LASSEN DAGEN 2025

Abstractbog

Indholdsfortegnelse

Forord

Velkommen til Lassendagen 2025

Kære alle

Lassendagen er en vigtig årlig tradition på Bispebjerg og Frederiksberg Hospital, og vi er glade for igen at kunne byde velkommen til en dag, hvor vi fejrer og synliggør den forskning, som hver dag udføres på hospitalet. Forskningen er en central del af vores fælles indsats for at sikre patienterne den bedst mulige behandling – nu og i fremtiden.

I Niels A. Lassens (1926–1997) ånd præsenterer dagen spændende og betydningsfulde forskningsprojekter fra både erfarne og yngre forskere. Lassendagen giver mulighed for at mødes på tværs, dele viden og styrke de faglige relationer, der er afgørende for hospitalets udvikling.

I år afholdes Lassendagen for første gang i hospitalets nye Fælleshus, som skaber en smuk, funktionel og bæredygtig ramme for dagens program. Fælleshuset er skabt som et samlingspunkt for hele Bispebjerg og Frederiksberg Hospital – et sted for læring, træning, samarbejde og fællesskab. Bygningen trækker tydelige tråde til Bispebjergs historiske arkitektur gennem brugen af genbrugstegl fra den tidligere kirkegårdsmur, klassiske murstiksdetaljer og en farvesætning inspireret af stedets oprindelige formsprog. Samtidig viser huset vejen frem med bæredygtige og materialekloge løsninger, som reducerer bygningens klimaaftryk, samtidig med at det skaber et lyst, åbent og indbydende miljø for alle medarbejdere og gæster.

Årets program rummer en række faglige højdepunkter: Vi fejrer nye professorudnævnelser, hører oplæg fra Gruppen for yngre forskere (GYF) og gennemfører både abstraktpræsentationer i grupper og afholder foredragskonkurrencen ”Aktuel forskning på BFH”. Senere følger en high-speed session med udvalgte abstrakter, og traditionen tro afsluttes dagen med uddelingen af Niels A. Lassenprisen og efterfølgende reception og prisoverrækkelse.

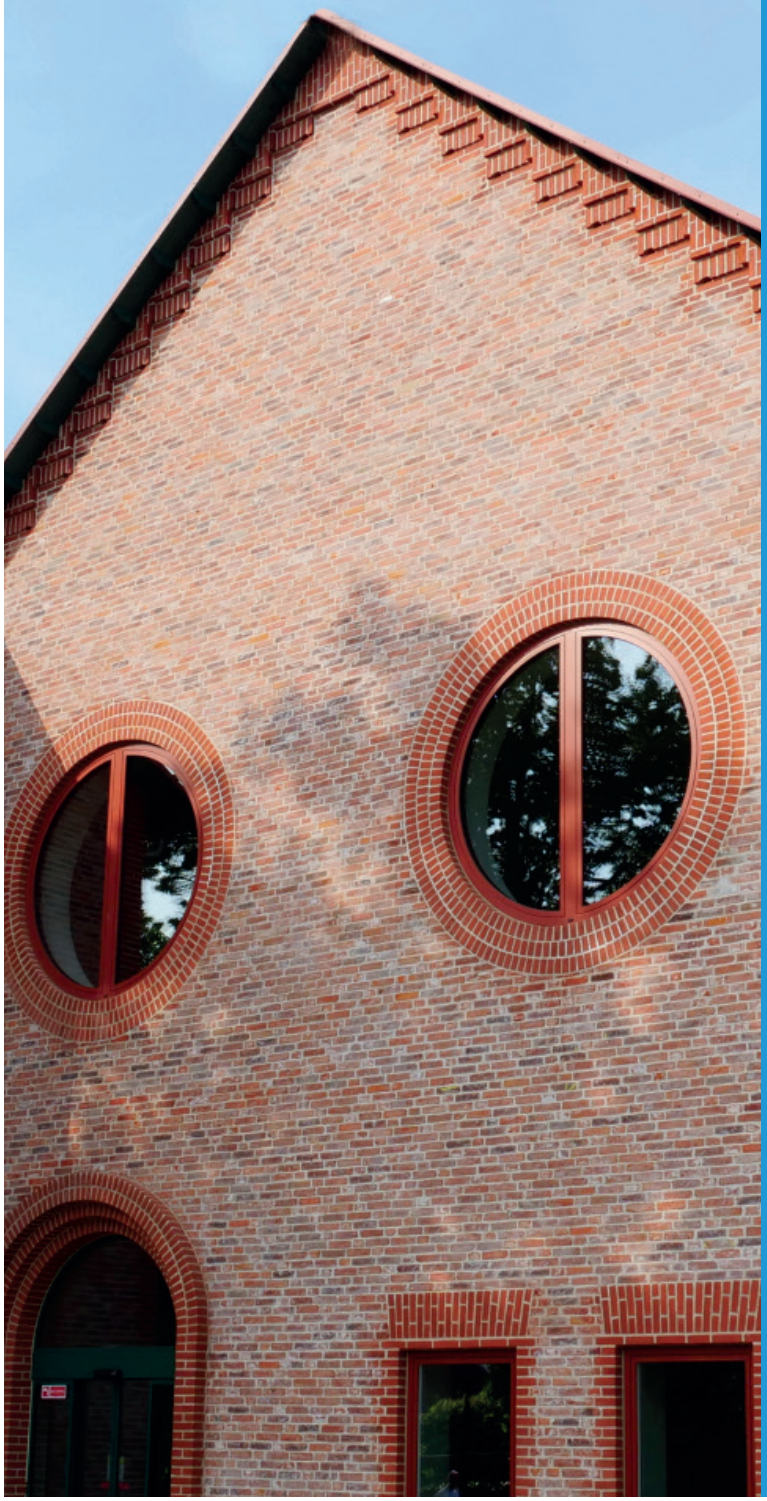
Vi håber, at abstraktbogen vil være til glæde under Lassendagen, men også at den efterfølgende kan læses og genlæses som inspiration og opslagsværk.

Rigtig god fornøjelse.

På vegne af Direktionen og Forskningsudvalget

Kirsten Wisborg	Christian S. Meyhoff
Lægefaglig vicedirektør	Formand for Forskningsudvalget

Lassendagen 5. december 2025



Forskningsdag på Bispebjerg og Frederiksberg Hospital

Afholdes i Fælleshuset

Kl. 08.00-08.30
Morgenmad

Kl. 08.30-08.35
Velkomst ved vicedirektør Kirsten Wisborg og formand for Forskningsudvalget Christian S. Meyhoff

Kl. 08.35-09.00
Fejring af professorer:

- Espen Jimenez Solem som er blevet lærestolsprofessor i klinisk farmakologi

- Hans Christian Olsen Wulf (Afd. D/S) fejring af hans 3. disputats

Kl. 09.00-09.10
Gruppen for yngre forskere (GYF)

Kl. 09.20-11.00
Abstraktpræsentationer i grupper

Kl. 11.10-12.00
Aktuel forskning på BFH
– foredragskonkurrence (1.del)

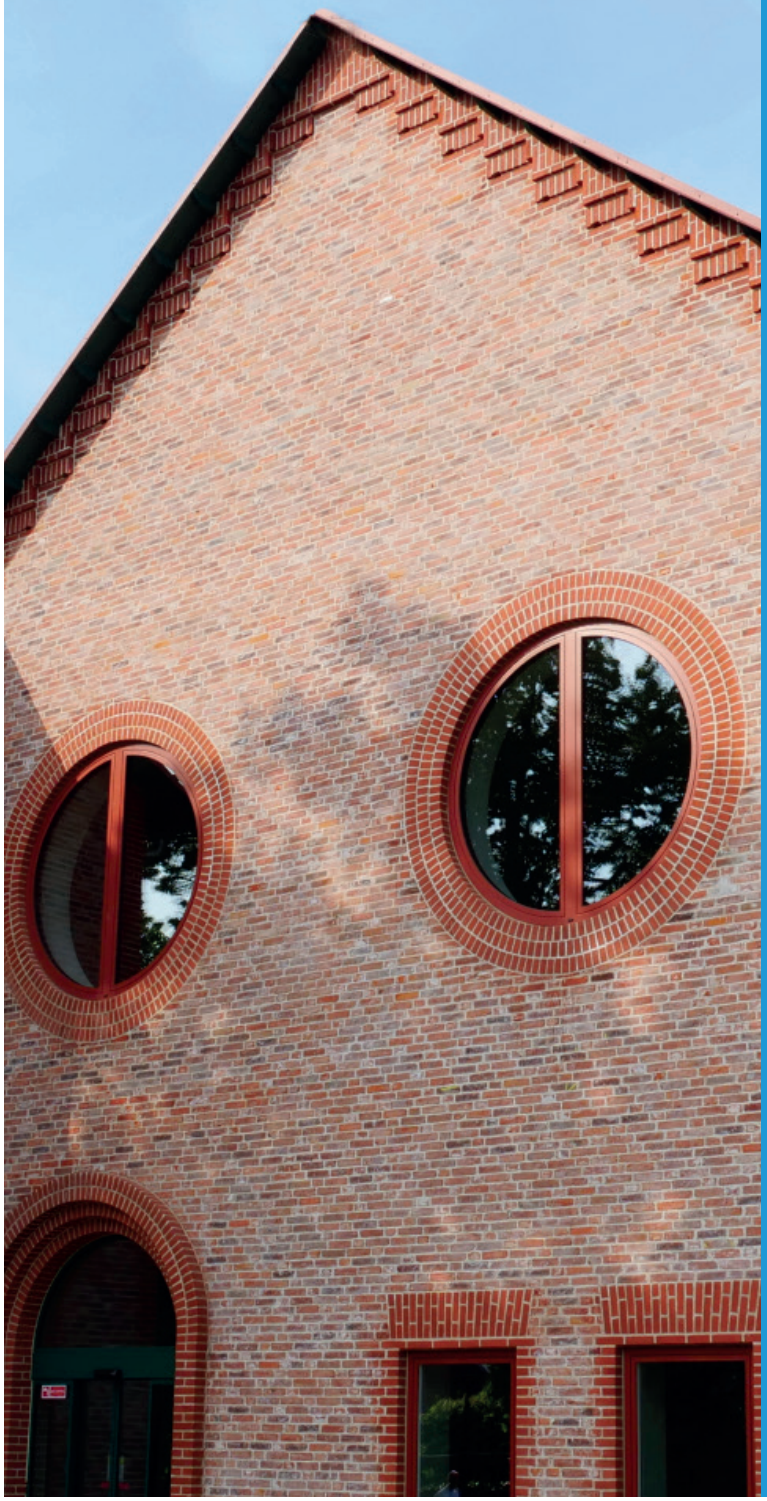
Caroline Hansen
Klinisk Biokemisk Afdeling:
Glucagon Acutely Stimulates Hepatic Gluconeogenesis

Nina Lerberg Hansen
Klinisk Biokemisk Afdeling:
Exogenous Glucagon Acutely Reduces Insulin Clearance in Healthy Humans

Casper Friis Thirstrup
Psykiatrisk Center København:
Prevalence and impact of comorbid substance abuse in patients newly diagnosed with bipolar disorder, their first degree relatives and healthy individuals

Ida-Marie Lykke Larsen
Fysio- og Ergoterapi Afdeling:
Systematic assessment of basic mobility in patients with acute stroke and 90 Day Mortality; A 1 year cohort study of 634 patients

Lassendagen 5. december 2025



Simone Bastrup Israelsen
Klinisk Farmakologisk Afdeling:
Isotretinoin use and risk of idiopathic intracranial hypertension: A nationwide cohort study

Kl. 12.00-12.45
Frokost

Kl. 12.45-13.45
Aktuel forskning på BFH – foredragskonkurrence (2.del)

Annelaura Bach Nielsen
Klinisk Biokemisk Afdeling:
Translating Proteomic Biomarkers into Clinical Applications Using Machine Learning

Ida Houtved Rasmussen
Anæstesiologisk Afdeling:
Comparing opioids for postoperative pain, opioid consumption, and adverse events within 24 hours after surgery: A systematic review

Anne Storgaard Nørskov
Kardiologisk Afdeling:
Severe mental illness and symptoms of myocardial infarction in calls to the Emergency Medical Services

Thomas Leth Jensen
Klinisk Farmakologisk Afdeling:
Using Sequence Symmetry Analysis for Adverse Drug Reaction Signal Detection in Psychiatric Medications: Investigating ADHD Medication

Frederikke Amund Nielsen, Akutafdelingen:
Hyponatremia with Impaired Consciousness and 30 Day Mortality in Acute Hospital Admissions

Kl. 13.45-14.00
Kaffepause

Kl. 14.00-14.30
High Speed for abstraktpræsentationer

Kl. 14.30-15.00
Tildeling af Niels A. Lassenprisen 2025

Kl. 15.00-15.30
Reception og prisoverrækkelse

Kl. 15.30-15.45
Tak for i dag

Foredrag

Kl. 11.10-12.00

Aktuel forskning på BFH – foredragskonkurrence (1.del)

F01	Caroline Hansen, Klinisk Biokemisk Afdeling: caroline.hansen.03@regionh.dk Glucagon Acutely Stimulates Hepatic Gluconeogenesis	Side 7
F02	Nina Lerberg Hansen, Klinisk Biokemisk Afdeling: nina.lerberg.hansen.01@regionh.dk Exogenous Glucagon Acutely Reduces Insulin Clearance in Healthy Humans	Side 8
F03	Casper Friis Thirstrup, Psykiatrisk Center København: casper.friis.thirstrup@regionh.dk Prevalence and impact of comorbid substance abuse in patients newly diagnosed with bipolar disorder, their first-degree relatives and healthy individuals	Side 9
F04	Ida-Marie Lykke Larsen, Fysio- og Ergoterapi Afdeling: ida-Marie.Lykke.larsen.02@regionh.dk Systematic assessment of basic mobility in patients with acute stroke and 90-Day Mortality; A 1-year cohort study of 634 patients	Side 10
F05	Simone Bastrup Israelsen, Klinisk Farmakologisk Afdeling: simone.elisabeth.bastrup.israelsen@regionh.dk Isotretinoin use and risk of idiopathic intracranial hypertension: A nationwide cohort study	Side 11

Foredrag

Kl. 12.45-13.45

Aktuel forskning på BFH – foredragskonkurrence (2.del)

F06	Annelaura Bach Nielsen, Klinisk Biokemisk Afdeling: annelaura.bach.nielsen@regionh.dk Translating Proteomic Biomarkers into Clinical Applications Using Machine Learning	Side 12
F07	Ida Houtved Rasmussen, Anæstesiologisk Afdeling: ida.houtved.rasmussen.01@regionh.dk Comparing opioids for postoperative pain, opioid consumption, and adverse events within 24 hours after surgery: A systematic review	Side 13
F08	Anne Storgaard Nørskov, Kardiologisk Afdeling: anne.storgaard.noerskov@regionh.dk Severe mental illness and symptoms of myocardial infarction in calls to the Emergency Medical Services	Side 19
F09	Thomas Leth Jensen, Klinisk Farmakologisk Afdeling: thomas.leth.jensen@regionh.dk Using Sequence Symmetry Analysis for Adverse Drug Reaction Signal Detection in Psychiatric Medications: Investigating ADHD Medication	Side 20
F10	Frederikke Amund Nielsen, Akutafdelingen: frederikke.amund.nielsen.02@regionh.dk Hyponatremia with Impaired Consciousness and 30-Day Mortality in Acute Hospital Admissions	Side 21

Foredrag

Glucagon Acutely Stimulates Hepatic Gluconeogenesis

Caroline Hansen[1], Josephine Fisker-Andersen[1], Christine Rasmussen[1], Frederik R. Ceutz[2], Jens J. Holst[2,3], Marie Winther-Sørensen[1] & Nicolai J. Wewer Albrechtsen[1,4,5]

[1] Department of Clinical Biochemistry, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark

[2] Department of Biomedical Sciences

[3] Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen, Denmark.

