in survival between the 2-[18F]FDG-PET/CT group and the CT group, although a tendency towards longer survival in the 2-[18F]FDG-PET/CT group was observed.

ACKNOWLEDGEMENTS: This research was supported by University of Southern Denmark. The authors have no relevant financial or non-financial interests to disclose. The draft is currently being reviewed by L Eckhoff, C Kristiansen, P Thye-Rønn, KE Olsen and R Bahij. The people mentioned above are expected to be co-authors of the finished manuscript, although fulfilment of authorship requirements is still pending.

P.2 Hjerte-lunge

P-2.1

Emma Celia Herting

Risk factors for acute myocardial infarction in patients with alcohol-related liver cirrhosis - a nationwide nested case-control study

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BACKGROUND: Alcohol-related cirrhosis (ALD cirrhosis) predisposes bleeding as well thrombosis. Acute myocardial infarction (MI) increases mortality in patients with ALD cirrhosis, but risk factors of MI are still not fully described. The aim of this study was to describe risk factors of MI amongst patients with ALD cirrhosis.

METHODS: This nationwide register-based nested case-control study included all Danish patients diagnosed with ALD cirrhosis (2000-2019). Patients with first-time MI after ALD cirrhosis were identified as cases. Per case, 10 ALD cirrhosis patients with no history of MI were selected as controls, matched on date of MI. We used conditional logistic regression to study the association between risk factors and incidence rate ratio of MI. Risk factors included comorbidities and events in the previous 30 days.

RESULTS: We included 373 cases and 3230 controls. The data analysis is ongoing, and we expect to present results at KMS 2023.

CONCLUSION: Our findings will enhance the knowledge of our understanding of risk factors for MI in patients with ALD cirrhosis. They may also have clinical implications e.g., for the decision to offer thromboprophylaxis.

ACKNOWLEDGEMENTS: This study is funded by the Independent Research Fund Denmark and professor, MD PhD Peter Jepsen, Department of Hepatology and Gastroenterology, Aarhus University Hospital.

P-2.2

Søren-Haldur Bülow Rasmussen

Coronary stent edge segments as determinant of clinical outcomes. An October trial substudy

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BACKGROUND: Percutaneous coronary intervention (PCI) may improve blood flow in narrowed coronary arteries. Optical coherence tomography (OCT) is an intravascular imaging modality providing histology-like visualizations of stent and vessel during the procedure. Stent edge segments are the 5 mm vessel adjacent to each end of the stent. Stent edge cutoff values for acceptable results are unknown when using OCT. This study aims to investigate the relation between edge results and subsequent cardiac events.

METHODS: The study is a predefined sub analysis of 600 patients treated with OCT guided PCI in the randomized OCTOBER trial on OCT guided bifurcation PCI. Inclusion criteria are analyzable post-PCI OCT scans including at least one stent edge segment. Main endpoints are potential predictors of cardiac events including residual edge stenosis, extent of lipid, calcium and dissections in the edge segments. Quantitative measurements and plaque analysis are performed using a dedicated software.

RESULTS: Results are pending. The results may advise physicians on the clinical importance of edge results after stent implantation. A better understanding of edge pathology and treatments may lead to less subsequent cardiac events in the future.

CONCLUSION: Methods and perspectives will be presented at KMS 2023. Results are anticipated in the summer of 2023.

ACKNOWLEDGEMENTS: Nothing to declare.

P-2.3

Jeppe Hauch

Adverse Pregnancy Outcomes, Reproductive Factors and Risk Stratification for Cardiovascular Disease in Postmenopausal Women

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BACKGROUND: Cardiovascular disease (CVD) is the leading cause of death in women and men worldwide, where CVD accounts for 1 of every 3 female deaths. Several reproductive factors and adverse pregnancy outcomes (APOs) have been associated with CVD in women and therefore additional sex-specific risk factors besides the conventional risk factors such as hypertension, smoking, obesity and diabetes mellitus. In this study, we seek to assess CVD risk stratification with these female specific risk factors.

METHODS: This study will identify participants from the Women's Health Initiative (WHI) for an established CVD risk factor model to assess independent associations between APOs, reproductive factors and CHD which includes the established CVD risk factors. Improvement will be analyzed with C statistic for models with and without APO and reproductive factors and additionally, net reclassification index and integrated discrimination improvement.

RESULTS: No results have been obtained since the project will start August 2023 and expected to be finished in July 2024.

CONCLUSION: No conclusion has been made yet.

ACKNOWLEDGEMENTS: The study is part of the application for the DARE Program, which is funded by the Lundbeck Foundation.

P-2.4

Amalie Asmind Rosendal

From Training to Clinic: Future Performance of Thoracentesis

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BACKGROUND: Performing a thoracentesis involves aspiration of fluid between the visceral and parietal pleura. While the procedure is common, it may lead to a range of complications. Simulation-based training creates a safe learning space and reduces the risk of complications and improves patient safety. Regardless, simulation cannot fully replicate the complex clinical environment. Training modules that foster adaptability are thus a necessary to increase transfer from the simulated setting to the clinic.

METHODS: This study develops a simulation-based training module and assessment of thoracentesis performance. Residents with limited thoracentesis experience will participate in the study. Participants will engage in a training module designed to increase transfer of skills gained during simulation to the clinic. Two weeks after training participants will complete a simulation-based thoracentesis assessment. Kane's validation framework will be used to collect validity evidence for this assessment.

RESULTS: This Research Year Project will develop a simulation-based module for thoracentesis training. An assessment of the ability to transfer skills learned during the simulation-based thoracentesis training module to the clinical setting will be developed. The project is ongoing and preliminary results will be presented at the conference.

CONCLUSION: Pending.

ACKNOWLEDGEMENTS: This project has been funded by Videreuddannelsesregion Nord.

P-2.5

Lasse Hubertus Tiroke

A Cardiac Computed Tomography Study on Long-Term Safety after Left Atrial Appendage Occlusion (SAFETY-LAAO)

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BACKGROUND: Atrial fibrillation is associated with a five times increased risk of ischemic stroke. Oral anticoagulation (OAC) is the current first line treatment. However, bleeding complications and insufficient compliance challenge the safety and efficacy of this strategy. Percutaneous left atrial appendage occlusion (LAAO) is an effective alternative to OAC therapy. While non-inferiority versus OAC is well documented, research on long-term safety device endothelialization and integrity is lacking.

METHODS: This single-center follow-up study will include a prospective cohort of ~50 patients with a successful LAAO implantation with the Amplatzer Amulet device. All procedures were performed prior to December 2018, to allow for a >4-year follow-up. Patients will undergo a single cardiac computed tomography scan (CCT). Subsequently, device healing, sealing and integrity will be evaluated, and temporal comparisons will be performed using prior CCT scans at 2 and 12 months.

RESULTS: Data collection is expected to be completed during January 2023. Analyses will begin shortly after and preliminary results will be presented at the congress.