[4] Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

[5] Copenhagen Center for Translational Research, Copenhagen University Hospital – Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark

* Shared co-last authors

Background:
Glucagon stimulates hepatic glucose production via glycogenolysis and gluconeogenesis. In diabetes, glucagon is a key driver of hyperglycaemia, but whether it acutely regulates gluconeogenesis remains unclear. While glycogenolysis is occurring rapidly, gluconeogenesis has traditionally been viewed as a slower and transcriptionally regulated process. This study investigated whether glucagon acutely stimulates hepatic gluconeogenesis independent of transcription.

Methods:
We utilised an in-house developed *in situ* mouse liver perfusion model to assess the acute effects of glucagon on gluconeogenesis. Livers from male C57BL/6JRj mice (11–16 weeks), either freely fed or overnight-fasted, were perfused via the portal vein with oxygenated Krebs–Henseleit buffer with or without gluconeogenic substrates (6 mM lactate, pyruvate, or both) and with or without glucagon (10 nM). Hepatic glucose output was measured every three minutes for up to 80 minutes.

Results:
In fed mice, glucagon rapidly increased glucose production 3.6-fold (5.4 ± 1.9 vs 1.5 ± 0.26 µmol/min, $p < 0.0033$). In fasted, glycogen-depleted mice, glucagon alone had no effect, but in the presence of substrates it enhanced glucose output by 36–43% ($p \leq 0.044$), with a stronger response to pyruvate than lactate. Effects were rapid, reversible, and reproducible, consistent with a transcription-independent mechanism.

Conclusion:
Glucagon acutely stimulates hepatic gluconeogenesis independent of transcription and in the absence of glycogen. Thus, glucagon functions as a minute-to-minute regulator of glucose metabolism and may drive hyperglycaemia in diabetes not only via glycogenolysis but also through acute stimulation of gluconeogenesis. These findings broaden understanding of glucagon's role in glucose homeostasis.

Exogenous Glucagon Acutely Reduces Insulin Clearance in Healthy Humans

Nina Lerberg Hansen[1], Sophie Betty Brock Johnsen[1], Elvar Már Sturlaugsson[1], Josephine Fisker-Andersen[1], Caroline Hansen[1], Sasha Alexandra Sampson Kjeldsen[1], Nicolai J. Wewer Albrechtsen[1,2,3]

[1]Department of Clinical Biochemistry, Copenhagen University Hospital Bispebjerg and Frederiksberg, Copenhagen, Denmark.
[2]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark.
[3]Copenhagen Center for Translational Research, Copenhagen University Hospital – Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark

Background
Glucagon is a peptide hormone secreted from pancreatic alpha cells, and it regulates plasma glucose by stimulating hepatic glucose production. Whether glucagon also regulates plasma glucose by affecting insulin secretion or clearance is not well studied. However, it is relevant to investigate this as type 2 diabetes is associated with hyperglucagonemia and reduced insulin clearance.

Methods
15 healthy participants were included in this crossover study. Each participant participated in two study days: One with a four-hour intravenous infusion with glucagon and one with a four-hour intravenous infusion with glucose to match the glucose excursions on the glucagon day, thus enabling the investigation of the glucose independent effects of glucagon on insulin secretion and clearance. Blood samples were drawn frequently and analyzed for plasma glucose, insulin and C-peptide.

Results
Participants were healthy men and women (9M/6F), 29±1 (mean±SEM) years old, body mass index of 22.3±0.4 $kg \times m^{-2}$ and had a normal fasting plasma glucose (5.8±0.1 mmol/l). The plasma glucagon concentration reached 124±6 pmol/l during glucagon infusion. Plasma glucose was similar on the two study days. Insulin secretion, assessed by bsAUC C-peptide, did not differ significantly between the two study days (P=0.1123). However, compared to the glucose study day glucagon infusion significantly increased bsAUC insulin with 61±11% (time 0-90 minutes) (P<0.0001) and 51±16% (time 0-240 minutes) (P=0.0416) despite unaltered C-peptide.

Conclusion
Supraphysiological levels of glucagon reduces hepatic insulin clearance acutely in healthy humans. This finding has implications for understanding the link between hyperglucagonemia and impaired insulin clearance in type 2 diabetes.

Prevalence and impact of comorbid substance abuse in patients newly diagnosed with bipolar disorder, their first-degree relatives and healthy individuals

C.F. Thirstrup[1], S. Stanislaus[1], H.L. Kjærstad[2], K.S.O. Sletved[1], K.W. Miskowiak[2], M. Faurholt-Jepsen[1], K. Munkholm[1], M. Vinbjerg[3], K. Coello[1, 3], L.V. Kessing[1].

[1] Psychiatric Centre of Copenhagen- Frederiksberg, Copenhagen Affective Disorders Research Centre CADIC, Frederiksberg, Denmark.

[2] Department of Psychology- University of Copenhagen- and Mental Health Services- Capital Region of Denmark., Neurocognition and Emotion in Affective Disorders NEAD Centre, Frederiksberg, Denmark.

[3] Early Multimodular Prevention and Intervention Research Institution (EMPIRI), Mental Health Centre, Northern Zealand.

Background

Bipolar disorder (BD) is often a progressive mental disorder associated with functional disability and decreased quality of life. Co-occurring substance abuse within BD patients is estimated to be between 40-60% and has been associated with a more severe illness course. However, no study has investigated the prevalence and impact of comorbid substance abuse in patients with newly diagnosed BD.

Methods

The present study is part of the ongoing longitudinal Bipolar Illness Onset study including 400 patients with newly diagnosed BD, 140 UR and 200 healthy controls (HC). Patients were recruited from the Copenhagen Affective Disorder Clinic. All participants underwent thorough clinical assessment and neurocognitive testing.

Comorbid substance abuse was systematically assessed for all study participants and supplementary information was collected via the electronic health record, Sundhedsplatformen.

Results

37% of patients newly diagnosed with BD had previous or current harmful drug use or abuse. Patients with or harmful drug use or abuse had a higher prevalence of childhood traumas, higher numbers of affective episodes, an earlier illness onset, lower levels of functioning and higher prevalence of suicide attempts. They were also more likely to be male and to have a diagnosis of BD type I.

Discussion

Despite being newly diagnosed, BD patients exhibited a high prevalence of drug abuse compared with HC. Drug abuse and harmful use were associated with greater illness severity

compared to no use. These findings highlight the urgent need to detect and manage substance abuse at bipolar disorder diagnosis to prevent functional decline and illness progression.

Systematic assessment of basic mobility in patients with acute stroke and 90-Day Mortality; A 1-year cohort study of 634 patients.

Ida-Marie Lykke Larsen[1], Christian Hedelund Arens[1], Camilla Hole Ringsted[1], Camilla Kampp Zilmer[1], Christian Have Dall[1,2], Hanne Christensen[2,3], Morten Tange Kristensen[1,2],

[1]Department of Physical and Occupational Therapy, Copenhagen University Hospital, Bispebjerg and Frederiksberg, Copenhagen, Denmark.
[2]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark.
[3]Department of Neurology, Copenhagen University Hospital, Bispebjerg and Frederiksberg, Copenhagen, Denmark.

Background and Aims
Reduced physical function (PF) is associated with adverse health outcomes, but rarely systematically assessed across wards and diagnoses at hospitals. We examined the association between in-hospital PF and 90-day mortality in patients with stroke.

Methods
Adult patients referred for PF evaluation by physio- or occupational therapists in a major University Hospital in Denmark were evaluated with the Cumulated Ambulation Score (CAS) for basic mobility. Data were categorized as normal = independent of human assistance in the 3 CAS activities; bed and chair transfer, and indoor walking on the first CAS assessment or as reduced, if not. The day of CAS assessment was used as index for 90-day mortality in Cox regression analysis with first CAS adjusted for age and sex (aHR).

Results
Total of 634 patients with stroke (mean±SD age 71.9±13, 46% women) were evaluated with the CAS in an organized inpatient stroke ward over 1 year. Total of 63% patients had reduced first CAS and 8.4% of patients died within 90-days of this assessment. The aHR of 90-day mortality for reduced CAS-mobility was 6.88 (95%CI, 2.12-22.23, p=0.001) versus those with normal basic mobility level.

Conclusions
In adult patients with stroke, 90-day mortality markedly increased with reduced basic mobility identified with the Cumulated Ambulation Score. We suggest the CAS to be implemented and used as a generic measure of PF in patients with neurological disorders until independency has been reached.

Isotretinoin use and risk of idiopathic intracranial hypertension: A nationwide cohort study

Authors: Simone Bastrup Israelsen[1], Ida M. Heerfordt[1], Anna Horwitz[1], Rasmus Huan Olsen[1,2], Henrik Horwitz[1,2]
Author affiliations:
1 Department of Clinical Pharmacology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Denmark
2 Department of Clinical Medicine, University of Copenhagen, Denmark

Background
Isotretinoin is central to managing severe acne vulgaris, yet concerns remain about rare but serious adverse reactions, particularly idiopathic intracranial hypertension (IIH). While causality has not been established in clinical trials, case reports and small observational studies suggest a possible association, leaving its clinical significance uncertain. We aimed to assess the risk of IIH following initiation of isotretinoin in a large, population-based cohort.

Materials and methods
This nationwide cohort study included individuals aged 10–35 years who initiated isotretinoin or topical anti-acne therapy between 1995 and 2024, identified through Danish registries. The primary outcome was an incident diagnosis of IIH within one year after treatment initiation. Secondary outcomes included cerebrovascular disease, ophthalmological disorders, headache, and acetazolamide use. Adjusted hazard ratios (HRs) with 95% confidence intervals were estimated using Cox proportional hazard regression, adjusting for age, sex, calendar period, and tetracycline use.

Results
During the study period, 173,555 individuals initiated isotretinoin and 279,761 topical therapies. The mean age among isotretinoin users was 20.5 years, and 52% were female. Within one year, IIH was diagnosed in 9 (0.005%) versus 21 (0.0075%) individuals, corresponding to 5.2 versus 7.5 per 100,000 persons. The adjusted HR for isotretinoin compared with topical therapy was 0.42 (95% CI 0.18–0.99). Secondary neurological and ophthalmological outcomes and acetazolamide use occurred infrequently (<0.2%) and at similar rates across groups.

Conclusion
Isotretinoin was not associated with an increased risk of IIH compared with topical anti-acne therapy. These findings are reassuring, suggesting no clinically meaningful excess risk with isotretinoin use.

Translating Proteomic Biomarkers into Clinical Applications Using Machine Learning

Annelaura Bach Nielsen[1,2], Juanjuan Wang[1,2], Jakob Christian Albrethsen[1], Lasse Fjordside[3], Shaodong Wei[4], Jesper Brix[4,5], Jens Helby[4,5], Andreas Glenthøj[4,5], Helene Mens[3], Anne-Mette Lebech[3,4], Matthias Mann[2,6], Nicolai J. Wewer Albrechtsen[1,5,7].

1. Department of Clinical Biochemistry, Copenhagen University Hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
2. NNF Center for Protein Research, Faculty of Health and Medical Sciences, University of Copenhagen, Demark
3. Department of Infectious Diseases, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark
4. Department of Hematology, Danish Red Blood Cell Center, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark
5. Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark
6. Department of Proteomics and Signal Transduction, Max Planck Institute of Biochemistry, Martinsried, Germany
7. Copenhagen Center for Translational Research, Copenhagen University Hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark

Background and Aim:
High-resolution proteomics enables comprehensive mapping of disease-related protein changes, offering great potential for biomarker discovery. However, transforming these findings into clinically applicable assays remains a key challenge. By combining untargeted proteomics with machine learning, we aim to identify robust, disease-specific protein signatures and translate them into targeted, quantitative assays suitable for use in clinical diagnostics.

Materials and methods:
We performed untargeted proteomics in two cohorts: (i) cerebrospinal fluid and plasma from patients evaluated for suspected Lyme neuroborreliosis (LNB), and (ii) blood from patients with hemoglobinopathies, including sickle cell disease and beta thalassemia. Machine learning models were trained to identify diagnostic signatures.

Results:
In LNB, proteomic analyses of 308 CSF and 207 plasma samples identified diagnostic signatures that distinguished LNB from viral meningitis and controls with area under the curve (AUC) values up to 0.92. In hemoglobinopathies, untargeted blood proteomics of 127 individuals combined with predictive modeling enabled rapid, automated diagnosis with AUCs of 1.0.

Conclusion and Outlook:
Building on these results, we are developing targeted assays using parallel reaction monitoring with ^{15}N-labeled recombinant proteins as internal standards, enabling normalization, absolute quantification, and high reproducibility. Coupled with automated machine learning prediction and integration into laboratory information systems, this approach will provide real-time decision support. By advancing from broad discovery proteomics to robust targeted assays, these studies exemplify how molecular signatures can be translated into practical diagnostic tools across infectious, hematological, and other disease areas.

Comparing opioids for postoperative pain, opioid consumption, and adverse events within 24 hours after surgery: A systematic review

Ida Houtved Rasmussen*[1,2], idahoutved11@gmail.com https://orcid.org/0009-0007-7290-5254

Caroline Folkersen[1,2], caroline.r.folkersen@gmail.com https://orcid.org/0009-0005-0783-3931

Pernille Bjersand Sunde[1], pernillebsunde@gmail.com, https://orcid.org/0009-0008-8860-076X

Atena Saito[1], atenasaito.puc@gmail.com, https://orcid.org/0000-0002-3023-3812

Selma Kjartansdóttir[1,3], Selmapk@outlook.dk, https://orcid.org/0009-0007-5919-7118
Markus Harboe Olsen[4,5], oel@oelfam.com, https://orcid.org/0000-0003-0981-0723
Mik Wetterslev[6] , mik.wetterslev.02@regionh.dk, https://orcid.org/0000-0002-8798-1133

Mathias Maagaard[2], mathias.maagaard@gmail.com, https://orcid.org/0000-0002-9037-7295

Jens Laigaard[7], jens.holm.laigaard@regionh.dk, https://orcid.org/0000-0001-5297-3769

Ole Mathiesen[2,4], omat@regionsjaelland.dk, https://orcid.org/0000-0003-4544-0619

Anders Peder Højer Karlsen[1,8], anders.peder.hoejer.karlsen@regionh.dk, https://orcid.org/0000-0002-0338-3751

Affiliations:

[1] Department of Anaesthesia and Intensive Care, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

[2] Centre for Anaesthesiological Research, Department of Anaesthesiology, Zealand University Hospital, Koege, Denmark

[3] Department of Clinical Pharmacology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

[4] Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark

[5] Copenhagen Trial Unit, Centre for Clinical Intervention Research, The Capital Region, Copenhagen University Hospital – Rigshospitalet, Copenhagen, Denmark

[6] Department of Neuroanaesthesiology, Neuroscience Centre, Copenhagen University Hospital – Rigshospitalet, Copenhagen, Denmark

[7] Department of Orthopedic surgery, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark

[8] Department of Intensive Care, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark

Corresponding author
*Ida Houtved Rasmussen
Centre for Anaesthesiological Research
Department of Anaesthesiology
Zealand University Hospital
Lykkebækvej 1, 4600 Køge, Denmark
E-mail: idahoutved11@gmail.com
Telephone: +45 40 47 59 14

Introduction

Perioperative opioid selection varies among clinicians, influenced by drug characteristics, procedure type and personal preference. (1-3) This systematic review and meta-analysis compared systemic opioids administered within the first 24 hours after surgery, assessing postoperative pain, opioid consumption and adverse events.