CONCLUSION: Through this project, hope to improve the understanding of device healing, sealing and integrity in the years following implantation. Our results will aid the collaborative effort to improve the safety of this novel treatment. Furthermore, the established database will facilitate future research.

ACKNOWLEDGEMENTS: The project is partly funded by a research year scholarship from Aarhus University.

P-2.6

Henrik Mulbjerg

Early detection of chronic heart failure by visualizing the pH of the heart with MR- hyperpolarization

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BACKGROUND: Chronic heart failure is associated with significant diagnostic difficulties. The available diagnostic tools correlate poorly with clinical symptoms. It would benefit patients and clinicians alike to have a reliable assessment and quantification of disease. Such a tool is not readily available but hyperpolarized magnetic resonance imaging provides a potential solution. The technique has proven useful in several organ systems, and we seek to expand its use in a cardiovascular setting further.

METHODS: The study will be conducted in a porcine animal model of chronic heart failure. Fifteen pigs will be included. Over 16 weeks, the pigs will be scanned conventionally and with hyperpolarisation at 4-week intervals. As such, structural, functional, and metabolic changes can be assessed in the myocardium. In addition, the intervention group will be randomised to receive pharmacological treatment to determine if the effect is noticeable on hyperpolarized scans.

RESULTS: Results are pending - If available, preliminary results will be presented at the congress.

CONCLUSION: The study will investigate the potential of hyperpolarized magnetic resonance scans in relation to chronic heart failure in a porcine animal model. Results are pending.

ACKNOWLEDGEMENTS: The project is supported by the Novo Nordisk Foundation.

P-2.7

Marita Kern

The impact of urinary antigen tests on clinical outcomes in patients hospitalised with community-acquired pneumonia

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BACKGROUND: Community-acquired pneumonia (CAP) is a common cause of antibiotic treatment, accounting for 45,000 hospitalisations annually in Denmark. To establish a microbiological diagnosis Danish guidelines recommend using urinary antigen tests (UATs) in addition to respiratory samples in severe cases. However, it is unclear how often these are actually used in clinical practice and with what impact. Therefore, we wish to examine the impact of performing UATs on outcomes in patients hospitalised with CAP.

METHODS: This is a multicentre cohort study of immunocompetent adult patients admitted with CAP at four hospitals in Denmark between 2017-2020. CAP was defined as the presence of a new infiltrate on chest X-ray and at least one symptom or sign of pneumonia. The primary outcome is 30-day mortality, while readmissions and antibiotic duration comprise secondary outcomes.
We will use logistic regression to examine the impact of UATs on outcomes and apply propensity-score methods to adjust for confounding.

RESULTS: Of 3,416 patients admitted with CAP, 916 (27%) had at least one UAT taken during admission. Patients had a median age of 75, and 49.4% were female. The proportion of positive test results were 7.1 % for Streptococcus pneumoniae and 1.6 % for Legionella pneumophila UATs.

CONCLUSION: The results of this study can help inform guidelines for microbiological testing in CAP. If UATs have an impact on clinical outcomes, they might be implemented on a broader scale. If, on the other hand, UATs do not affect clinical outcomes at all, their use might need to be further restricted.

ACKNOWLEDGEMENTS: This project was supported by grants from Kong Christian den Tiendes Fond, the Danish Ministry of Health, and Beckett Fonden.

P-2.8

Sofie Paarup Thomsen

Optimal Utilization of Telemetry following Acute Myocardial Infarction

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BACKGROUND: Myocardial Infarction (MI) is a common cause of hospitalization and death. Following revascularization there is an increased risk of arrhythmias but evidence on the needed duration of telemetry monitoring is sparse. Accordingly, international guidelines on telemetry monitoring are inconsistent. Therefore, we aim to investigate the time to clinically significant arrhythmias in patients admitted to the hospital with AMI and to characterize the patients suffering from these arrhythmias.

METHODS: This is a cohort study including patients admitted with an AMI. Time to clinically significant arrhythmias will be collected from the electronic patient chart as well as data regarding electrocardiograms, echocardiograms, revascularization, and troponine levels. Data regarding patient comorbidities, cause of death and 30 days morbidity and mortality will be extracted from the Danish registries. Primary endpoint: time to first clinically significant arrhythmia following revascularization.

RESULTS: Results are pending. We are in the data collecting process.

CONCLUSION: Conclusion is pending.

ACKNOWLEDGEMENTS: Nothing to declare.

P-2.9

Mette Wørmer Poulsen

Effects of oxygen therapy on pulmonary perfusion and ventilation in a porcine model of acute pulmonary embolism

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BACKGROUND: Every year 300,000 people die of acute pulmonary embolism (PE) in Europe alone. Oxygen is a key element of acute PE treatment, although knowledge about the mechanisms is sparse. A new technology, Dual Energy CT (DECT), is a useful tool for assessing lung perfusion changes before and after acute PE. The aim of this study is to evaluate pulmonary perfusion changes and ventilation at different fractions of inhaled O_2 (FiO_2) in acute PE by utilizing novel software for the DECT technology.

METHODS: Female pigs (n=8) underwent five DECT-scans at four different levels of FiO_2, with 15-minute intervals between scans, before and after acute pulmonary emboli (PE). Autologous PE were given one at a time until mean arterial pressure (MAP) was reduced by ≥50%, mean pulmonary arterial pressure (mPAP) was doubled, cardiac output was decreased by ≥20%, or if administration of vasopressors was needed.

RESULTS: The study is a research year project running from September 1st, 2022 until august 31st, 2023. As the project is still in progress (November 2022) no results have been obtained yet. We plan to include 8 pigs during the fall of 2022 and if results are available, they will be presented at the conference.

CONCLUSION: Conclusions are still to be made, but DECT may contribute to the knowledge about the effects of oxygen on the perfusion and ventilation of the lungs in acute pulmonary embolism, and help evaluate the usefulness of novel, machine-learning based, software for quantification of pulmonary perfusion.

ACKNOWLEDGEMENTS: The research year project is funded by the Independent Research Fund of Denmark.

P-2.10

Rasmus Gebauer Dalsgaard

New detection of cardiac allograft vasculopathy (Chronic rejection) by Cardiac CT-scanning in heart transplanted patients

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BACKGROUND: The major limitation for long-term survival after heart transplantation (HTx) is cardiac allograft vasculopathy (CAV), and invasive coronary angiography (CAG) is now considered the gold standard for CAV surveillance. Unfortunately, CAG underestimates CAV severity and is associated with risks and patient discomfort. This study aims to investigate the use of noninvasive fractional flow reserve Cardiac CT (FFR-CT) in the surveillance of CAV.

METHODS: This is an exploratory cohort study. We will include 50 HTx-patients, and they will undergo blood samples, comprehensive echocardiography, coronary angiography, optical coherence tomography, invasive fractional flow reserve, index of microvascular resistance, and cardiac computed tomography with assessment of FFR-CT. Primary endpoint: To reduce expenses and patient discomfort by replacing invasive CAG with noninvasive Cardiac CT in the follow-up of patients after HTx.

RESULTS: Results are pending. Data collection begins in 2023.

CONCLUSION: Conclusion is pending.

ACKNOWLEDGEMENTS: Skibsreder Per Henriksen's og hustrus Fond has granted 300,000 dkr for the FFR-CT analyses. Scandiatransplant Research foundation has granted 330,000 dkr for the expenses of the optical coherence tomography-catheters.

P.3 Intern medicin og kirurgi

P-3.1

Johanne Ravn Hansen

Evaluating the vulnerability of conventional and transposition FAMM flaps using microdialysis

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BACKGROUND: The key component of oral cavity cancer treatment is surgery, and surgical reconstruction to re-establish form and function is necessary. Two tissue flaps are used: 1) The conventional Facial Artery Musculomucosal (FAMM) flap and 2) the transposition FAMM flap, the latter being associated with less morbidity, including removal of teeth. Latest research indicates that the transposition FAMM flap is more fragile due to flap necrosis. This study aims to evaluate the vulnerability of the two tissue flaps.

METHODS: In this prospective cohort study, 24 patients with oral cavity cancer will be included. Using microdialysis, ischemic metabolites, inflammatory protein- and antibiotics markers within the conventional and transposition FAMM flap and surrounding tissues are monitored and compared. Sampling will be performed over seven days post-operatively. Furthermore, different administration forms of cefuroxime and metronidazol (bolus vs continuous infusion and intravenous vs per oral administration) are evaluated.

RESULTS: No results to present.

CONCLUSION: No conclusion to present.

ACKNOWLEDGEMENTS: This project is supported by a scholarship from the Independent Research Fund Denmark, and by Carl Emil Friis og Hustru Olga Doris Friis' legat.

P-3.2

Frederikke Elnegaard

EEG biomarkers as measurements for Clinical High-Risk Syndrome

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BACKGROUND: People with schizophrenia have reduced life expectancy compared to the general population. Research has shown a prodromal stage, Clinical high risk syndrome, CHR-P that is evident before the beginning of a full-blown psychosis. About 20-30% of individuals that exhibit CHR-P, will convert. Because of the negative impact schizophrenia has on the patient's life quality, family dynamics, and the general society, it is important to investigate biomarkers which can be used in diagnostics.

METHODS: The project will asses possible biomarkers of CHR-P with focus in EEG but also includes, personal interviews, MRI, blood-, urine-, and salvia sample. The data assed from the NAPLS-II and NAPLS-III data sets, each comprise of over 700 CHR-P individuals (age 12-30) who meet criteria for CHR-P, within a 2-year follow-up period. Data include baseline and longitudinal follow-up assessments of CHR-P youth and age matched healthy comparison participants on clinical, cognitive, and neurophysiological.

RESULTS: The major goal of my project will be to analyze one or more of the many possible EEG-based measures as possible predictors of clinical outcomes in CHR-P individuals. The project is expected to start in August 2023. Thus, no results nor conclusion can be made at this point.

CONCLUSION: Se above

ACKNOWLEDGEMENTS: The NAPLS studies are funded by the National Institute of Mental Health (NIMH). The research in The US will be funded by the Lundbeck foundation provided it is granted a scholarship through the DARE program.

P-3.3

Maibritt Meldgaard Arildsen

Quantification of kidney microperfusion and microvascularisation using non-invasive optical imaging

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BACKGROUND: There is an imbalance between organ supply and organ demand for kidney transplantation, which could be reduced by accepting more marginal kidneys. Optical imaging technologies enable quantification of microperfusion, microvascularisation and microanatomy. Due to their high resolution and non-invasive performance, these imaging technologies are promising methods for improving the evaluation of kidney viability in more details before transplantation.

METHODS: Nephrectomized porcine kidneys are connected to an ex vivo machine perfusion system. The cortical perfusion is gradually reduced by ex vivo embolization based on microsphere injection. A tissue-perfusion and oxygen sensor are positioned in the cortex for direct reference measurements of relative changes in cortical perfusion and pO2. Optical imaging is employed to the kidney, including Laser Speckle Contrast Imaging (LSCI), Fluorescence Based Imaging (FBI) and Optical Coherence Tomography (OCT).

RESULTS: This study seeks to establish novel methods to improve kidney viability evaluation before transplantation. The aim of this project is to quantify kidney microperfusion and microvascularisation using LSCI, FBI and OCT, and furthermore, to validate these measurements. Today, no results have been produced, but acquired data will be collected and analysed from December 2022.

CONCLUSION: Our ambition is to establish novel methods to improve kidney viability evaluation before transplantation. By performing this study, we expect to validate optical imaging methods for the quantification of kidney microperfusion and microvascularisation.

ACKNOWLEDGEMENTS: This project has received financial grants from Novo Nordisk foundation and the Independent Research Council Denmark.

P-3.4

Emma Bay

Exploring technical skills required by neonatal experts: a European Delphi study

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BACKGROUND: Guidelines on management of preterm infants vary between countries and centers. Studies report an association between neonatal outcomes and health care provider skills. Simulation-based education (SBE) may be used to acquire such skills and has been shown to promote patient safety. However, SBE is a resource-demanding training method emphasizing the need for prioritization. This study aims to identify and prioritize technical skills to be included in a SBE curriculum for neonatologists.

METHODS: A European general needs assessment will be conducted using a three-round iterative Delphi method. In the first round, the participants will be asked to list all technical skills that they believe should be learned during neonatal training. Round two will explore frequency of technical skills, importance of competency, risk and/or discomfort for patients and feasibility for SBE. In the third and last round, participants will rank and eliminate technical skills for final prioritization.

RESULTS: The Delphi study will be carried out between October 2022 and March 2023. The first round of the study will conclude on the 21st of November 2022. We have included participants from Norway, Sweden, Denmark, Germany, The Netherlands, The United Kingdom, Poland, France, Italy, and Spain. The study will result in a prioritized list of technical skills required of a newly trained neonatologist. The preliminary results will be presented at KMS 2023.

CONCLUSION: This European Delphi study will result in a prioritized list of technical skills suitable for simulation required by newly trained neonatologists. The results may guide the planning and development of structured simulation-based education for neonatologists.

ACKNOWLEDGEMENTS: The project is funded by the Department of Neonatal and Pediatric Intensive Care, Rigshospitalet, Denmark. The authors have nothing to declare.

P-3.5

Michelle Stadelhofer

Optimizing preoperative nutrition and physical function in colon cancer patients

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BACKGROUND: Low body mass index and recent weight loss have a major negative impact on post-operative course. Prehabilitation promote postoperative recovery and physical condition. The study aims to investigate the effect of guidance regarding physical activity and nutrition on patients' perioperative course, post-operative recovery and quality of life after colonic cancer resection.

METHODS: The study is a prospective cohort study. We include patients with colon cancer admitted to our department to undergo surgery. The intervention is verbal and written advice on daily exercise as well as nutritional supplement of 3 nutrition drinks every day until surgery. The control group will receive standard care and standard advice regarding exercise and nutrition. Pre- and post-operative course will be evaluated through questionnaires and medical journals. We expect to include 170 patients.