Methods
We searched for English-language randomized clinical trials comparing two or more opioids in adults 0-24 hours postoperatively. Opioid regimens were categorized as postoperative or intraoperative, aimed at postoperative analgesia.
The primary outcome was pain intensity; secondary outcomes included opioid consumption, adverse events, persistent opioid use, satisfaction, and duration of post-anaesthesia care unit or hospital stay.
We assessed risk of bias, conducted meta-analyses when ≥3 trials investigated the same comparison, performed Trial Sequential Analyses and rated certainty of evidence using GRADE.

Results
Of 50,154 abstracts screened, 98 trials (10,062 participants, 4,261 in meta-analyses) comparing 16 opioids were included. Four of 312 outcomes had overall low risk of bias (Figure 1). Intraoperative oxycodone vs. fentanyl lowered pain (0-2h: MD 1.17, 95% CI [0.43-1.92], 3-8h: MD 0.69 [0.43-0.94], 18-24h: MD 0.26 [0.08-0.45]) but increased nausea/vomiting: RR 0.61 [0.37-0.98]. Postoperative oxycodone vs fentanyl lowered pain 18–24h: MD 0.38 [0.11-0.65] and opioid use 0-6h MEQ: MD 0.34 mg [0.18-0.51]. Postoperative morphine lowered opioid use vs. fentanyl MD 68.65 mg [46.63-90.68] (Table 1). Most effects were below predefined minimally important thresholds, and evidence was of very low certainty.

Conclusion
Due to bias, heterogeneity, and low evidence certainty, no opioid could be recommended over another for postoperative pain management or prevention of adverse events.

Figure 1: Summarized Risk Of Bias version 2 (ROB2) evaluation

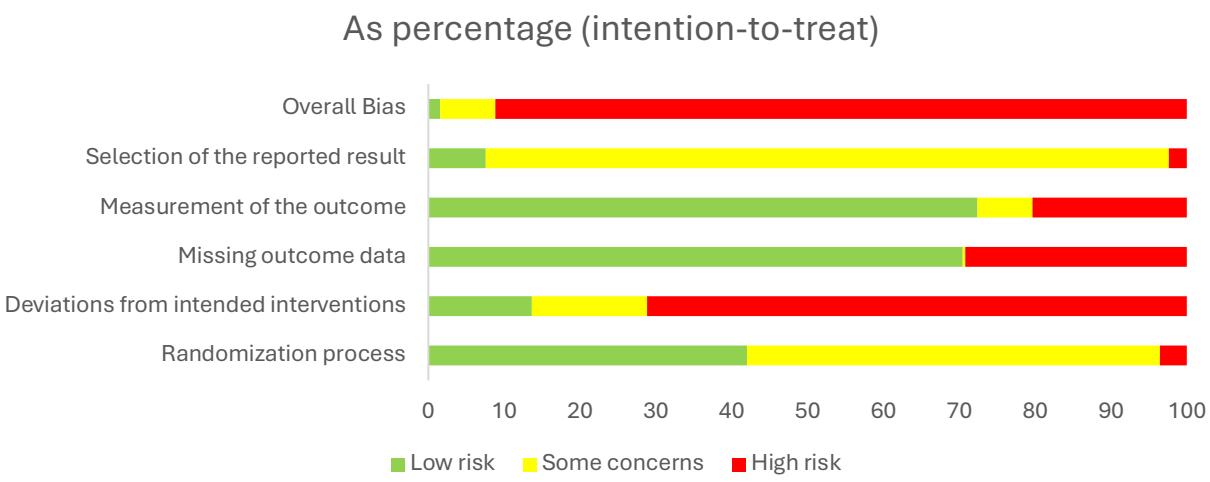


Table 1: Summary of findings in selected outcomes

Comparison	Phase	Opioid consumption 0-6 h	Opioid consumption 0-24 h	Pain 0-2 h	Pain 3-8 h	Pain 18-24 h	PONV
Fentanyl vs morphine	Intraop.		NS (qual)	H (qual)	H (qual)	H (qual)	
	Postop.	NS (qual)	H (meta)	NS (meta)	NS (meta)	NS (meta)	NS (meta)
Fentanyl vs oxycodone	Intraop.	NS (meta)	NS (meta)	H (meta)	H (meta)	H (meta)	L (meta)
	Postop.	H (meta)	NS (meta)	NS (meta)	NS (meta)	H (meta)	NS (meta)
Fentanyl vs sufentanil	Intraop.						NS (qual)
	Postop.			NS (qual)			
Fentanyl vs tramadol	Intraop.			NS (qual)	H (qual)	NS (qual)	C (qual)
	Postop.		C (qual)	NS (meta)	NS (meta)	NS (meta)	
Fentanyl vs methadone	Intraop.		H (qual)	H (qual)	H (qual)	H (qual)	
Fentanyl vs nalbuphine	Intraop.				H (qual)	H (qual)	NS (qual)
Fentanyl vs alfentanil	Intraop.						NS (qual)
Fentanyl vs butorphanol	Postop.	NS (qual)	NS (qual)		NS (qual)	NS (qual)	
Fentanyl vs pethidine	Postop.		H (qual)				
Morphine vs hydromorphone	Postop.	NS (qual)	NS (qual)	NS (qual)	C (qual)	C (qual)	H (meta)
Morphine vs tramadol	Intraop.	C (qual)	L (meta)	NS (meta)	NS (qual)	C (qual)	NS (meta)

	Postop.	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(meta)
Morphine vs methadone	Intraop.	H (qual)	H (qual)	C(qual)	NS(meta)	NS(meta)	NS(qual)
Morphine vs pethidine	Intraop.	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)
	Postop.	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)	C(qual)
Morphine vs oxycodone	Intraop.	C(qual)	H (qual)	C(qual)	NS(qual)	C(qual)	L (qual)
	Postop.	C(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)
Morphine vs nalbuphine	Intraop.			NS(qual)	L (qual)	L (qual)	NS(qual)
	Postop.	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)
Morphine vs alfentanil	Postop.		NS(qual)				
Morphine vs burprenorphine	Postop.	NS(qual)	NS(qual)				NS(qual)
Morphine vs piritramide	Postop.	NS(qual)	NS(qual)		H (qual)	H (qual)	NS(qual)
Morphine vs sufentanil	Postop.	H (qual)	L (qual)	H (qual)	NS(qual)	NS(qual)	NS(qual)
Sufentanil vs oxycodone	Intraop.			NS(meta)	NS(meta)	NS(meta)	NS(meta)
	Postop.	C(qual)	H (qual)	H (qual)	NS(meta)	NS(meta)	C(qual)
Sufentanil vs hydromorphone	Postop.	NS(qual)	C(qual)	NS(qual)	NS(qual)	NS(qual)	NS(meta)
Sufentanil vs tramadol	Intraop.			NS(qual)			
	Postop.	C(qual)	C(qual)	NS(qual)		NS(qual)	NS(meta)
Sufentanil vs butorphanol	Intraop.		NS(qual)	H (qual)	H (qual)	NS(qual)	H (qual)
Sufentanil vs alfentanil	Intraop.			NS(qual)			NS(qual)

Sufentanil vs dezocine	Intraop.			NS(qual)			NS(qual)
Sufentanil vs methadone	Intraop.		NS(qual)			NS(qual)	NS(qual)
Oxycodone vs tapentadol	Intraop.		NS(qual)	NS(qual)	NS(qual)	NS(qual)	H (qual)
	Postop.					NS(qual)	
Oxycodone vs tramadol	Intraop.				NS(qual)	NS(qual)	NS(qual)
	Postop.	NS(qual)	NS(qual)			NS(qual)	NS(qual)
Oxycodone vs alfentanil	Intraop.	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)
Oxycodone vs butorphanol	Postop.	NS(qual)	NS(qual)		NS(qual)	NS(qual)	
Oxycodone vs hydromorphone	Postop.		NS(qual)				NS(qual)
Oxycodone vs ketobemidone	Intraop.		NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)
Tramadol vs nalbuphine	Postop.			C(qual)	NS(qual)	NS(qual)	NS(qual)
Tramadol vs pethidine	Intraop.	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)
	Postop.		L (qual)	NS(qual)	NS(qual)	NS(qual)	NS(qual)
Tramadol vs dezocine	Intraop.			NS(qual)			NS(qual)
Tramadol vs hydromorphone	Postop.				H (qual)	NS(qual)	
Tramadol vs tapentadol	Intraop.			NS(qual)	NS(qual)	NS(qual)	NS(qual)
Nalbuphine vs alfentanil	Intraop.						NS(qual)

H= higher. (Higher refers to the opioid in **bold**). L=lower, NS= not significant, C= Conflicting when different directions in qualitative evidence (qual). If both meta-analysis and qualitative data were available, meta-analysis data were reported (meta).

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Severe mental illness and symptoms of myocardial infarction in calls to the Emergency Medical Services

Authors

Anne Storgaard Nørskov[a,b], Amalie Lykkemark Møller[c,d], Eva Prescott[a], Julie Nordgaard[e,f], Casper Bang[a], Helena Domínguez[a,g], Fredrik Folke[f,h,i], Christian Torp-Pedersen[b,c]

Affiliations

a: Department of Cardiology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark, b: Copenhagen University Hospital – Steno Diabetes Center Copenhagen, Herlev, Denmark, c: Department of Public Health, University of Copenhagen, Denmark, d: Cancer and Medicine, Danish Cancer Institute, Copenhagen, Denmark, e: Psychiatry East Region Zealand, Denmark, f: Department of Clinical Medicine, University of Copenhagen, Denmark, g: Department of Biomedicine, University of Copenhagen, Denmark, h: Department of Cardiology, Copenhagen University Hospital – Herlev and Gentofte, Herlev, Denmark, i: Copenhagen University Hospital – Emergency Medical Services Copenhagen, Ballerup, Denmark

Background

The mortality gap in myocardial infarction (MI) is widening between patients with and without severe mental illness (SMI). We aimed to evaluate the impact of SMI on symptom presentation and acute care of MI.

Methods

In this registry-based cohort study, we identified patients admitted with MI from 2014 to 2018 and included patients who called the Copenhagen Emergency Medical Services (emergency number and out-of-hours service) prior to admission. We compared patients with and without SMI (controls), and investigated symptom of MI in calls, emergency response, delay times, in-hospital care, and mortality.

Results

Of 7,313 calls, 333 were from patients with SMI and 6,980 from controls. Patients with SMI less often presented with chest pain than controls (57% vs 66%, OR 0.69, 95%CI: 0.55-0.86), particularly in calls to the out-of-hours service (35% vs 52%, OR 0.48, 95%CI: 0.34-0.70). Patients with SMI less often received an acute ambulance dispatch (67% vs 74%, OR 0.73, 95%CI: 0.58-0.93), had increased time from call to troponin measurement (median 100 [IQR 39-67] vs 86 minutes [37-127], p<0.001), increased time from call to admission to the department where MI was diagnosed (median 93 [IQR 50-376] vs 71 [IQR 44-258] minutes, p<0.001), less revascularization at 4-days after the call (41% vs 49%, OR 0.71, 95%CI: 0.56-0.90), and higher 30-days mortality (10% vs 5%, OR 2.70, 95%CI: 1.82-4.01).

Conclusion

The impact of SMI on MI symptoms, acute care, and mortality calls for refinement of the telephone triage, and targeted strategies of the cardiovascular-psychiatric collaboration with integrated care.

Using Sequence Symmetry Analysis for Adverse Drug Reaction Signal Detection in Psychiatric Medications: Investigating ADHD Medication

Jensen, T.L. (1,2), Thysen, S.M. (2), Pedersen, H.K.R. (2), Jørgensen, A. (3), Jensen, C.B. (4), Osler, M. (4), Nielsen, M. (5), Jimenez-Solem, E. (2), & Lund, L.C. (6)

[1]thomas.leth.jensen@regionh.dk, Bispebjerg and Frederiksberg University Hospital, Department of Clinical Pharmacology, Copenhagen, Denmark
[2] Bispebjerg and Frederiksberg University Hospital, Department of Clinical Pharmacology, Copenhagen, Denmark
[3] Psychiatric Center Copenhagen and Department of Clinical Medicine, University of Copenhagen, Denmark
[4] Copenhagen Phase IV Unit, Department of Clinical Pharmacology and Center for Clinical Research and Prevention, University Hospital of Copenhagen - Bispebjerg and Frederiksberg, Denmark.
[5] Department of Computer Science, University of Copenhagen, Denmark
[6] Clinical Pharmacology, Pharmacy and Environmental Medicine, Department of Public Health, University of Southern Denmark, Odense, Denmark.

Introduction

Use of medication for attention deficit hyperactivity disorder (ADHD) is rising rapidly but use may cause adverse drug reactions (ADRs). Lisdexamfetamine was introduced in Denmark in 2013 as a new ADHD treatment. We investigated signals for undiscovered ADRs by applying sequence symmetry analysis (SSA) on nationwide register data. Objective: Generate signals for potential ADRs for lisdexamfetamine and compare these signals to established ADHD treatments.

Methods

Data for all patients in Denmark prescribed an ADHD medication in the period 2009-2023 were included. Outcomes were defined as initiation of any medication (ATC codes) or any new diagnosis (ICD-10 codes). SSA for three separate groups were performed, defined by initiation of: 1) lisdexamfetamine, 2) Stimulants (methylphenidate or dexamphetamine), or 3) Non-stimulants (Atomoxetine or Guanfacine). Sequence ratios (SRs) for ADR signals for lisdexamfetamine were compared to the other groups.

Results

Approximately 100.000 patients were included. Top 50 SR for SSA outcomes (ICD10 and ATC respectively) for lisdexamfetamine were evaluated. Known ADRs (as described in the product label) were identified, but several potentially unknown ADRs were found: An elevated SR for urinary symptoms and hematuria was found, as well as elevated SRs for a range of anti-fungal medication. Dextromethorphan, a cough medication, had a SR of 2.01 [1.12 –3.7], while neither stimulant nor nonstimulant groups had elevated SRs for dextromethorphan.

Conclusion

Coughing, fungal infections and urinary symptoms such as hematuria were identified as potentially unknown ADRs for lisdexamfetamine treatment and should be the subject of further investigations.

Hyponatremia with Impaired Consciousness and 30-Day Mortality in Acute Hospital Admissions

Frederikke Nielsen,[1] Hanne Nygaard,[1] Emilie Fraisse,[1,2] Henrik Laugesen,[1] Janne Petersen,[2] Christian Selmer,[3] Rasmus Gregersen,[1,2]

[1]Department of Emergency Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark
[2]Center for Clinical Research and Prevention, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark
[3]Department of Endocrinology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

Background

Hyponatremia is the most common electrolyte imbalance in the emergency department and can lead to impaired consciousness. Both conditions are associated with higher mortality. Conscious level guides hyponatremia treatment intensity and urgency, yet their combined impact has not been studied in acute admissions. We assessed 30-day mortality across sodium levels in acutely admitted patients with and without impaired consciousness.

Methods

We conducted a register-based cohort study including patients with acute contacts at hospitals in the Capital Region of Denmark from 2017–2021. Adults with normonatremia (P-Na 135–145 mmol/L) or hyponatremia (P-Na <135 mmol/L) and a Glasgow Coma Scale (GCS) or Alert-Verbal-Pain-Unresponsive (AVPU) score registered within 4 hours of arrival were included. Impaired consciousness was defined as GCS <14 or AVPU=V, P, or U. We reported 30-day mortality across sodium levels, stratified by impaired versus not impaired consciousness. Associations were investigated using logistic regression adjusted for sociodemographics, comorbidities, and medication use.

Results

A total of 371,854 patients were included, of whom 11.9% had hyponatremia. Impaired consciousness increased with hyponatremia severity (1.8%–5.0%). Among patients without impaired consciousness, 30-day mortality increased with increasing severity of hyponatremia and was higher across all sodium levels for patients with impaired consciousness (Table 1). The interaction between sodium level and consciousness impairment was significantly associated with 30-day mortality, both before and after adjustment ($p<0.001$).

Conclusion

Consciousness status modified the association between hyponatremia and 30-day mortality, with mortality increasing as sodium decreased among unimpaired patients and remaining above 18% among those with impaired consciousness.

Table 1: 30-day mortality (n (%)) across sodium level and consciousness impairment.

	No consciousness impairment	Consciousness impairment
Normonatremia (135-145 mmol/L)	5,559 (1.7%)	1,274 (21.1%)
Mild hyponatremia (130 - <135 mmol/L)	1,793 (5.5%)	199 (26.7%)
Moderate hyponatremia (125 - <130 mmol/L)	610 (8.3%)	70 (29.9%)
Severe hyponatremia (<125 mmol/L)	314 (10.7%)	29 (18.7%)

Abstraktpræsentationer

Abstraktpræsentationer

Tattoo exposure and biomarkers of male fecundity: a cross-sectional study among young Danish males

Mette Møller Dornfeldt[a,*], Sidsel Dan Hull[a,*], Christel Nielsen[b], Emelie Rietz Liljedahl[b], Cecilia Høst Ramlau-Hansen[c], Anne Gaml-Sørensen[c], Gunnar Toft[d], Jens Peter Bonde[a,e], Karin Sørig Hougaard[e,f], Sandra Søgaard Tøttenborg[a,e]

*Co-first authorship, these authors contributed equally to this work.
[a]Department of Occupational and Environmental Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Bispebjerg Bakke 23, 2400 Copenhagen, Denmark
[b]Division of Occupational and Environmental Medicine, Department of Laboratory Medicine, Lund University, Medicon Village, Byggnad 402A, 22363 Lund, Sweden
[c]Department of Public Health, Research Unit for Epidemiology, Aarhus University, Bartholins Allé 2, 8000 Aarhus, Denmark
[d]Steno Diabetes Center Aarhus, Aarhus University Hospital, Palle Juul-Jensens Boulevard 11, 8200 Aarhus, Denmark
[e]Department of Public Health, Section of Environmental Health, Faculty of Health and Medical Science, University of Copenhagen, Øster Farimagsgade 5, 1014 Copenhagen, Denmark
[f]National Research Centre for the Working Environment, Lersø Parkalle 105, 2100 Copenhagen, Denmark

Background and aim

Tattoo inks are mixtures of organic and inorganic color pigments and having a tattoo may be adversely associated with biomarkers of male fecundity. The aim was to examine the association between tattoo exposure and biomarkers of male fecundity.

Materials and methods

Participants were young adult Danish males (aged 18-21 years) sampled from the Danish National Birth Cohort. Upon recruitment in 2017-2019, participants answered a comprehensive questionnaire and provided a semen and blood sample. Information about tattoo exposure was derived from the questionnaire. We applied a negative binomial regression model to estimate percentage differences (95% confidence intervals) in semen characteristics, testicular volume, and reproductive hormone levels between non-tattooed and tattooed participants.

Results

Among the 1,045 participants included in this study, 174 (17%) had at least one tattoo and most tattooed participants (84%) had tattoo(s) in only black color. About half (53%) had one tattoo, 21% had two tattoos, and 26% had three or more tattoos. We observed no association between either number or color scheme of tattoo(s) relative to semen characteristics or reproductive hormone levels. Having a tattoo was associated with slightly increased testicular volume, but since testicular volume was measured by the participants themselves, this finding may be due to differential misclassification bias. Across all outcomes the crude and adjusted models were comparable.

Conclusion

Overall, we found no support for adverse association between tattoo exposure and biomarkers of male fecundity, but studies with more details on tattoo exposure and longer follow-up of participants are needed before firm conclusions can be drawn.

Cholesterol-lowering drug targets reduce risk of dementia: Mendelian randomization and meta-analyses of 1 million individuals.

Liv Tybjærg Nordestgaard[a,b], Aimee Hanson[b], Eleanor Sanderson[b], Emma Anderson[c], Venexia Walker[b], Anne Tybjærg-Hansen[d,e,f,g], George Davey Smith[b], Børge G. Nordestgaard[a,e,f,g]

[a]Department of Clinical Biochemistry, Copenhagen University Hospital - Herlev and Gentofte, Borgmester Ib Juuls Vej 1, 2730 Herlev, Denmark, [b]Medical Research Council Integrative Epidemiology Unit, Population Health Sciences, University of Bristol, BS8 2BN, United Kingdom, [c]Division of Psychiatry, University College London, Maple House, 149 Tottenham Ct Rd, London W1T 7NF, United Kingdom, [d]Department of Clinical Biochemistry, Copenhagen University Hospital - Rigshospitalet, Blegdamsvej 9, 2100 Copenhagen, Denmark, [e]The Copenhagen General Population Study, Copenhagen University Hospital - Herlev and Gentofte, Borgmester Ib Juuls Vej 1, 2730 Herlev, Denmark, [f]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Blegdamsvej 3B, 2100 Copenhagen, Denmark, and [g]The Copenhagen City Heart Study, Copenhagen University Hospital - Bispebjerg and Frederiksberg , Nordre Fasanvej 57, 2000 Frederiksberg, Denmark

Introduction

We tested whether genetically proxied non-high-density lipoprotein cholesterol (non-HDL-C) lowering drug targets reduce risk of all-cause dementia.

Methods

We included 1,091,775 individuals from three prospective general population cohorts with individual-level data and two consortia with summary-level data. We selected genetic variants within *HMGCR, NPC1L1, PCSK9, ANGPTL4, LPL*, and *CETP* associated with non-HDL-C. These variants were used as exposures used in Cox regression and one- and two-sample Mendelian randomization. Results were meta-analysed.

Results

Meta-analysis of one-sample Mendelian randomization odds ratios per 1 mmol/L (39 mg/dL) lower non-HDL-C was 0.24(0.18-0.31) for *HMGCR,* 0.18(0.12-0.25) for *NPC1L1*, 0.97 (0.70-1.35) for *PCSK9*, 1.66(0.52-5.36) for *ANGPTL4*, 1.41(0.63-3.16) for *LPL*, and 0.27(0.20-0.36) for *CETP*. Cox regression and two-sample Mendelian randomization results were mostly directionally consistent.

Discussion

Genetic lowering of non-HDL cholesterol via *HMGCR, NPC1L1*, and *CETP* reduce the risk of dementia. This reflects the effect of lifelong differences in non-HDL cholesterol on risk of dementia.

Impact of Biased Glucagon Receptor Signaling on Metabolism - From Bench to Bed

Josephine Fisker-Andersen[1], Marie Winther-Sørensen[1] & Nicolai J. Wewer Albrechtsen[1,2,3]
[1]Department of Clinical Biochemistry, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark
[2]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark
[3]Copenhagen Center for Translational Research, Copenhagen University Hospital – Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark

Background

Glucagon is a hormone secreted from the pancreas that regulates blood sugar and fat metabolism through its receptor in the liver. With the growing need for new treatments for obesity and fatty liver disease, glucagon-based drugs are emerging as promising therapies, often outperforming GLP-1 agonists. However, while some glucagon agonists raise blood sugar and increase diabetes risk, others improve liver health and lipid metabolism without impairing glucose control. The reason for these differences is unknown. My project will investigate how distinct glucagon receptor signaling pathways determine these effects.

Methods

The glucagon receptor signals mainly through two pathways, Gαs and Gαq. I will investigate how naturally occurring receptor variants shift signaling between these pathways. First, I will study selected variants in liver cell models to measure how they activate Gαs and Gαq-dependent responses to glucagon. I will then combine these results with large-scale human genetic data to identify links between variants, metabolic traits, and liver health. Finally, I will examine individuals who carry glucagon receptor variants in a clinical study to assess their short-term metabolic responses.

Expected Results

I hypothesize that Gαs signaling mainly regulates glucose metabolism, while Gαq signaling drives lipid metabolism and liver health. Variants that shift the balance between these pathways are expected to explain why some glucagon-based therapies cause hyperglycemia while others improve lipid metabolism.

Conclusion

This project will uncover how biased glucagon receptor signaling shapes metabolism. These insights may guide the development of safer, more precise therapies for obesity and fatty liver disease.

Prevalence of injuries in elite swimmers: The role of discipline and training intensity

Tobias Holst-Christensen*[1], Sofie L. Nimb*[1], Alexander Eggers[1], Marcel Rosenberg[3], Jonas Lundström[4], Michael Kjær[1,2], S. Peter Magnusson[1], Grith Højfeldt[1]
*Equal contribution
Affiliations:
[1] Institute of Sports Medicine Copenhagen, Department of Orthopaedic Surgery, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark.
[2] Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark.
[3] Triton Lillestrøm Svømme- og Triatlonklubb, Skedsmokorset, Norway.
[4] SIGMA SWIM, Birkerød, Denmark

Abstract

Background

Elite swimming is characterised by high training volumes, which increases the risk of overuse injuries, but detailed information on whether specific swim disciplines or the training intensity matters for the occurrence of injuries is sparse.

Purpose: This study aimed to describe the injury prevalence, incidence and distribution among elite swimmers and to identify potential risk factors.

Methods

In June 2024 a questionnaire was send to elite swimming clubs across Denmark, Norway and Sweden. A total of 220 swimmers completed the questionnaire describing training and injury characteristics in the 2023/2024 season, and injuries across their entire swimming career.

Results

During the 2023/2024 season, a total of 73580 athlete exposures (AEs) and 113 injuries were documented, which yielded an injury incidence of 1.54 injuries/1000 AEs. The shoulder was the most prevalent injury site (0.87 injuries/1000 AEs) overall. Butterfly and breaststroke swimmers showed a slightly higher injury incidence than other disciplines (n.s.). Finally, sprinters had a higher injury incidence than distance swimmers, as seen in the freestyle group.

Conclusion

This study found an injury incidence similar to those reported in other epidemiological studies. It also showed that butterfly and breaststroke swimmers were at a higher risk of becoming injured compared to other disciplines, and further that sprinters had a higher risk for injury compared to distance swimmers. This indicates that both swim discipline and intensity of training play important roles in the risk for injury in elite swimming.

Treatment Injuries Following Patellofemoral Instability Surgery in Denmark: A Nationwide Analysis of Compensation Claims

Louise Helmbæk [1], Kim Lyngby Mikkelsen [2], Michael Rindom Krogsgaard [1,2,3,4]
1 Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Copenhagen University Hospital Bispebjerg and Frederiksberg, Copenhagen Denmark
2 Danish Patient Compensation Association, Copenhagen, Denmark
3 Section for Sports Traumatology, Department of Orthopedic Surgery, Copenhagen University Hospital Bispebjerg and Frederiksberg, Copenhagen Denmark
4 Department of Clinical Medicine, University of Copenhagen, Denmark

Background

Surgical management of patellofemoral instability (PFI) often requires procedures tailored to the patient's individual anatomy, which can be complex with potential pitfalls. However, reports on complications and suboptimal outcomes remain limited. The aim of this nationwide study was to analyze problems related to PFI surgery in Denmark and thereby optimize its future treatment.

Materials and Methods

Compensation claims from 2004–2025 related to PFI were identified in the Danish Patient Compensation Association using diagnostic codes DM220 and DM221. Medical records, imaging, and healthcare and legal assessments were independently reviewed by two observers. Radiographs and MRIs were analyzed for anatomical risk factors (trochlear dysplasia, patella alta, lateralized tibial tubercle). Surgical management was evaluated according to the á-la-carte principle.

Results

There were 405 eligible claims. "Treatment injury" can be caused by malpractice or an accidental, rare and serious complication. Incorrect surgical performance was most common (38%), mainly malpositioned femoral grafts in MPFL reconstruction, representing nearly half of these cases. Failure to adequately assess or treat anatomical risk factors was the second most common cause (19%), often resulting in repeated surgeries. Nerve injuries (13%) and delayed treatment (9%) were also frequent, while deep vein thrombosis (3%) and infection (3%) were rare. Overall, 187 claims (48%) were compensated, exceeding 34 million DKK.

Conclusion

Malpositioning of the femoral MPFL insertion was the most common treatment injury. Most injuries were preventable and linked to surgical malpractice, including inadequate preoperative evaluation. It is recommended to use standardized imaging protocols and treatment algorithms to reduce these complications.

Effectiveness of a physical activity behavior change intervention initiated three months after total hip arthroplasty. A pragmatic, randomized, controlled, trial (RCT).

Theresa Bieler[1], Christian Have Dall[1,2], Volkert Siersma[3], S. Peter Magnusson[1,2,4], Morten Tange Kristensen[1,2], Mie Rinaldo[1], Morten Torrild Schmiegelow[5], Søren Overgaard[2,5], Birgitte Hougs Kjær[1], Henrik Palm[5] and Julie Midtgaard[2,6].
Affiliations
[1]Department of Physical and Occupational Therapy, Copenhagen University Hospital Bispebjerg and Frederiksberg [2]Department of Clinical Medicine, University of Copenhagen, [3]The Research Unit for General Practice and Section of General Practice, Department of Public Health, University of Copenhagen, [4]Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Copenhagen University Hospital Bispebjerg and Frederiksberg, [5]Department of Orthopedic Surgery and Traumatology, Copenhagen University Hospital Bispebjerg, [6]Centre for Applied Research in Mental Health Care (CARMEN), Copenhagen University Hospital – Mental Health Services CPH, Copenhagen

Background with purpose

Total hip arthroplasty (THA) is effective for relieving pain and disability, but physical activity level (PA) is unchanged. The graded relationship between PA and physical function suggests that increasing PA after THA may enhance the outcome. The aim was to investigate the short-term (6 months) and long-term (12 months) effectiveness on daily step counts of a behavior change intervention (BCI) initiated three months after THA because of hip osteoarthritis.

Material and method

192 adults (mean age 67, SD:10 years) were randomized 1:1 to either a 3-month, multicomponent BCI with one face-to-face and two telephone-assisted counselling (BCI-group, n=95), or control (n=97) after baseline assessment 3-month post-surgery. The primary outcome was the proportion completing ≥8,000 steps/day at 6-month; secondary outcomes included ≥5,000, ≥10,000 steps/day, change in chair stand-, stair climb- and 6-min walk test. Follow-up was at 6-month (primary endpoint) and 12-month post-surgery.

Results

At 6- and 12-month, there were no between-group differences in the proportion achieving ≥8,000 and ≥10,000 steps/day (p≥0.05). At 6-month 52.1%, CI:42.1-62.0% of the BCI-group versus 36.1%, 25.9-47.6% of the control group achieved ≥5,000 steps/day (OR:1.93, 95% CI:1.03-3.61); this was not sustained at 12-month. From 3-6-month post-surgery, the BCI-group had a greater improvement in 6-minute walking distance (mean difference: 14.1 m, 95% CI:2.3-25.9). No other be-tween-group differences were observed.

Conclusion

The BCI did not show effect on the proportion completing ≥8,000 steps/day but was associated with a higher proportion achieving ≥5,000 steps/day at 6-month and greater improvement in 6-minute walking distance from 3–6-month post-surgery.

Pain and Consumption of Painkillers Following Anterior Cruciate Ligament (ACL) Reconstruction.

Signe Munksgaard, Marie Pallesen, Nina Munkholm, Martin Rathcke, and Lars Konradsen,
Dept. of Orthopedics M50

Background

ACL reconstruction is a frequent operation in young adults. Substantial post-operative pain is experienced, and the need for strong pain medication is to be expected. Little is known as to the length and extent of the patients post-operative self-medication - primarily the consumption of opioids.