RESULTS: Results are expected in the summer of 2023. Endpoints are changes in bodyweight, length of hospital stay after colon cancer resection, post-operative recovery after 14 days, quality of life and compliance to the intervention.

CONCLUSION: We expect to identify short-term effects of prehabilitation on postoperative recovery and complications to surgery for colon cancer, evaluate compliance to advice on exercise and nutrition, and explore if engaging patients in their own health have a positive impact on quality of life.

ACKNOWLEDGEMENTS: This project is financed by "Forskningsenheden", Regional Hospital of Randers and the "Familien Hede Nielsen" fund.

P-3.6

Silke Rossau

Improving patient recruitment into clinical trials

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BACKGROUND: Women have historically been underrepresented in clinical trials, with biological implications and inferior applicability of the results as a consequence. Underrepresentation contributes to the inequality in health which has come into focus in recent years. To ensure proper evidence-based screening, diagnostics and treatment it is essential to conduct research with a high and balanced representation. This study aims to investigate how recruitment of women into clinical trials can be improved.

METHODS: We will conduct a prospective questionnaire survey and focus-group interviews(FGI). All women who are eligible to participate in one of three clinical trials at Dept of Obstetrics and Gynaecology, RRH, will be invited to participate in the study. The questionnaire will investigate motives for non-participation and what might encourage future participation. FGI will contribute with a thorough exploration of the mechanisms behind, knowledge on and attitude towards participation in clinical trials.

RESULTS: Data will be obtained from February 2023 to December 2023.

CONCLUSION: Our study will provide data on how to improve patient recruitment into clinical trials. The study will contribute to an improved recruiting process in regard to higher inclusion-rates, shorter inclusion-time, help reduce underrepresentation and improve patient involvement in research in general.

ACKNOWLEDGEMENTS: The authors declare no conflict of interest. The project has not obtained full funding yet. The project is partly funded by 'Research Unit' at Randers Regional Hospital.

P-3.7

Catalina Hartmann Skovsgård

Informational needs concerning family planning and pregnancy in patients with atopic dermatitis and specific worries regarding pregnancy

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BACKGROUND: Atopic dermatitis (AD) is an inflammatory skin disease affecting 20% of children and 5-10% of adults in affluent countries. AD can persist into adulthood, entailing many adult patients to deal with their disease during family planning and pregnancy (FPP). The aim of this study is to examine the extent of information regarding FPP which patients with AD receive from their dermatologist while being treated. Furthermore, to investigate specific worries that patients with AD may have concerning FPP.

METHODS: The study is conducted as an anonymized questionnaire-based cross-sectional study. Patients of both genders will be recruited from the Department of Dermatology at Aarhus University Hospital, Bispebjerg Hospital as well as two private dermatology clinics. The goal is to collect 200 questionaries from patient with AD. Patients must be between 18 and 45 years of age and receive topical or systemic treatment for AD. The questionnaire is designed in REDCap.

RESULTS: Inclusion is ongoing, and no results are yet obtained. Preliminary results will be presented at KMS if available.

CONCLUSION: This study gives the possibility to change the standard practice of FPP information physicians at hospitals and in private clinics inform patients. By exploring worries concerning FPP specific worries can be addressed, and thereby hopefully eased and lead to less emotional stress in a period of FPP.

ACKNOWLEDGEMENTS: This project is financially supported with a scholarship from Aarhus University Research Foundation.

P-3.8

Signe Øbo Larsen

Effect of MiniGo as add-on treatment to orally administered laxatives for children with constipation and fecal incontinence

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BACKGROUND: Functional constipation (FC) and retentive fecal incontinence (RFI) is a common ailment in children. Treatment of FC and retentive RFI with laxatives and enemas is often insufficient or cause of discomfort and pain. This study aims to investigate 1) the efficiency and tolerability of low volume trans anal irrigation (TAI) with tap water as add-on to oral laxatives, compared to treatment with oral laxatives alone and 2) whether the child's well-being improves with better symptom management.

METHODS: 50 patients with FC and RFI will be included from 4 sites, and randomized into two groups, one receiving current standard treatment with oral laxatives alone, the other receiving oral laxatives and low volume TAI. The intervention period is 6 weeks. Subjects will fill out a journal containing questions about bowel movements, incontinence episodes and well-being throughout. Data will be analyzed using QQ-plot, Shapiro-Wilks test, Barletts test, student's t-test, and Kruskall-Wallis test.

RESULTS: Inclusion is ongoing, and no results can be presented at this point.

CONCLUSION: No conclusions can be made at this point.

ACKNOWLEDGEMENTS: Qufora A/S has financed this study. Qufora A/S is the manufacturer of the TAI equipment used (MiniGo). Qufora A/S have no involvement in the study design, execution or publication.

P-3.9

Helena Bardenfleth

Bone turnover in blood, bone marrow and bone tissue in subjects with or without type 2 diabetes mellitus

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BACKGROUND: Persons with type 2 diabetes mellitus (T2DM) have an increased risk of fractures compared to persons without T2DM, despite having a higher bone mineral density (BMD). This increased risk may result from accumulated microfractures due to low bone turnover and thereby be independent of BMD status. Additionally, hyperglycemia may lead to higher levels of advanced glycation end-products (AGEs) in persons with T2DM which may affect collagen structure in bone and thus bone strength.

METHODS: Cross-sectional study consisting of 26 males with T2DM and 26 by age and gender matched controls. DEXA scans are performed to determine BMD and samples are collected from blood, bone marrow and bone tissue in order to determine bone turnover markers and levels of AGEs in the respective tissues. AGEs is also measured non-invasively through skin autofluorescence. Prior to bone marrow biopsy, bone tissue will be marked twice using tetracycline thereby ensuring precise measurement of bone turnover.

RESULTS: Comparison of the bone marker levels, bone turnover and AGEs levels in persons with or without T2DM will be done using unpaired t-tests and adjusted using logistic or linear regression, depending on data distribution. As of November 2022, >50% of participants have been included and >30% of trial days have been performed.

CONCLUSION: The project is currently ongoing. Thus, no results nor conclusion can be made at this point. Preliminary results are expected to be presented at KMS 2022.

ACKNOWLEDGEMENTS: Nothing to declare.

P-3.10

Emma Hyldgaard Olesen

Multicultural Validation of Pain Reports in the Danish Cerebral Palsy Follow-up Program

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BACKGROUND: A new pain report has been developed for children in the Danish Cerebral Palsy Follow-up Program in order to include patient's experience and perception of pain. It systematically considers multiple pain problems by registering pain locations, pain duration and variation. The Pain Report is developed by a multidisciplinary team of health-care professionals and researchers, who work with children with Cerebral Palsy (CP). It has not yet been validated against the golden standard; an interview about pain.