Aim

To register the level of pain and consumption of pain medication up to 12 weeks after ACL reconstruction in a cohort of patients.

Material

100 patients who underwent an ACL reconstruction were enrolled after giving formal consent. Patients were discharged with Paracetamol 1 g x 4 + Naproxen 500 mg x 2, and either Oxycodone 5 mg p.n. max. x 6 (50 patients) or Morphine 10 mg p.n. max. x 6 (50 patients).
Every evening the first 14 post-operative days, and after 4, 8, and 12 weeks the patients received an e-mail directing them to a questionnaire recording pain and pain medication consumption.

Results:

	Day 1	Day 2	Day 7	Day 14	Week 8	Week 12
NRS for pain at rest	4	3	2	1	0	
NRS for pain during activity	5	5	3	3	1	
% of patients using opioids	71	49	17	8	2	4
% of patients using peripheral pain medication	100	95	71	35	6	8

No differences in NRS scores were seen between patients using Oxycodone and those using Morphine.

Conclusion

Low opioid consumption was seen 2 weeks post-operative, while 35% of the patients still used peripheral pain medication. Twelve weeks post-operative 4% still used opioids.

Dose-response effects of glucagon on glucose, beta-cell secretion and amino acid catabolism in healthy individuals

Sophie Betty Brock Johnsen[1], Nina Lerberg Hansen[1], Elvar Már Sturlaugsson[1], Sasha Alexandra Sampson-Ceutz[1] and Nicolai J Wewer Albrechtsen[1,2,3]
[1]Department of Clinical Biochemistry, Copenhagen University Hospital Bispebjerg and Frederiksberg, Copenhagen, Denmark, [2]Copenhagen Center for Translational Research, Copenhagen University Hospital Bispebjerg and Frederiksberg, Copenhagen, Denmark, [3]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.

Background

Glucagon is secreted by pancreatic alpha cells in response to hypoglycaemia or protein intake, and regulates glucose levels, lipolysis and ureagenesis. However, the dose-dependent effects of glucagon on various metabolic parameters, as well as the signaling pathways involved, are not completely understood. Here, we aimed to investigate the dose-response effects of glucagon on key metabolic processes in healthy individuals, and to investigate whether these effects are cAMP-mediated.

Method

Following an overnight fast, two peripheral catheters were placed in the antecubital vein of each arm – one for blood sampling and one for glucagon infusion. The infusion rates increased in a stepwise manner every 30 minutes at the following rates: 0.01, 0.1, 0.5, 1, 10 and 50 ng/kg/min. Blood samples were collected every 15 minutes.

Results

15 healthy participants were enrolled. Statistical comparisons used one-way ANOVA to compare mean baseline values with the means at each infusion rate. Plasma glucose increased by 21.4 ± 10 % ($P<0.001$) at and above an infusion rate of 10 ng/kg/min. Similar increases were observed for plasma insulin (134.7 ± 68.45 %, $P<0.001$) and C-peptide (50.49 ± 13.7 %, $P<0.001$). A significant decrease in non-esterified fatty acids and total amino acids (both $P<0.001$) was observed at 50 ng/kg/min. Plasma cAMP showed no significant changes before 50 ng/kg/min. A gradual decline in urea levels was observed during the entire infusion period.

Conclusion

Glucagon dose-dependently affects glucose production, lipid- and amino acid metabolism. Some metabolic responses occur before increases in plasma cAMP, suggesting additional signaling mechanisms beyond cAMP.

Childhood body mass index trajectories and educational attainment, income and labor market attachment - a prospective cohort study

Lise G Bjerregaard[1], Elisabeth Andersen[1], Jennifer L Baker[1]
[1] Center for Clinical Research and Prevention, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark.

Background

Childhood obesity may harm opportunities for socioeconomic advancement and generate disparities, but its long-term impact remains uncertain. We examined whether trajectories of childhood body mass index (BMI) are associated with educational attainment, income and labor force participation in adulthood and if sex and parental education modified these.

Methods

We followed 134,555 individuals (48% women) born 1951-1991 from the Copenhagen School Health Records Register. Five childhood BMI trajectory groups (below-average, average, above-average, overweight, obesity) were analyzed. Socioeconomic information came from national registers (1980-2022). Associations were estimated by sex and parental education (three levels) using regression and advanced modeling methods.

Results

Childhood BMI trajectories were associated with all outcomes, generally with an inverse U-shape pattern. The below-average BMI trajectory was associated with shorter education, lower income, and lower probability of employment, generally more strongly in boys than girls. The obesity trajectory was associated with shorter education, lower income, lower probability of employment, and a higher probability of being out of the workforce by age 50. Associations were stronger among girls for employment outcomes. Associations with education and income were stronger in those with highly educated parents.

Conclusions

Below-average and obesity childhood BMI trajectories were associated with poorer socioeconomic outcomes in adulthood. Notably, these associations were especially pronounced among boys with low BMI status, girls with obesity and individuals whose parents were highly educated. Our results identify childhood body size as an early indicator of social factors that shape patterns of health care use, supporting the need for surveillance and timely intervention.

Disease patterns across the lifecourse by childhood BMI group

Julie Aarestrup[1], Elisabeth W. Andersen[1], Dorthe C. Pedersen[1], Lise G. Bjerregaard[1], Jennifer L. Baker[1]
[1] Center for Clinical Research and Prevention, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark

Background

Body size in early life is associated with a range of adverse health outcomes. Most studies have, however, investigated how childhood body mass index (BMI) impacts risks of single diseases. We investigated whether the frequency and patterns of disease diagnoses from ages 15-60 years differed by childhood BMI.

Methods

We included 112,952 children (55,603 girls) from the Copenhagen School Health Records Register, born 1962-1996, with measured weights and heights. BMI at 7 years was classified as underweight (4.3%), normal-weight (83.1%), overweight (9.2%), or obesity (3.5%). Hospital-based diagnoses came from national registers. Sex-specific cumulative incidences were calculated for the 50 most frequent diseases per BMI group.

Results

Individuals with childhood obesity had the highest estimated mean number of hospital-based diagnoses by age 60 years; 18.2 (95% confidence interval: 16.9-19.5) in females and 15.1 (13.8-16.4) in males. Corresponding estimates for normal weight were 14.7 (14.5-14.9) in females and 11.7 (11.5-11.8) in males. Among females and males with obesity in childhood, the most common diagnosis before age 60 years was adult overweight/obesity (36.4% and 11.8%, respectively). There were only minor differences for other diseases by childhood BMI categories.

Conclusions

Adults with obesity in childhood had the highest lifetime use of the health care system, as indicated by the number of hospital-based diagnoses. Children with obesity were likely to have a diagnosis of obesity in adulthood, while no substantial differences by childhood BMI group for other diseases were observed. These findings underscore the importance of investing in prevention and treatment of pediatric obesity.

Traumekald på Bispebjerg Hospitals selvhenvendere – trykker vi for hurtigt på den røde knap?

Line Schmidt, reservelæge, Anæstesiafdeling Z, Bispebjerg Hospital

Baggrund

På Bispebjerg Hospital har vi årligt cirka 250 traumekald. Omkring en tredjedel er selvhenvendere, som konverteres til traumekald efter ankomst. Langt størstedelen udskrives samme dag, og det er ikke altid klart, om der er et eller flere traumekaldskriterier til stede. Formålet var at undersøge, hvilke kriterier der har udløst traumekald på selvhenvendere i Akutmodtagelsen samt hvilke skader patienterne havde.

Materiale og metode

Alle selvhenvendende patienter, der blev konverteret til et traumekald i perioden 1/1 2025 – 30/9 2025 indgik i studiepopulationen. Via journalopslag blev der gennemgået henvendelsesårsag, primær gennemgang, sekundær gennemgang, scanningsresultater og blodprøver og ud fra disse noteret tilstedeværelse af traumekaldskriterier, som de står foreskrevet i hospitalets VIP. Projektet er godkendt som kvalitetssikringsprojekt.

Resultat

Ud af i alt 183 traumekald i perioden var 79 selvhenvendere. To patienter havde en tidskritisk tilstand, der krævede intervention samme dag, henholdsvis en ustabil T12-fraktur og en læderet venstre testikel. Syv patienter havde frakturer, der kunne konservativt behandles med fri mobilisering. Ingen patienter havde indre blødninger. I 27 cases var der ingen klare traumekaldskriterier og i 33 cases var der mindst et klart kriterie. I de resterende 19 cases kunne traumekaldskriterierne fortolkes, særligt grundet forhold i situationen, såsom uklar anamnese, stofpåvirkning, lav-energi traumer i øvre grænseområde og lignende.

Konklusion

Det er en meget lille andel af vores selvhenvendere, der har en tidskritisk tilstand. Ved cirka en tredjedel af traumekaldene på selvhenvendere er der ingen traumekaldskriterier til stede. Muligvis kan en stor del af patienterne få korrekt behandling og udredning uden der udløses traumekald.

Effects of dexamethasone on self-reported knee function, pain, and health status 90 days after total knee arthroplasty. A preplanned substudy of the DEX-2-TKA trial.

Mathilde Veje[1], Kasper Smidt Gasbjerg[2], Daniel Hägi-Pedersen[3,4], Søren Overgaard[5], Martin Lindberg-Larsen[6], Stig Brorson[4,7], Brett Dolemann[8], Janus Christian Jakobsen[9], Ole Mathiesen[4,10] and Troels Haxholdt Lunn[1,4]
Affiliations:
1: Department of Anaesthesia and Intensive Care, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark, 2: Department of Anaesthesia and Intensive Care, Copenhagen University Hospital - Amager and Hvidovre, Copenhagen, Denmark, 3: Department of Anaesthesiology, Research Centre of Anaesthesiology and Intensive Care Medicine, Næstved-Slagelse-Ringsted Hospitals, Slagelse, Denmark, 4: Department of Clinical Medicine, Copenhagen University, Copenhagen, Denmark, 5: Department of orthopedic surgery, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark, 6: Department of Orthopaedic Surgery, Orthopedic Research Unit, Odense University Hospital, Odense, Denmark, 7: Department of Orthopaedic Surgery, Zealand University Hospital, Køge, Denmark, 8: University of Nottingham, Nottingham, UK, 9: Copenhagen Trial Unit, Centre for Clinical, Intervention Research, Copenhagen University Hospital -Rigshospitalet, Copenhagen, Denmark, 10: Department of Anaesthesiology, Zealand University Hospital, Køge, Denmark

Background

Total knee arthroplasty (TKA) is overall a successful surgical procedure but 19–43% of patients may experience some degree of persistent pain.[2] Glucocorticoids are well known for their adjuvant analgesic and antiemetic properties.[1]
We aimed to explore the effects of one and two doses of dexamethasone on self-reported knee function, pain and health status 90 days after TKA.

Methods

In this preplanned substudy of the randomized, blinded DEXamethasone twice for pain treatment after Total Knee Arthroplasty trial (DEX-2-TKA trial), we included all the patients who completed the Oxford Knee Score (OKS) and EQ-5D-5L preoperatively and at 90 days follow-up.[3] Participants were randomized into three groups: dexamethasone + placebo (DX1), dexamethasone + dexamethasone (DX2) or placebo + placebo (Placebo). The trial medication, 24 mg IV dexamethasone or placebo, was administered immediately after induction of anesthesia and again 24 hours postoperatively.
The primary outcome was self-reported functional and pain assessed using the OKS. The secondary outcomes were self-reported health status assessed using the EQ-5D-5L questionnaire.

Results

For the primary outcome there was no significant difference in OKS at 90 days follow-up between the three intervention groups; DX2: median 35, IQR [30-40], DX1: median 35, IQR [30-41] and Placebo: median 35 IQR [30.2-39.8]. There were no significant differences in the secondary outcomes at 90 days follow-up.

Conclusion

We did not find any effect of perioperative dexamethasone on knee function and prolonged pain assessed by the Oxford Knee Score at 90 days after TKA surgery.

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Beyond baseline: Examining long-term functional changes in pre-sarcopenic and non-sarcopenic older adults

Authors
Anne Theil Gates (1), Carl-Johan Boraxbekk (1,2,3), Michael Kjær (1,2)

Affiliations
1) Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Copenhagen University Hospital – Bispebjerg and Frederiksberg Hospital
2) Institute for Clinical Medicine, Faculty of Medical and Health Sciences, University of Copenhagen, Copenhagen
3) Department of Neurology, Copenhagen University Hospital – Bispebjerg and Frederiksberg Hospital

Background and aim

Older adults with sarcopenia or pre-sarcopenia inherently exhibit lower strength and poorer physical function compared with non-sarcopenic individuals. Less is known, however, about whether these groups differ in changes over time. This longitudinal perspective is crucial for predicting future functional outcomes. The present study aimed to investigate 7-year (five timepoints) within person trajectories of physical function and strength in pre-sarcopenic and non-sarcopenic older adults, specifically examining whether these long-term trajectories differed between the two groups.

Methods

Initially, 451 older adults (66 years ± 2.5) were randomized to a one-year resistance training intervention. In the present study, the participants were allocated to a pre-sarcopenic or non-sarcopenic group defined from chair-stand performance and appendicular lean mass index at baseline. Muscle strength, body composition, and functional performance were measured at baseline, 1yr, 2yr, 4yr, and 7yr.

Results

At the 7-year follow-up, 364 participants remained (mean age 73.5 ± 2.5 years, 61% women). Non-sarcopenic older adults consistently showed higher muscle strength and functional performance at all timepoints. However, changes over time did not differ significantly between the two groups.

Conclusion

While baseline muscle strength and physical function are lower in the pre-sarcopenic older adults, their within person long-term trajectories appear similar to non-sarcopenic older adults.

Fatigue in older adults early after hip fracture surgery. A qualitative study

Forfattere: Adrian Herland Vaaben[1], Inger Birgitte Bährentz[1], Signe Østergaard Zoffmann[1], Camilla Kampp Zilmer[1], Tom Møller[2,3], Morten Tange Kristensen[1,3], Theresa Bieler[1].
Afdelinger: [1]Department of Physical and Occupational Therapy, Copenhagen University hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark, [2]Geriatric Palliative Department, Copenhagen University hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark, [3]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark.

Baggrund og formål

Although, fatigue has been reported as a main barrier for not completing exercise and regaining basic mobility early after hip fracture surgery, these patients' experience of postoperative fatigue is unexplored. The study aim was to explore the patients' experience of postoperative fatigue, early after hip fracture surgery.

Materiale og metode

A convenient sample of thirty-one home dwelling patients (mean age 76 (SD:10) years, 18 women) with a pre-fracture independent walking-ability referred to in-hospital physiotherapy were interviewed 3.5 days post-surgery about their experience of fatigue. The method was short, individual, semi-structured interviews. Two researchers analyzed the interviews using systematic text condensation.

Resultater

The condensed description of the phenomenon postoperative fatigue experienced by the patients was a heightened but fluctuating fatigue manifested as an intense need for sleep or rest, low energy, and a sense of exhaustion. Fatigue substantially impacts their capacity, motivation and desire to engage in activities and social interaction. The patients often experience disproportionnate fatigue to activities, which to some degree is relieved by rest. However, if the patients are forced to exceed their fatigue threshold, it often escalates into severe exhaustion accompanied by e.g. nausea.
Four dimensions of experienced fatigue were identified: (1)physical, (2)related to medicine, other symptoms, and comorbidities, (3)loss of physical function/independence and (4)hospital environment/routines.

Konklusion

Postoperative fatigue following hip fracture surgery is a fluctuating, complex experience and a multidimensional phenomenon. The overview of patient experiences of fatigue offers critical insights for improving communication and structuring daily care and rehabilitation practices.