METHODS: The project will be carried out as an interrater reliability and feasibility study. Families of children with CP with planned consultations in the CP outpatient clinic at Aarhus University Hospital in April 2023 to September 2023, will be invited to participate. They will receive a web-based questionnaire prior to their consultation. Following the consultation, pain parameters obtained from the Pain Report are compared to thosed assessed by a pediatric neurologist during the consultation

RESULTS: The data collection will be begin in April 2023 and therefore results cannot be shows as of yet

CONCLUSION: The results will ultimately be presented for the Cerebral Palsy Follow-up Program National- and User Board in order to discuss need of changes in the use of Pain Report and evaluate if the Pain Report can be recommended for longitudinal monitoring of pain in children with CP

ACKNOWLEDGEMENTS: Funding has been received by the Elsass Foundation.

P-3.11

Mathias Hänel

Changes in peripheral volumetric bone mineral density and microarchitecture in patients with established Rheumatoid Arthritis

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BACKGROUND: Patients with Rheumatoid Arthritis (RA) have an increased risk of low systemic and juxta-articular bone mineral density (BMD). Furthermore, low juxta-articular BMD is associated with erosive disease activity and could be an adjunct to DAS28-CRP and SDAI in evaluating RA disease activity. Volumetric BMD at the distal radius can be assessed using high-resolution peripheral quantitative computed tomography (HR-pQCT). Thus, the aim of the study is to assess HR-pQCT as a candidate for monitoring RA.

METHODS: 363 patients with RA were imaged at the distal radius by HR-pQCT at baseline and at one-year follow-up. Furthermore, all patients underwent clinical examination and blood samples were collected to determine biomarkers related to systemic inflammation and bone turnover. From the HR-pQCT scans, information about the one-year change in BMD and bone microstructure is assessed and the association between changes in BMD, disease activity and medical treatment during follow-up is investigated.

RESULTS: HR-pQCT-scans at baseline and one-year follow-up was performed from March 2018 to November 2021. HR-pQCT image analysis is being conducted from October 2022 to February 2023. Preliminary results will be presented at the KMS 2023.

CONCLUSION: Preliminary conclusions will be presented at the KMS 2023. Accurate assessment of BMD, bone microarchitecture and the association with disease activity could result in a more precise evaluation of the progression of RA, improved treatment and optimised patient prognosis.

ACKNOWLEDGEMENTS: The project has received funding from The Novo Nordisk Foundation, The Danish Rheumatism Association, Aarhus University, The Health Research Foundation of Central Denmark Region, The Becket Fund, Fonden til Lægevidenskabens Fremme, Grosserer L.F. Foghts Fond, and Aase and Ejnar Danielsens Fund. The authors are grateful for the valuable work in analysing HR-pQCT scans by Jette Barlach.

P-3.12

Nanna Svensson

Next-generation effects of vitamin D supplementation in pregnancy

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BACKGROUND: Vitamin D deficiency (VDD) is common among pregnant women, although most take the suggested 10 µg/d vitamin D. VDD increases the risk of pregnancy complications e.g. preeclampsia. Studies indicate, that maternal VDD has adverse effects on offspring health, including increased risks of obesity, asthma and multiple sclerosis. This study aims to investigate if a vitamin D supplement of 90 vs 10 µg/d to pregnant women affects the overall health of offspring's in the first year.

METHODS: Within an ongoing RCT (90 vs 10 µg/d vitamin D3) participants will be invited to a follow-up study. The immune cell reactivity from umbilical cord blood and at 11-13 months of age will be investigated. Post-natal development will be evaluated based on questionnaires. Clinical 12-month examination will be performed including measurements of weight, height, head circumference, size of the anterior fontanel and growth rate. Further ASQ-3 will be used to evaluate the health of the children.

RESULTS: The results are pending as the study is ongoing.

CONCLUSION: With this study we will gain insight on the effects of intra-uterine vitamin D exposure on growth, immune system and colic during the first year of life. This insight can help guide health authorities when evaluating the need for new guidelines on vitamin D intake in pregnancy.

ACKNOWLEDGEMENTS: Nothing to declare.

P-3.13

Julie Stengaard Brewer

Fibrinolysis in sepsis patients in the intensive care unit: new biomarkers

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BACKGROUND: Abnormalities in the fibrinolytic system are frequent in sepsis patients. However, laboratory assays for the evaluation of fibrinolysis are lacking in clinical practice and thus a quick and sensitive assay might improve the early diagnosis and management of this condition. We aim to assess fibrinolysis with a modified thromboelastometry assay (ROTEM®) in sepsis patients in the intensive care unit (ICU) and to investigate the association between fibrinolytic capacity and disease severity.

METHODS: This single-center prospective cohort study will include adult sepsis patients and non-sepsis controls from the ICU at Aarhus University Hospital. Blood samples will be obtained the morning after admission (day 1) and on days 2 and 3 and analyzed with ROTEM® modified with tissue plasminogen activator (tPA) to assess fibrinolysis. Clinical information regarding organ failure, sepsis-related coagulopathy, and 30-day mortality will be collected prospectively.

RESULTS: This research year project commenced on 1st September 2022. Inclusion is ongoing. We plan to include at least 23 sepsis patients and 23 non-sepsis patients over the course of six months. Preliminary results will be presented at KMS 2023 if available.

CONCLUSION: Our study will be the first to assess fibrinolysis in sepsis patients using ROTEM®-tPA with an ICU control group. The perspective is better diagnosis and management of disturbed fibrinolysis in sepsis and thus, ultimately, improved survival for these patients.

ACKNOWLEDGEMENTS: This study is funded by the Independent Research Fund Denmark. The authors declare no competing interests. Special thanks are given to Tine Kusk Jørgensen and Vivi Bo Mogensen for their assistance in the laboratory.

P-3.14

Nina Nordtorp Deacon

Symptoms, side effects and immediate functional outcome following transurethral surgery of bladder tumours

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BACKGROUND: The standard procedure for diagnosis and treatment of tumour tissue in the urinary bladder is transurethral resection of bladder tumour (TURBT). Despite that, research into patient-reported outcome (PRO) following this surgery is limited. Assessment of the impact of TURBT on patients' lives will be useful when evaluating and comparing newer treatment options for non-muscle invasive bladder cancer (NMIBC) such as En Bloc resection (EBR) or laser ablation (LA) with the conventional method.

METHODS: Patients undergoing TURBT will complete a symptom-based questionnaire (ICIQ-M/F-LUTS), a quality of life questionnaire (EQ-5D-3L) and a newly created post-transurethral operation questionnaire (PROTO) at day 1 and day 14 post-operation. The questionnaires will also be used to compare PRO between the following 4 groups: patients with NMIBC undergoing EBR(1) or TURBT(2), patients with recurrent NMIBC undergoing LA(3) and patients undergoing control cystoscopy without finding of tumour tissue(4).

RESULTS: Results are pending. Data will be collected through fall 2022-spring 2023. Preliminary results will be presented at KMS2023.

CONCLUSION: The ambition is to provide knowledge to ensure improved patient information regarding the course of bladder surgery, thereby facilitating better patient-centred care, and to provide insight in to whether EBR or LA have better PRO compared to TURBT, hence shape recommendations for NMIBC treatment.