High-Density Electromyogenic Activity Shows Distinct Changes Following a Medial Gastrocnemius Strain Injury: A Case Study

Asta S. Eriksen (1), René B. Svensson (1, 2, 4), Eva Rudjord Therkildsen (5), Jens Bo Nielsen (5), Michael Kjær (1, 2), S. Peter Magnusson (1, 2, 3), Monika L. Bayer (1)

(1) Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

(2) Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

(3) Department of Occupational Therapy and Physiotherapy, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

(4) Department of Health Technology, Technical University of Denmark, Kongens Lyngby, Denmark

(5) Department of Neuroscience, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark

Introduction and Aim

Muscle strains are associated with long-term injury sequela. Ultrasound (US) imaging shows curvature of muscle fascicles at the site of previous injury. Whether these fascicles are innervated and how neuromuscular activity changes has remained unclear. To investigate neuromuscular adaptations, high-density electromyography (HD-EMG) provides a method to map muscle activity with high spatial resolution.

This case study aims to investigate the applicability of HD-EMG to measure neuromuscular activation in a chronic calf strain.

Materials and Methods

A 39-year-old male with a chronic medial gastrocnemius strain performed unilateral isometric ramp contractions at 20% and 60% of maximal voluntary contraction (MVC) while HD-EMG was recorded. The contralateral calf served as a control. Spatial parameters were analyzed using signal strength and amplitude. The signals were further decomposed to identify active motor units (MUs) and their recruitment thresholds.

Results and Conclusion

HD-EMG revealed reduced signal strength and a shift in the center of activity during contractions in the injured gastrocnemius. Compared to control, MU recruitment thresholds increased and fewer active MUs were detected in the injured gastrocnemius. The soleus muscle on the injured side displayed higher activation, suggesting compensatory adaptation within the triceps surae complex. This case study supports the applicability of HD-EMG to detect functional changes in chronic muscle strains.

Effects of weight cutting and regain on physical and cognitive function in natural bodybuilders

Kenneth H. Mertz, Bjørk W. Helge, Jakob Agergaard, Sara D. Pedersen, Jesper L. Andersen. Institut for Idrætsmedicin, Bispebjerg og Frederiksberg Hospital

Background

Manipulation of body weight and composition is common in weight-dependent sports, yet the impact of prolonged weight cutting (CUT) on physical and cognitive performance remains underexplored. The present study aimed to investigate changes in muscle function and cognitive performance in natural bodybuilders during and after weight cutting.

Methods

We included 23 natural bodybuilders (13 females, 10 males; mean age 29.8 ± 8.8 years) competing in the 2024 season. Athletes were assessed at baseline, after 1 month of dieting (1mDiet), pre-competition (COMP), and 1 month (1mPost) and 6 months (6mPost) post-competition. Measures included DXA-derived body composition, knee extensor strength, countermovement jump (CMJ) performance, and cognitive reaction time (CANTAB).

Results

Body weight decreased during CUT (COMP: -9.5 ± 0.8 kg, $P < 0.0001$), with rapid regain at 1mPost (+6.5 ± 1.3 kg, $P = 0.002$) and normalization at 6mPost. Fat mass decreased markedly at COMP (-9.1 ± 0.8%, $P < 0.00001$), while lean mass was reduced only at COMP (-1.6 ± 0.5 kg, $P = 0.05$). Absolute knee extensor strength declined at COMP and 1mPost (both $P < 0.01$), and CMJ peak power was reduced at COMP ($P < 0.0001$) but recovered by 6mPost. Reaction time worsened at COMP ($P = 0.02$) and normalized thereafter.

Conclusion

Prolonged CUT impaired both muscular and cognitive function, but these effects were reversible with restored body composition.

Association between a CYP3A4 phenotype biomarker and chlordiazepoxide metabolism in alcohol withdrawal

Nanna Reiter[1], Kim Dalhoff[2], Tonny S Petersen[2], Charlotte U Andersen[3], Christian S Meyhoff[1],

1) Department of Anaesthesia and Intensive Care, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark

2) Department of Clinical Pharmacology, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark

3) Department of Forensic Medicine, University of Aarhus, Aarhus, Denmark

Corresponding author: Nanna Reiter, nanna.reiter@regionh.dk

Introduction

Individual responses to chlordiazepoxide treatment vary significantly, including the risk of prolonged sedation and toxicity(1). CYP3A4 is the primary enzyme mediating the N-demethylation of chlordiazepoxide in the liver, producing its active metabolite nor-chlordiazepoxide(2). This study aimed to investigate whether phenotypic variation in CYP3A4 is associated with metabolite vs parent drug ratios for chlordiazepoxide and its metabolites, norchlordiazepoxide and demoxepam, in a clinical setting.

Methods

In this prospective study, 25 patients admitted to the High Dependency or Intensive Care Unit after treatment with at least 200 mg chlordiazepoxide for severe alcohol withdrawal symptoms underwent CYP3A4 phenotyping using midazolam as a pharmacological probe. Plasma concentrations of midazolam, 1-OH-midazolam, chlordiazepoxide, norchlordiazepoxide, and demoxepam were measured 2 hours after administration of 2 mg midazolam intravenously.

Results

There was no correlation between 1-OH-midazolam/midazolam ratio and the norchlordiazepoxide/chlordiazepoxide (R^2 = 0.07, P=0.20) and demoxepam/chlordiazepoxide ratios (R^2 = 0.003, P=0.78). Figure 1 illustrates the relationship between ratios of norchlordiazepoxide/chlordiazepoxide, demoxepam/chlordiazepoxide, and norchlordiazepoxide + demoxepam/chlordiazepoxide to the ratio of 1-OH-midazolam to midazolam.

Discussion

The lack of correlations between MID and CDX metabolite ratios indicates that CYP3A4 activity may only have a minor role in the first steps of CDX metabolism, or alternatively, that the unsynchronized use of the probe in relation to treatment with CDX (accumulation) may have resulted in an incorrect determination of the ratio between CDX metabolites and CDX.

Conclusion

In this study, midazolam phenotyping did not contribute to explaining the interindividual variation in pharmacodynamic response, supporting further exploration in CYP-mediated metabolism to personalize benzodiazepine therapy.

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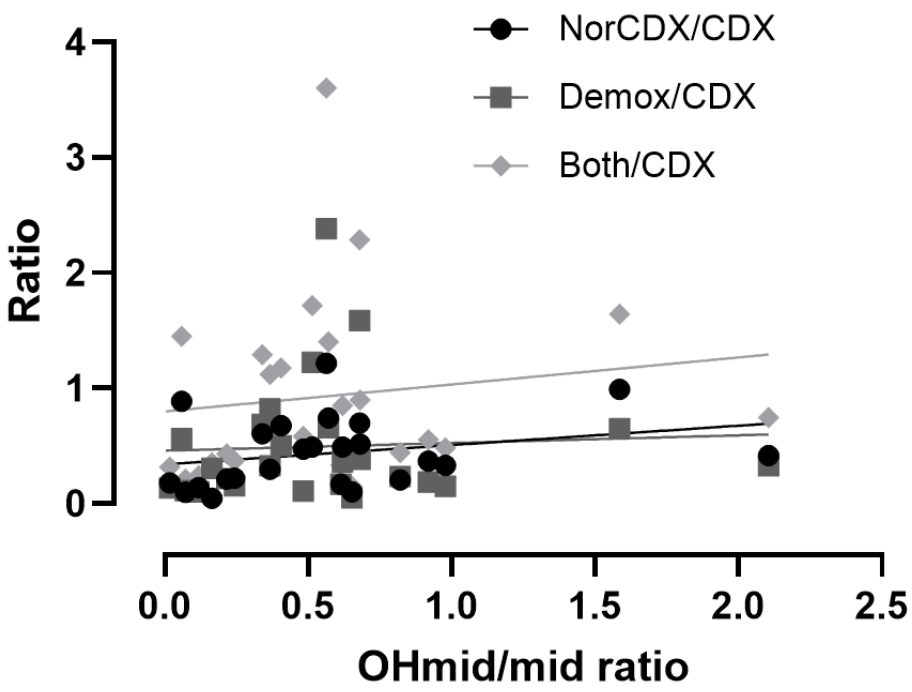
Figure 1:

The relationship between ratios of norchlordiazepoxide/chlordiazepoxide, demoxepam/chlordiazepoxide, and norchlordiazepoxide + demoxepam/chlordiazepoxide to the ratio of 1-OH-midazolam to midazolam



The effects of a digital caregiver app aiming to improve perceived information from and communication with health care professionals – A cluster randomised controlled trial

Adsersen M.[1], Lund L.[2], Berner-Hansen M. A.[1], Petersen M. Aa. [1], Groenvold M. [1, 3]

[1]Palliative Care Research Unit, Department of Geriatric and Palliative Medicine GP, Copenhagen University Hospital - Bispebjerg and Frederiksberg, University of Copenhagen, Copenhagen, Denmark.

[2]National Institute of Public Health. University of Southern Denmark, Copenhagen, Denmark
[3]Section of Health Services Research, Department of Public Health, University of Copenhagen, Copenhagen, Denmark

Abstract

INTRODUCTION: Improved attention and information to cancer patients' caregivers was found in the Danish caregiver trial 'HERMES'. 'HERMES' included 14 questions on paper from the Cancer Caregiving Task, Consequences and Needs Questionnaire (CaTCoN) about the caregiver's (unmet) needs for information followed by a nurse conversation. The aim of this 'HERMES II' study was to investigate whether a caregiver-empowering app 'Info to you' with same functionality but without the proactive nurse management would have similar positive effects.

Method

A stepped wedge randomised controlled trial (April 2021–Aug.2023) included caregivers to cancer patients from eight hospitals. Caregivers received standard care (control) or standard care plus the app (intervention). Caregivers receiving the intervention were encouraged to complete the 14 app questions before the patient's hospital consultation and to show the results to the health care professionals (HCPs). At baseline, 3- and 6-months follow-up, the caregivers completed a questionnaire including CaTCoN and emotional functioning. Multiple linear regression investigated differences between the change scores in the groups.

Results

The app was used at least once by 69% of the caregivers in the intervention group, whereas 12% talked to an HCP about their answers in the app. No intervention effects were found in the primary outcome 'Quality of information from and communication with HCPs' ($p=0.94$) or the secondary outcomes (e.g., information, attention, involvement).

Conclusion

This study investigated whether a caregiver-empowering app without HCP management would work. We could not find evidence for such an effect - probably because few caregivers received an increased amount of information.

Basic mobility and handgrip strength performance of geriatric patients is associated with 30-Day Mortality

Tim Randbøll Petersen (Fys, Msc), Camilla Kampp Zilmer (Fys, Msc), Christian Have Dall (Fys, seniorforsker), Morten Tange Kristensen (Fys, Professor), Charlotte Suetta (Læge, Professor).

Fysio- og ergoterapiafdelingen BFH og Geriatrisk afdeling BFH

Baggrund med formål

Early identification of high-risk patients is needed to potentially improve health outcomes and survival rates.

Therefore, this cohort study aims to examine the association between mobility and strength performances and short-term mortality in geriatric patients.

Materiale og metode

A total of 862 patients with a mean±SD age of 83.8±7.1 years were evaluated by physio- or occupational therapists at a geriatric department in an acute care hospital over one year. The Cumulated Ambulation Score (CAS) was assessed at the first evaluation by therapists, while 562 (62%) patients also had their handgrip strength (HGS) assessed. Performances were categorized as normal (CAS=6) versus reduced (CAS<6) and for HGS as normal (mean+/-1SD) or reduced (<-1SD) according to Danish sex- and age-decade reference values. The day of CAS assessment was used as index for 30-day mortality in Cox regression analysis adjusted for age, sex and multimorbidity (M3-index >1 point).

Resultat

Within 30-days of their first CAS assessment 10.3% of patients had died. CAS-mobility and HGS was reduced for 61% and 58% of patients, respectively and with corresponding 30-day mortality of 14.6% and 6.1% versus only 3.6% and 1.8% for those with a normal level. Correspondingly, an aHR for 30-day mortality of 4.1 (95%CI, 2.2-7.5) and 4.2 (95%CI, 1.4-12.5) were seen for reduced CAS and HGS, respectively.

Konklusion

In geriatric patients, short-term mortality increases markedly with reduced performance in CAS and HGS. These findings provide strong evidence for mobility and strength being assessed systematically in geriatric patients for early identification of high-risk patients.

Pain during shoulder exercises for patients with rotator cuff tendinopathy

Birgitte Hougs Kjær (1, 2), Finn Elkjær Johannsen (2), Ann M. Cools (3). Luise Mølenberg Begtrup (4)

Camilla Cullum (1, 2), Theresa Bieler (1), Volkert Dirk Siersma (5), S. Peter Magnusson (1, 2, 6)

1 Department of Physical and Occupational Therapy, Copenhagen University Hospital Bispebjerg Frederiksberg, Copenhagen

2 Institute of Sports Medicine, Department of Orthopaedic Surgery M, Copenhagen University Hospital Bispebjerg and Frederiksberg

3 Department of Rehabilitation Sciences, Faculty of Medicine and Health Sciences, Ghent University, Campus UZ Gent, Gent, Belgium

4 Department of Occupational and Environmental Medicine, Copenhagen University Hospital Bispebjerg Frederiksberg

5 The Research Unit for General Practice and Section of General Practice, Department of Public Health, University of Copenhagen

6 Center for Healthy Aging, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.

Background and aim

Exercise therapy is an effective intervention for patients with rotator cuff (RC) tendinopathy, but there are no prospective randomized controlled trials addressing pain as an intervention variable. The aim was to examine the effect of allowing pain (PAllow) versus avoiding pain (PAvoid) during shoulder exercises for patients with symptomatic chronic RC tendinopathy.

Materials and Methods

In a prospective, assessor-blinded, pragmatic, randomized, controlled superiority trial, we included adults aged 18–55 with >3 months of symptoms and ultrasound-confirmed RC tendinopathy. Participants were recruited from the sports medicine and occupational medicine clinics at BFH. Both groups received a 26-week intervention with 8 physiotherapy sessions and home exercises. Pain was allowed in PAllow (up to 5 on Numeric Pain Rating Scale (NPRS)) or avoided in PAvoid (NPRS below 2) during exercises. Data were analysed with linear regression.

Results

A total of 84 participants (mean age 36 years, 45% women) were included. Average symptom duration was 26 months. Both groups improved significantly over time, with no difference at 26 weeks. At 1-year follow-up, PAllow showed a significantly greater improvement in SPADI. The PAllow improvement exceeded the minimal clinically important difference at both 26 weeks (11.2 points) and 1-year (16.2 points).

Conclusion

Performing shoulder exercises improved pain and function significantly over time in both groups. There was no difference between the groups at 26 weeks, but at 1-year follow-up, PAllow showed a significantly greater improvement in SPADI. We can safely allow patients with RC tendinopathy to complete shoulder exercises with moderate pain.

Childhood body mass index trajectories and the subsequent risk of endometrial cancer and its subtypes

Julie Rose[1,2], Jennifer L. Baker[2], Elisabeth W. Andersen[2], Susanne K. Kjær[1,3,4] Julie Aarestrup[2,5]

[1] Danish Cancer Institute, Unit of Virus, Lifestyle and Genes, Copenhagen, Denmark

[2] Center for Clinical Research and Prevention, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Frederiksberg, Denmark

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

[4] Department of Gynecology, Copenhagen University Hospital Rigshospitalet, Copenhagen, Denmark

[5] Danish Cancer Institute, Diet, Cancer and Health, Copenhagen, Denmark

Background and Aim
Obesity in adulthood is a well-established and strong risk factor for endometrial cancer (EC). Body mass index (BMI) values at single ages and childhood BMI trajectories are positively associated with EC. Whether continuous exposure to adiposity during childhood is associated with EC subtypes is still unclear. In this study we examine how childhood BMI trajectories are associated with EC and its subtypes.

Materials and Methods
We examined 167,682 females from the Copenhagen School Health Record Register, born 1930-1996, with information on five BMI trajectories modelled using weight and height measurements at ages 6-15 years. Outcome data were obtained via linkage on personal identification numbers with The Danish Cancer Registry. Cox-regression models were used to estimate the associations between BMI trajectories and EC and subtypes, censoring for hysterectomy.

Results
From 1978-2022, 1703 females were diagnosed with EC. 1420 were classified as type I and 260 as type II. Most females had an average BMI trajectory in childhood (38.9%), while 2.9% followed the obesity trajectory. Compared with the average BMI trajectory, the hazard ratio (HR) of EC increased with higher BMI trajectory. The highest HR was found for the obesity trajectory (HR=2.85, 95% CI: 2.20;3.71). Similar trends were observed for the subtypes, though confidence intervals for type II were wide and not all statistically significant.

Conclusion
Our study found that greater childhood adiposity is associated with increased risk of EC and its subtypes. Reducing the prevalence of childhood overweight and obesity through targeted prevention could potentially reduce EC incidence in adulthood.

Evaluering af plasmakoncentrationsmålinger af antiepileptika ved brug af en automatiseret big data tilgang i en national kohorte

Forfattere
Mariam Nersesjan[1], Elke Hoffmann-Lücke[2,3], Eva Greibe[2,3], Per Hersom Aaslo[4], Lasse Kristoffer Bak[5,6,7], Lars Engers Pedersen[8], Palle Bach Nielsen Fruekilde[9], Anette Stark[1,10], Jakob Christensen[3,11], Andreas Brønden[1,12], Jens Borggaard Larsen[13].

Afdelinger og institutioner
[1] Klinisk Farmakologisk Afdeling, Københavns Universitetshospital - Bispebjerg og Frederiksberg Hospital
[2] Blodprøver og Biokemi, Aarhus Universitetshospital
[3] Institut for Klinisk Medicin, Aarhus Universitetshospital
[4] Filadelfia Epilepsihospitalets Laboratorium, Dianalund
[5] Afdeling for Klinisk Biokemisk, Københavns Universitetshospital – Rigshospitalet, Glostrup
[6] Translationelt Forskningscenter (TRACE), Rigshospitalet - Glostrup
[7] Institut for Lægemiddeldesign og Farmakologi, Københavns Universitet
[8] Klinisk Biokemisk Afdeling, Næstved, Slagelse og Ringsted Sygehuse, Slagelse
[9] Blodprøver og Biokemi, Odense Universitetshospital
[10] Neurologisk Afdeling, Københavns Universitetshospital - Bispebjerg og Frederiksberg Hospital
[11] Neurologisk Afdeling, Aarhus Universitetshospital, affilieret medlem af Epi-CARE Aarhus
[12] Institut for Klinisk Medicin, Københavns Universitet
[13] Klinisk Biokemisk Afdeling, Holbæk Sygehus

Baggrund
Terapeutisk lægemiddelmonitorering (TDM) anvendes vejledende i den kliniske hverdag til at justere dosis af antiepileptika ved at sammenholde en given plasmakoncentration hos den enkelte patient med et vejledende referenceinterval. Disse referenceintervaller er ofte baseret på mindre studier af homogene patientgrupper, hvilket rejser tvivl om anvendeligheden i den overordnede patientpopulation. Formålet med dette studie var at evaluere plasmakoncentrationsmålinger af antiepileptika i den danske patientpopulation.

Metode
I dette retrospektive studie blev 137.586 plasmakoncentrationsmålinger fra perioden 2019-2023 indsamlet fra fem danske laboratorier førende inden for TDM. Der blev inkluderet 84.951 målinger fra 53.406 patienter. Intervaller af plasmakoncentrationer blev beregnet som 10-90 percentiler for følgende antiepileptika: brivaracetam, carbamazepin, lacosamid, lamotrigin, levetiracetam, oxcarbazepin, perampanel, phenobarbital, topiramat, valproat og zonisamid. Disse intervaller blev sammenlignet med etablerede danske referenceintervaller samt anerkendte internationale vejledninger: International League Against Epilepsy (ILAE) og Arbeitsgemeinschaft für Neuropsychopharmakologie und Pharmakopsychiatrie (AGNP). Betydningen af køn, alder og indikation (psykiatri vs. ikke-psykiatri) blev undersøgt.

Resultater
De fundne plasmakoncentrationer stemte overens med danske vejledende referenceintervaller med undtagelse af levetiracetam. Plasmakoncentrationsintervallerne for brivaracetam, lacosamid, lamotrigin, levetiracetam, valproat og zonisamid adskilte sig fra referenceintervaller i ILAE og AGNP. For levetiracetam, topiramat, lacosamid og phenobarbital var der aldersrelaterede forskelle. De fundne intervaller for lamotrigin var lavere ved psykiatrisk indikation vs. ikke-psykiatrisk indikation.

Konklusion
Fundene i dette studie tydede på, at det danske referenceinterval for levetiracetam bør justeres, mens alder bør tages i betragtning ift. dosering af levetiracetam, topiramat, lacosamid og phenobarbital. Et lavere koncentrationsinterval for lamotrigin i den psykiatriske population indikerer, at patienter med bipolar lidelse kræver lavere dosis af lamotrigin.

Cesarean section and risk of asthma assessed in a natural experiment

List of authors: Frida Richter Hansen[1], Dorthe Corfitzen Pedersen[1], Allan Linneberg[1,2], Ann-Marie Malby Schoos[3], Ana Luiza Goncalves Soares[4], Gemma Clayton[4], Jennifer L. Baker[1], Katja Leth-Møller[1]

List of affiliations
[1]Centre for Clinical Research and Prevention, Bispebjerg and Frederiksberg Hospital, The Capital Region of Denmark, Copenhagen, Denmark
[2]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark
[3]COPSAC, Copenhagen Prospective Studies on Asthma in Childhood, Herlev and Gentofte Hospital, University of Copenhagen, Copenhagen, Denmark
[4]Medical Research Council Integrative Epidemiology Unit, University of Bristol, United Kingdom

Background
Current evidence suggests an increased risk of asthma in children born via caesarean section compared to those delivered vaginally. However, it remains unclear whether this association is causal or driven by maternal and familial factors. Therefore, we will examine the association between caesarean section and asthma using a quasi-experimental design.

Methods
We will take advantage of an abrupt change in delivery practice for breech births in Denmark occurring in 2000. The change in procedure resulted in a significant increase in the probability of caesarean delivery.

The study population will be identified from the Danish Medical Birth Register and will include approximately 10,000 liveborn term singletons in breech position. Participants will be followed until 18 years of age to assess asthma based on hospital admissions and prescriptions.

Using an interrupted time series design, we simulate the features of a randomised controlled trial. We will estimate the causal effects of the shift toward caesarean section on asthma risk by comparing breech infants born before and after the policy change. We will include cephalic (head down) infants as controls to account for potential changes in the underlying rate of caesarean section.

Results
We anticipate our results will show whether caesarean section is an independent risk factor for asthma. The study design will eliminate selection bias and confounding, which are factors that are major limitations of previous observational studies on this association.

Conclusion
Results are currently under analysis and will provide valuable insights into the long-term effects of caesarean delivery on respiratory health.

Effects of continuous glucose monitoring in surgical patients with diabetes: Protocol for a randomised, controlled multicentre trial.

List of authors: Casper Pedersen, MD[1], Annelotte Philipsen, MD, PhD[2], Kirsten Nørgaard, MD, DMSc[3,4], Eske K. Aasvang, MD, DMSc[4,5,*], and Christian Sylvest Meyhoff, MD, PhD[1,4,*]

1 Department of Anaesthesia and Intensive Care, Bispebjerg and Frederiksberg Hospital, **2** Department of Endocrinology, University Hospital Zealand, Køge, **3** Steno Diabetes Center Copenhagen, **4** Department of Clinical Medicine, University of Copenhagen, **5** Department of Anaesthesiology, Centre for Cancer and Organ Diseases, Rigshospitalet. *****Shared last authorship

Background/rationale

Perioperative standard for glucose monitoring relies on intermittent point-of-care (POC) testing, whereas continuous glucose monitoring (CGM) provides real-time measurements every five minutes with alerts for dysglycaemia. CGM in hospitalised surgical patients remains less well studied than outpatient settings. This protocol outlines a trial investigating whether CGM can increase time with normoglycemia in surgical patients with diabetes.

Material/methods

A multicentre, two-group, randomised controlled trial (NCT06314061). Participants in the intervention group will be monitored with CGM (Dexcom G7, Dexcom Inc., California, USA) until postoperative day 10. Patients in the control group will wear a blinded CGM. All patients will receive routine diabetes care, including intermittent POC glucose testing, in addition to CGM. Eligible patients are adults with type 1 or type 2 diabetes, surgery lasting more than 45 minutes, and an expected stay of at least one night in the hospital. The primary outcome is time-in-range of CGM glucose levels between 6.0-10.0 mmol/l (Figure 1).

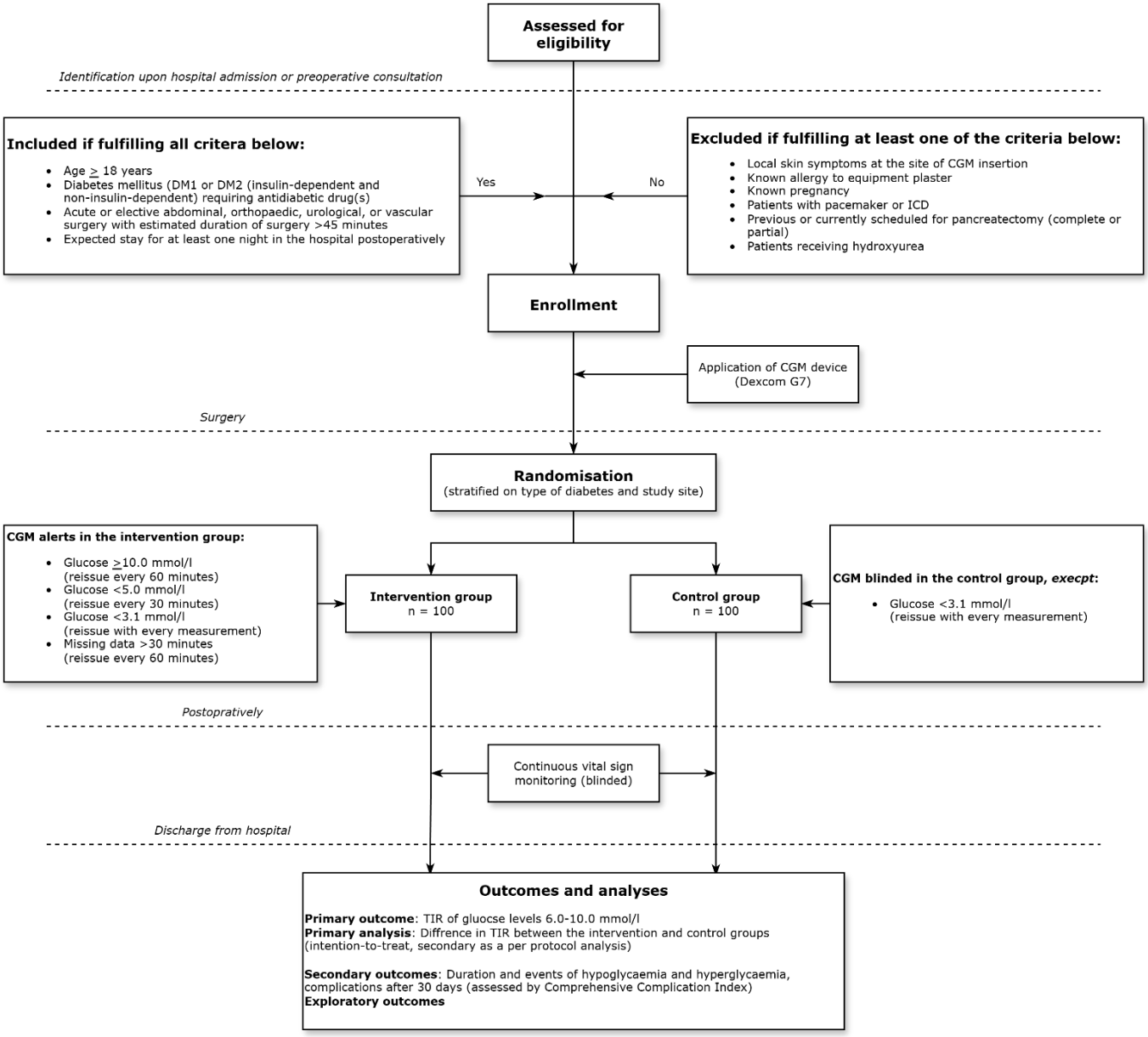
Results

Hundred-and-fifty-two of 200 planned participants has completed the trial. To ensure standardised use of CGM and support clinical decision-making during the study, a study-specific guideline has been developed, integrating CGM with routine POC testing. It advises intervention for glucose levels <5.0 mmol/l when trending downward on the CGM. For CGM glucose >10.0 mmol/l, rapid-acting insulin may be given according to sliding scale regimen, rather than delaying until next scheduled POC test.

Conclusions

This randomised controlled trial aims to determine whether use of CGM by clinical staff enhances perioperative glycaemic control in surgical patients with diabetes.

Figure 1: Study flowchart



CGM, continuous glucose monitoring, DM, diabetes mellitus, ICD, Implantable Cardioverter Defibrillator, TIR, time in range. Illustration made with diagrams.net.

Feasibility of High-Density Sit-to-Stand Functional Resistance Training in Patients With Hip Fracture: A Prospective Pilot Trial

Authors
Niklas Grundt Hansen, Msc. PT, PhD Candidate[1,2], Stig Molsted, Associate Professor, Senior researcher, PT, PhD[3,4], Søren Overgaard, Clinical Professor, Consultant, DMsc[4,5], Charlotte Suetta, Clinical Professor, Consultant, DMsc[4,6], Robin Christensen, professor, PhD[7, 8], Morten Tange Kristensen, Clinical Professor, PT, PhD[2,4]

Institutions
[1] Hørsholm Municipality, Department of health and rehabilitation, Denmark
[2] Department of Physical and Occupational Therapy, Copenhagen University Hospital, Bispebjerg and Frederiksberg.
[3] Department of Clinical Research, Hospital of North Zealand
[4] Department of Clinical Medicine - University of Copenhagen, Denmark
[5] Department of Orthopaedic Surgery and Traumatology, Copenhagen University Hospital, Bispebjerg
[6] Geriatric Research Unit, Geriatric Department, Bispebjerg-Frederiksberg University Hospital, Copenhagen
[7] The Parker Institute, Bispebjerg & Frederiksberg hospital
[8] University of Southern Denmark

Background and purpose
Standard rehabilitation after Hip fracture (HF) emphasizes machine-based strength training, but access is limited, and inequities arise, particularly for patients with difficulty attending training centers. Sit-to-stand (STS) functional training may provide a simple, accessible, and potentially equally effective alternative.

The purpose of this study is to examine the feasibility and tolerability of a high-density, STS and the addition of two strength training programs during rehabilitation in patients with HF using a three-arm sequential inclusion.

Materials and methods
Thirty HF-patients (mean±SD age 78.0+9.6 years, 24 women) referred to municipality-based rehabilitation were sequentially included into three groups, all with training twice weekly for eight weeks:
Group-1) 1-10: Ten sets of 30-seconds all out STS without using arms.

Group-2) 11-20: As group one, including three sets of 8-12RM leg press and using “rule-of-2” to create auto-progression of the training
Group-3) 21-30: As group one, including hip abduction, using the same approach as group two.