ACKNOWLEDGEMENTS: The research year is funded by a scholarship from Novo Nordisk Foundation.

P.4 Grundforskning

P-4.1

Tine Rasmussen

Is vitamin B12 malabsorption a late side effect in patients undergoing surgery for colorectal cancer?

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BACKGROUND: Colorectal cancer can be treated with hemicolectomy and pelvic exenteration among others. Both procedures involve resection of terminal ileum, where vitamin B12 is absorbed. Vitamin B12 deficiency may cause megaloblastic anemia, neuropathy and impaired cognitive function.
The purpose of this study is to investigate the vitamin B12 level and absorption in colorectal cancer patients who receives either a right hemicolectomy or a pelvic exenteration.

METHODS: The study will be performed as a prospective observational study. The study will include 40 patients admitted for surgery with either right hemicolectomy or pelvic exenteration and reconstruction with a Bricker bladder. The patients are examined using the vitamin B12 absorption test and blood samples (total cobalamin, MMA, creatinine, hemoglobin, MCV, folate and ferritin) before surgery and three months after surgery.

RESULTS: Patient enrolment started on October 31, 2022.

CONCLUSION: The study is expected to contribute to a) a more precise diagnosis and better organization of treatment of vitamin B12 deficiency after colorectal cancer surgery and b) new knowledge about the association between reduced vitamin B12 absorption and changes in the circulating vitamin B12 biomarkers.

ACKNOWLEDGEMENTS: This study has been funded by Margot Fribergs Fond, Grosserer L. F. Foghts Fond, and Dagmar Marshalls Fond.

P-4.2

Anders Borg Andersen

Investigating the Gut Microbiota Dynamics within the Established Human Personalized Omics Profiling Dataset, and Additional Enrichment of this by Outer Membrane Extracellular Vesicles Characterization

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BACKGROUND: An increasing body of evidence from human studies underlines a significant effect of physical exercise (PE) on the gut microbiota (GM), increasing the GM diversity and the proportion of health-associated bacteria. This increase is highly dependent on exercise modality. Current literature mainly restricts to 16s rRNA analyses of the GM. Outer membrane extracellular vesicles (OMV) analyses are well documented but purely understood.

METHODS: The human Personalized Omics Profiling (hPOP) project include fifteen leading international Omics laboratories. The hPOP project studies the variance of molecular markers across many participants with demographic and health data. The hPOP biobank consists of blood, urine, and stool samples, from which multi-Omics data include genomic, transcriptomic, proteomic (mass spectrometry-based [OLINK Explore3072]), metabolomics, metaproteomic, microbiota, lipidomics, and global autoantibodies profiles.

RESULTS: Datamining is ongoing. Initial investigations confirmed consistent sampling across multiple global sites, although we revealed preclinical variations due to batch effects. The profiling of datasets indicates a high correlation between the origin of the sample donor to the proteome and lipidome. Microbiota and metaproteome profiling enabled correlation to diet and food sources. In addition, we investigate the correlation of microbiota to proteomic profiles of proteins and soluble biomarkers.

CONCLUSION: Conclusion is pending. We anticipate that microbiota will correlate to diet and sample origin and aim to test a hypothesis that the degree of physical exercise alters the microbiota profiles of included persons.

ACKNOWLEDGEMENTS: Aalborg University Hospital and Aalborg University are funding this abstract, and it is a part of a Danish American Research Exchange (DARE) Fellowship application for the academic year of 2023-2024.

P-4.3

Alberte Hjorth Duus

Tubal ligation and salpingectomy and risk of ovarian cancer – a nationwide case-control study

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BACKGROUND: Recent theories propose that most epithelial ovarian cancer (EOC), depending on the histological subtype, originate from other gynecological tissues and involve the ovary secondarily. According to these theories, any protective effect of tubal ligation and salpingectomy may vary by histological subtype. The study aim is to examine the association between tubal ligation and salpingectomy and EOC risk, with a focus on associations specific for histological subtypes.

METHODS: We will identify EOC cases and matching controls in Danish registries. Furthermore, we will gather information on relevant surgical procedures and confounders from national registries. Data will be linked using unique personal identification numbers. Conditional logistic regression adjusted for relevant confounders will be used to calculate odds ratios of EOC risk after tubal ligation or salpingectomy, respectively. Additionally, analyses stratified for histological subtype will be conducted.

RESULTS: Our dataset consists of 16,823 EOC cases and 672,930 corresponding controls. In regard to exposure, 0.87% of the cases and 1.1% of the controls have had a salpingectomy. Moreover, 3.4% of the cases and 4% of the controls have had a tubal ligation. The data analysis is currently ongoing. Thus, no results can be presented at this point. Preliminary results are expected to be presented at KMS 2023.

CONCLUSION: To our knowledge, this will be the largest nationwide case-control study to date on this association, and it will be the first study to perform analyses specific for histological subtype regarding salpingectomy and EOC risk. As the data analysis is currently ongoing, no conclusion has been made yet.

ACKNOWLEDGEMENTS: The project is funded by the Danish Cancer Society.

P-4.4

Mathilde Thrysøe Jespersen

Association between B12 deficiency and Neurofilament light chain and neuropathy in adolescents with type 1 diabetes

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BACKGROUND: Neuropathy is a well-known complication to diabetes. However, still very little is known about biochemical factors to detect early signs of neuropathy in younger patients. We therefore aim to investigate blood levels of vitamin B12 (B12)-markers and Neurofilament light polypeptide (NfL) in adolescents with type 1 diabetes (T1D) with or without neuropathy.

METHODS: Sixty adolescents (15-18 years) with T1D and 23 control subjects were included. Based on nerve conduction studies (NCS), patients were divided in two groups: T1D with neuropathy (DN+) and T1D without neuropathy (DN-). Blood levels of B12, B12-binding protein holotranscobalamin (HoloTC), methylmalonic acid (MMA) and NfL were determined.

RESULTS: Twenty-three of the adolescents were DN+, 34 were DN- and 3 had missing NCS. There was no significant difference in B12 parameters between DN- and DN+. Comparing DN+ with control subjects showed no difference in HoloTC- or MMA-levels, but significantly higher B12-levels in DN+. No significant differences in serum NfL levels were seen.

CONCLUSION: This study found similar blood levels of B12 parameters and NfL in adolescents with and without diabetic neuropathy, suggesting that reduced B12 level is not contributing as cause of occurrence of neuropathy in adolescents with T1D. NfL does not seem to be a biomarker of large nerve fiber damage.

ACKNOWLEDGEMENTS: This project is financed by Danish Neurological Society, The Lundbeck Foundation.

P-4.5

Sofie Dahl-Nielsen

Milk Fat Globule Membrane in preterm human milk

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BACKGROUND: Mother's own milk(MOM) serves as the best nutrition for infants. Many infants are not exclusively breastfed, especially preterm born infants. If not breastfed the infants are fed with alternatives, that don't present the same beneficial factors as MOM. Milk Fat Globule Membrane(MFGM) is a bioactive component in MOM, that might have an influence on, among others, the development of the brain, the immune and intestinal system. This study focuses on the natural concentration of MFGM in MOM.

METHODS: This study includes mothers who have given birth before gestational age 34. Milksamples from 30 mothers are gathered from three different stages of lactation after birth from each mother (colostrum [0-3 days], transitional milk [1-2 weeks] and mature milk [after 4 weeks]). The samples will then be analyzed to determine the fraction of MFGM.

RESULTS: The project is expected to start in february 2023 and inclusion will still be active at the time of the conference. Thus, no results nor conclusion can be made at this point.

CONCLUSION: See above

ACKNOWLEDGEMENTS: The study is supported by research center GAIN (Gastrointestinal diseases and malformations in infancy and childhood) to pay for the milk analyses. The study is carried out in collaboration with Arla Foods Ingredients.

P-4.6

Mikkel Dahl-Jessen

Spatial proximity based induced chromosomal rearrangements in the human genome using CRISPR-Cas9

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BACKGROUND: Copy number variations and chromosome rearrangements contribute to genetic diversity and are as such important for human health, yet we know little about what cause them. Frequency of deletions and inversions are, for example, believed to be inversely correlated with linear distance in base pairs between breakpoints, but that is not true beyond a certain distance. Our study suggests that 3D space is a much better predictor for frequency of these big deletions and inversions than linear distance.

METHODS: We hypothesized that deletions and inversions would occur more frequently, and faster, when breakpoints were in close physical proximity, regardless of linear distance. We therefore used CRISPR-Cas9 to induce double-stranded breaks at loci that often interact in 3D space - the borders of topologically associated domains (TADs) – compared to loci that rarely interact – inter-TAD loci. We then used a specialised digital droplet PCR (ddPCR) protocol, ddXR, to quantify events.

RESULTS: Preliminary results indicate that deletions and inversions are significantly more frequent, when breakpoints are close in 3D space compared to non-interacting controls of similar linear size. More replicates are needed, however, for robustness and these are currently being undertaken.

CONCLUSION: Our results suggest that spatial proximity is an important, yet undescribed, variable for large deletions and inversions. This may have implications for understanding the aetiologies of genetic diseases that arise from such structural variations in somatic cells.

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P-4.7

Christian Winding

The potential of anti-C3 nanobodies in experimental proteinuric kidney disease

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BACKGROUND: Chronic kidney disease affects more than 10% of the adult population and leads to severe illness and need of haemodialysis. Studies have found that complement overactivation contributes to loss of kidney-function though inflammation-mediated damage. The anti-C3 nanobody, represent a potent inhibitor of the alternative pathway, with free filtration across the glomerular filtration barrier, thus providing a tool to investigate the renoprotective effects of complement inhibition in vivo.

METHODS: We will examine whether subcutaneous anti-C3 nanobody therapy attenuates complement activation and kidney damage in an established mouse model of progressive proteinuric kidney disease. Urine-, plasma- and kidney-samples are collected and complement inhibition is evaluated using westernblotting, ELISA and qPCR. Histologi with semi-quantification is used to assess glomerular and tubulointestinal damage.

RESULTS: An ELISA-assay that allows measurement of free nanobody in plasma and urine has been established by a former research student, and the pharmacokinetics of the nanobody has been studied both with subcutaneous and intravenous injections. Data have shown a fast absorption, short half-life and stable urinary concentration. To ensure therapeutic plasma levels, an osmotic pump containing nanobody will be implanted subcutaneously.

CONCLUSION: Our findings so far suggest that the nanobody produces complement inhibition. Histological assessment of kidney damage is still to be performed in this study.

ACKNOWLEDGEMENTS: Karen Elise Jensens fond, DK.

P-4.8

Didde Kidmose Kristensen

Will SGLT2-inhibition improve vascular function in patients with type 2 diabetes and chronic kidney disease? A double-blinded, randomized, placebo-controlled crossover trial

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BACKGROUND: The antidiabetic drug class, Sodium Glucose Cotransporter 2 inhibitors (SGLT2i), is found to have significant improvements in cardiovascular endpoints in DM2 as well as in non-diabetic CKD, reducing the risk of cardiovascular death up to 30% in both patient populations.
The vascular benefits from SGLT2i are suggested to be found partly in an improvement of endothelial cell function. We aim to investigate if SGLT2-inhibition improves vascular function in patients with DM2, CKD, or both.

METHODS: The participants are divided into three groups, either DM2, CKD, or DM2 and CKD, each of 15 participants. They are randomized to 4 weeks of SGLT2i-treatment (empagliflozin 10 mg) or matching placebo, followed by crossover. After each period of treatment, we evaluate vascular function by venous occlusion plethysmography. Forearm blood flows are measured during intra-arterial infusion of acetylcholine and sodium nitroprusside, assessing endothelium-dependent and non-dependent vasodilation.

RESULTS: Data collection is currently in progress and is planned to be completed by the end of 2022. Preliminary results will be presented.

CONCLUSION: Not yet obtainable.

ACKNOWLEDGEMENTS: The sponsor of the project is chief physician, PhD, Jesper Nørgaard Bech. Funding: The Augustinus Foundation, The Regional Medicine- and Treatment Fund, Central Denmark Regions Health Science Research Foundation, and The Research Foundation of the Western Hospital Unit, Central Denmark Region. Boehringer-Ingelheim is supporting the project by cost-free supply of project medicine and placebo. There is no conflict of interest between the funders and the principal investigator.

P-4.9

Amanda Stamatis

Statins, through RhoA inhibition, as a treatment option in Parkinson's disease

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BACKGROUND: Parkinson's disease (PD) is a neurodegenerative disorder characterised by four cardinal symptoms: bradykinesia, rigid muscles, postural and gait disorder, and resting tremor due to accumulation of α-syn causing depletion of dopaminergic neurons in the SNpc. RhoA-ROCK signalling plays a crucial role in PD symptoms and is increased in human iPSC-derived neurons with mutations in PARK2. The activation of RhoA-ROCK appears to stimulate aggregation of α-syn, autophagy dysregulation and inducing apoptosis.

METHODS: Statins inhibit RhoA in the multi-step reaction of hydroxyglutarylmethyl-CoA to geranylgeranyl pyro-phosphate, thus inhibiting downstream signalling cascades to halt the progression of PD. The study investigates whether statins primarily affect PD neurons or healthy neurons as well. The protocol is currently being discussed and will be finalised in mid-end January 2023 and presented at KMS in March 2023.

RESULTS: Targeting RhoA/ROCK signalling might be a possible therapeutic approach for more advanced stages of PD, but results of the study will be presented at KMS in March 2023 if ready.

CONCLUSION: No conclusion has been made yet.

ACKNOWLEDGEMENTS: Nothing to declare.

P-4.10

Oliver Hahn

Proteomic and metabolomic analysis of pig kidney after unilateral ureteral obstruction injury

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BACKGROUND: Kidney fibrosis is regarded as the final stage of chronic kidney disease, which affects approximately 10% of adult population. It's also considered being the final common pathway in most progressive kidney diseases. Our investigations aim to understand the metabolic changes in its progression and to identify metabolic pathways that drives this progression forward. This knowledge might pace the way to find metabolic interventions to stop or ameliorate the progression of kidney fibrosis.

METHODS: We received kidney-samples of pigs that underwent a unilateral ureteral obstruction (UUO) for 2 weeks, 1 week and 2 days as a robust model of kidney fibrosis. We analyzed changes in the metabolome in a targeted triple quadrupole liquid chromatography – mass spectrometry (LC/MSMS) approach quantifying more than 100 different compounds. Additionally we analyzed changes in the proteome utilizing Orbitrap, nanoflow LC/MSMS. As a control we used the contralateral sham operated kidney.

RESULTS: Initial results of metabolome data showed an increase in branched chained amino acids, a decrease in cysteine, glutamate and glycine. We also observed decreased amounts of metabolites of the Krebs-cycle and increased metabolites related to anaerobic glycolysis. Proteomic data revealed drastic changes in the composition of ion transporters and mitochondrial membrane transporters.

CONCLUSION: We found substantial changes to the metabolome and proteome which showed alterations concerning mitochondrial function and transport capacity of the kidney. Further investigations into proteo-metabolic effects will elucidate metabolic interventions that could protect from fibrotic kidney disease.

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P-4.11

Pam Huntjens

Gut microbial modulation of antigen-presenting cells promotes extraintestinal manifestations in Inflammatory Bowel Disease patients

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BACKGROUND: 25-40% of Inflammatory Bowel Disease (IBD) patients develop inflammatory extraintestinal manifestations (EIM). The fecal microbiome of IBD patients with or without EIMs differs in composition and function. Moreover, specific gut microbial species can survive within antigen presenting cells (APCs) and modulate cytokine expression. However, the relationship between microbes reprogramming APCs to traffic outside of the gut and elicit inflammation extraintestinally is relatively unexplored.

METHODS: Stool microbiota of IBD patients with or without EIMs together with an APC reporter cell line will be used. Healthy fecal samples will be used as control. Analysis will include microbial intracellular survival in APCs, inflammatory cytokine, and chemokine expression as well as shotgun RNA sequencing of infected cells. In vivo studies will examine whether intracellular gut microbial pathogens associated with EIMs promote APC trafficking to extraintestinal sites in a mammalian model of IBD.

RESULTS: This study will commence in August 2023 and is expected to be completed by July 2024, if funding is awarded.

CONCLUSION: No conclusion has been made yet.

ACKNOWLEDGEMENTS: This study is submitted as an application for the Danish-American Research Exchange (DARE), sponsored by the Lundbeck Foundation. This proposed study is inspired by a collaboration between Drs. Henrik Nielsen (University of Aalborg) and Susan Lynch (University of California San Francisco). The IBD cohort, banked samples (n=174), and associated unpublished gut microbial multiomics data used as preliminary data for this proposed study forms the Ph.D. of Dr. Sandra Hertz.

P-4.12

Zaka Humlesen

Cell-type-specific importance of SorCS2 protein in ischemic stroke susceptibility

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BACKGROUND: The SorCS2 protein contributes to oxidative stress and ischemic responses and, thereby, is potentially important for brain integrity. SorCS2 upregulation under pathological conditions in neurons, astrocytes, and smooth muscle cells, suggests a significance for neurovascular signaling. Thereby, we hypothesize that cerebral ischemia provokes an upregulation of SorCS2 protein that minimizes ischemic tissue damage by increasing the sensitivity of the neurovascular unit to neuronal metabolic demand.

METHODS: We use selective SorCS2 knockdown and wild-type mice induced with acute ischemic stroke and afterward reperfused using the distal middle cerebral artery occlusion (dMCAO) in vivo micropipette method. Cerebral blood flow and neurovascular coupling (by whiskers stimulation) are assessed with Laser Speckle Contrast Imaging (LSCI) before, during, and after dMCAO, and infarct size is examined by 2,3,5-triphenyl tetrazolium chloride staining.

RESULTS: The study is currently ongoing. Results will be presented at KMS 2023.

CONCLUSION: The conclusion will be presented at KMS 2023.

ACKNOWLEDGEMENTS: Nothing to declare.

P-4.13

Laura Sparsø

Urinary Tract Infections in Renal Transplant Patients – the Role of Antimicrobial Peptides

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BACKGROUND: Urinary tract infections (UTIs) are amongst the most frequent type of infection in humans and usually caused by Escherichia coli. UTIs are particularly frequent in renal transplant patients and exceed what is seen in other groups of immunosuppressed. Antimicrobial peptides (AMPs) are an important part of the innate immune system, and here we speculate that urinary levels of AMPs are a relevant factor for the susceptibility to UTIs in newly transplanted kidney recipients.

METHODS: Urine samples from the renal transplant patients and age and gender-matched controls will be analyzed for AMP content and function. The urine concentrations of AMPs will be measured using immunoassays and the function will be determined by bacterial growth-rate in human urine, bacteriolytic properties by release of green fluorescent protein (GFP) from GFP-producing uropathogenic E. coli and bacterial damage will be determined by a propidium iodide assay.

RESULTS: We have conducted a systematic literature study and isolated the AMPs relevant for and active in the urinary tract in humans and have established the necessary methods to confirm the bacteriostatic and/or bactericidal effects of the following AMPs: LL-37, Lipocalin-2, RNase-7 and HBD-1.

CONCLUSION: Our results confirm that the AMP LL-37 is lytic for E. coli membranes in micromolar concentrations, and markedly reduces the growth of E. coli in artificial urine, which does not contain AMPs.

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P-4.14

Sidsel Loft Nagel

Improving Forensic Autopsies by Investigating Cause of Death using Ex-vivo Cardiac Imaging

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BACKGROUND: In approximately 10% of forensic autopsies the cause of death remains undetermined. Unexplained deaths are in many cases presumed to have a cardiac cause. We introduce magnetic resonance imaging (MRI) of ex-vivo hearts and coronary arteries in the forensic autopsy in order to visualize the myocardium and vascular system. This provides information for targeting biopsies of the heart to improve the chance of determining a cardiac cause of death.

METHODS: The anatomical in-vivo appearance of post-mortem hearts will be preserved by filling the cavities with a water-based polymer. The coronary arteries are visualized using a mixture of gelatin and a MRI contrast agent, Dotarem. The hearts are scanned in a Philips Achieva 1.5T clinical MRI system, and coronary angiography will be performed. Subsequently, a diffusion weighted spin-echo sequence is performed allowing for diffusion tensor calculation and quantification of myocardial architecture.

RESULTS: Pending results. The study is expected to be initiated in February 2023. Thus, no results nor conclusion can be made at this point. If available, preliminary results are expected to be presented at the conference.

CONCLUSION: See above.

ACKNOWLEDGEMENTS: Nothing to declare.

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