Results
Findings on feasibility show a drop-out rate of 10%, 40% and 0% and training adherence as prescribed was 82,8%, 62,3% and 84.6% in group one, two and three, respectively. Tolerability (pain data) of the groups revealed that HF-related pain did not increase in any group.

Conclusions
High-density STS initiated after HF was feasible in group one and three. However, when leg press resistance exercise was added to the STS, the drop-out rate was elevated and adherence decreased, both failing to meet feasibility criteria. All Interventions were performed without increasing HF-related pain.

Motor and cognitive exercise in Parkinson's disease. A Feasibility Randomized clinical trial

Fysioterapeut Maren Nielsen Hole
Stud med Rasmus Vestergård-Madsen
Professor, fysioterapeut Morten Tange Kristensen
Forskningslektor, Overlæge Annemette Løkkegaard

Neurologisk afdeling Bispebjerg Hospital
Fysio- og ergoterapiafdeling Bispebjerg Hospital
Kontaktpersion:
Maren Nielsen Hole
Bispebjerg Hospital, almen neurologisk afdeling
Tlf 20373353
Maren.nielsen.hole@regionh.dk

Baggrund

Parkinson's disease (PD) is a progressive neurodegenerative disorder with increasing prevalence. As it advances, balance and mobility issues become more frequent due to both physical and cognitive decline. Combining motor and cognitive training may help improve function, particularly balance, and reduce fall risk.

Formål

Is specialized motor-cognitive exercise plus usual care superior to usual care alone in improving balance, gait, and strength in patients with moderate to advanced PD?

Design

Randomized clinical trial (RCT) with assessor blinded endpoints.

Materiale og metode

48 participants will be recruited according to following inclusion criteria; PD diagnosis, aged ≥18 years, informed consent, PD symptoms ≥4 years, independent gait. Exclusion criteria: PD Dementia.

The participants will be randomized 1:1 to either 1) usual care or 2) usual care plus 12 weeks of supervised motor-cognitive exercise.

Primary feasibility outcome: Adherence, defined as attendance at >60% of 36 sessions.

Secondary outcome measure is a composite outcome of either death, unplanned hospitalization, or a significant fall. Secondary clinical outcome measures include assessments of disease severity, physical function and balance, cognitive function, life quality and fear of falling.

Resultater

The study is ongoing and to date, 15 participants have been enrolled.

Konklusion

Perspektivering

The feasibility study will help us explore the feasibility of the exercise program and explore outcomes for study 2. Study 2 will be a randomized controlled trial, where recruitment is planned in a multicenter set-up involving both Danish and international sites. The paradigm is developed with the aim to facilitate implementation in outpatient physiotherapy settings.

Nøgleord

Parkinson; exercise; motor-cognitive; balance; gait

Effects of hydrolyzed collagen supplementation on top of resistance training as a treatment of Achilles, patellar and plantar fascia tendinopathy in elite athletes

Thomsen LL[1], Olsen AE[1], Schjerling P[1], Svensson RB[1,2,5], Bisgaard MS[4], Dideriksen K[1,2,3], Bach J[3], Hansen EP[3], Trammell SAJ[7], Vestergaard MS[6], Karlsson MM[1,6], Brushøj C[1,6], Holm L[6,8], Hansen M[4], Magnusson SP[1,2,3], Kjaer M[1,2], Couppé C[1,2,3]

1. Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark.
2. Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark.
3. Department of Physical and Occupational Therapy, Bispebjerg and Frederiksberg University Hospital, Copenhagen, Denmark.
4. Department of Public Health, Aarhus University, Aarhus, Denmark.
5. Center for Fast Ultrasound Imaging, Department of Health Technology, Technical University of Denmark, Lyngby, Denmark
6. Team Danmark, Copenhagen, Denmark
7. Department of Biomedical Sciences, University of Copenhagen, Copenhagen, Denmark.
8. Department of Nutrition, Exercise and Sports, University of Copenhagen, Copenhagen, Denmark

Background and Purpose

Tendinopathy is a significant problem in elite athletes. Collagen supplementation has been shown to increase collagen synthesis, but it remains unknown whether collagen supplementation could serve as an effective add-on treatment to heavy slow resistance (HSR) training in the treatment of tendinopathy. This study investigated whether daily hydrolyzed collagen ingestion enhances HSR training outcomes compared with placebo in male elite athletes with chronic patellar, Achilles, or plantar fascia tendinopathy.

Materials and Methods

Thirty-six elite athletes with chronic tendinopathy were randomized to receive 10 grams of hydrolyzed collagen or placebo (maltodextrin) daily alongside a 12-week HSR program (three weekly sessions). The primary outcome was pain during sport (Numerical Rating Scale, NRS). Secondary outcomes included NRS scores (post-activity, morning, weekly maximum, provocation), function and symptoms (Victorian Institute of Sports Assessment questionnaires [VISA]), and ultrasound morphology (thickness, echogenicity, power Doppler area [PDA]). Assessments were conducted at baseline, 12 weeks, and 38 weeks.

Results

Both groups demonstrated clinically relevant improvements in NRS during sport after 12 weeks, with sustained effects at 38 weeks (Collagen: baseline 3.90±0.59; 12 weeks 2.20±0.45; 38 weeks 1.50±0.34; Placebo: baseline 5.00±0.45; 12 weeks 2.20±0.28; 38 weeks 2.30±0.57). Secondary outcomes, including other NRS scores and VISA-Patella, improved similarly in both groups. Ultrasound PDA improved after 12 weeks. No significant differences were observed between the collagen and placebo groups for primary or secondary outcomes.

Conclusion

This study found no superior clinical effect of collagen supplementation as an add-on to HSR training in elite athletes with tendinopathy.

PLASMO-AID NSCLC-projektet: Plasmajusteret personlig dosering af immunterapi ved ikke-småcellet lungekræft

Forfattere	Deltagende afdelinger
1. Forfatter: Magnus Middelboe Søborg-Madsen, læge Telefon 42 75 68 16 magnus.middelboe.soeborg-madsen.01@regionh.dk - Tonny Studsgaard Petersen, overlæge, lektor, ph.d. - Mikkel Bring Christensen, cheflæge, professor, ph.d. - Andreas Brønden, ledende overlæge, ph.d.	Klinisk farmakologisk afdeling, Bispebjerg og Frederiksberg hospital
- Trine Meldgaard Lund, lektor, ph.d.	Institut for Lægemiddeldesign og Farmakologi, Københavns Universitet
- Mette Pøhl, overlæge, ph.d. - Andreas Bjerrum, læge	Afdeling for Kræftbehandling, Rigshospitalet
- Gitte Fredberg Persson, overlæge, professor, ph.d. - Jonas Sørensen, overlæge - Jon Lykkegaard Andersen, overlæge - Rikke Andersen, læge	Afdeling for Kræftbehandling, Herlev og Gentofte Hospital
- Malene Støchkel Frank, overlæge, ph.d.	Onkologisk afdeling, Sjællands Universitetshospital
- Niklas Rye Jørgensen, overlæge, professor, dr.med.	Biokemisk afdeling, Rigshospitalet
- Troels Korshøj Bergmann, overlæge, professor, ph.d.	Institut for Regional Sundhedsforskning, Syddansk Universitet

Baggrund med formål

Formålet er at påvise non-inferioritet af personlig dosering af immunterapi ved ikke-småcellet lungekræft (NSCLC), hvor dosis justeres ud fra bl.a. plasmakoncentrationen af immunterapimedicin i den enkelte patient.

Kræftceller kan undvige immunsystemet ved at aktivere PD-1-receptoren, der virker som en slags bremse for immunceller. Immunterapi blokerer bremsemekanismen, så immunsystemet igen bekæmper kræftcellerne.

I dag doseres immunterapi ved NSCLC typisk ens til alle patienter. Bivirkningerne er mange og medicinen er dyr. Mindre studier har antydet, at personlig dosering kan opnå samme overlevelse med færre/lavere doser, hvilket kan reducere bivirkninger, hospitalsbesøg og medicinforbruget – uden at forringe effekten.

Materiale og metode

Først måles plasmakoncentrationen af immunterapimedicin i patienter med fremskreden NSCLC. Disse koncentrationer samt patientkarakteristika som køn, alder, muskelstyrke og kostindtag analyseres med populationsfarmakokinetisk modellering. Ud fra analysen og litteratur om lægemidlerne opstilles en algoritme til personlig dosering af immunterapien.

Derefter opstilles et klinisk studie med en interventionsarm og kontrolarm, der afprøver doseringsalgoritmen. Patienter rekrutteres og behandles i kræftafdelinger i flere regioner og følges i gennemsnitligt 2 år.

Efter opfølgningstiden analyseres overlevelse med Cox/Fine-Gray-regression, med en non-inferior hazard ratio-margin på 1.33. Bivirkninger analyseres med Aalen-Johansen-estimator.

Dosis/doseringsinterval analyseres med Wilcoxon-test.

Studiet forventede varighed er 2025-2030.

Resultat

De forventede resultater af det kliniske studie er:

- Non-inferioritet af plasmajusteret dosering af immunterapi
- Færre eller tilsvarende bivirkninger
- Reduktion af dosis og/eller hospitalsbesøg

Konklusion

Hvis studiet demonstrerer non-inferioritet, kan plasmajusteret immunterapi implementeres som standardbehandling ved NSCLC. Derudover motiveres plasmajusteret dosering af immunterapi ved andre kræftsygdomme, fx modermærke-, nyre- og blærekræft.

Hemoglobin trajectories in acute infections are independently associated with mortality and persistent anemia: a retrospective cohort study

Frans Wiberg[1], Jon Gitz Holler[2], Martin Schønemann-Lund[3], Theis Skovsgaard Itenov[1]

[1]Department of Anaesthesia and Intensive Care, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark [2]Department of Pulmonary and Infectious Diseases, Copenhagen University Hospital – North Zealand, Copenhagen, Denmark [3]Department of Anesthesia and Intensive Care, Copenhagen University Hospital – North Zealand, Copenhagen, Denmark

Introduction

Anemia is a common complication of severe infections, affecting up to 80% of critically ill patients at hospital discharge. [1] Persistent anemia after discharge is linked to increased mortality and morbidity.

While platelet and white blood cell trajectories predict outcomes in severe infections [2], the prognostic value of hemoglobin trajectories is unclear. Understanding these patterns may identify patients at risk for persistent anemia.

This study aimed to: (1) identify hemoglobin trajectories over the first seven days of admission in patients with acute infections and (2) evaluate their association with persistent anemia and all-cause mortality within 30 days.

Methods

An observational study of adult patients with acute infections (blood culture and administration of antibiotics within 72 hours of admission) from all hospitals in East Denmark from 2018-2023.

We used growth mixture modeling [3] to group hemoglobin trajectories. Primary analyses examined associations between these trajectory groups and (1) persistent anemia within 30 days and (2) 30-day all-cause mortality.

Results

We identified 28,045 eligible patients (Table 1). Four trajectories of hemoglobin levels were identified, which we have labeled high stable, low stable, falling, and recovering (Figure 1).

Multivariate models showed that all trajectories, relative to the high stable group, were associated with increased 30-day mortality and a higher incidence of persistent anemia (Figure 1).

Discussion

In patients with acute infection, clinically relevant trajectories of hemoglobin can be identified. Patients with other trajectories than high stable levels have worse outcomes. Further studies are needed to understand whether this can inform clinical decisions.

Tables and figures

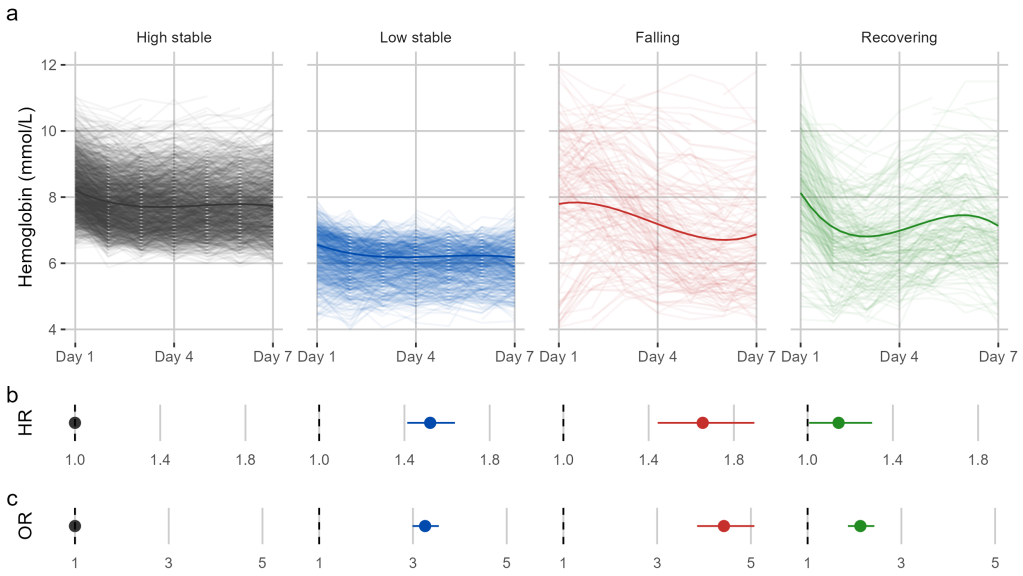


Figure 1 (previous page). *(a) Graphical representation of trajectories of hemoglobin, including 3000 randomly sampled individual trajectories. (b) Results of multivariate Cox proportional hazards model (hazard ratio [HR]) assessing the association between hemoglobin trajectory and 30-day all cause mortality, adjusted for age, sex, baseline SOFA-score and blood transfusion on days 0-7. (c) Results of logistic regression model (odds ratio [OR]) assessing the association between hemoglobin trajectory and combined anemia outcome, adjusted for age, sex, baseline SOFA-score and blood transfusion on days 0-7.*

Table 1. Baseline characteristics and outcomes.

		Trajectories of hemoglobin			
Variable	**Overall**	**High stable**	**Low stable**	**Falling**	**Recovering**
n	28045	17368	7171	1373	2133
Age, mean (SD)	71.8 (14.8)	71.7 (15.0)	73.5 (14.2)	69.7 (14.7)	69.1 (15.1)
Male, n (%)	14840 (52.9)	9727 (56.0)	3239 (45.2)	797 (58.0)	1077 (50.5)
Sepsis*, n (%)	16073 (57.3)	9340 (53.8)	4340 (60.5)	883 (64.3)	1510 (70.8)
Septic shock*, n (%)	856 (3.1)	393 (2.3)	248 (3.5)	73 (5.3)	142 (6.7)
Comorbidity					
Diabetes, n (%)	1598 (5.7)	959 (5.5)	444 (6.2)	81 (5.9)	114 (5.3)
Hypertension, n (%)	8108 (28.9)	4935 (28.4)	2232 (31.1)	375 (27.3)	566 (26.5)
COPD, n (%)	4552 (16.2)	3101 (17.9)	922 (12.9)	191 (13.9)	338 (15.8)
Admitting specialty					
Intensive Care, n (%)	1832 (6.5)	1017 (5.9)	445 (6.2)	99 (7.2)	271 (12.7)
Internal Medicine, n (%)	18478 (65.9)	11827 (68.1)	4847 (67.6)	810 (59.0)	994 (46.6)
Other, n (%)	3091 (11.0)	1909 (11.0)	784 (10.9)	151 (11.0)	247 (11.6)
Surgery, n (%)	4644 (16.6)	2615 (15.1)	1095 (15.3)	313 (22.8)	621 (29.1)
Initial ICD-10 diagnosis					

Table 1. Baseline characteristics and outcomes.

		Trajectories of hemoglobin			
Variable	**Overall**	**High stable**	**Low stable**	**Falling**	**Recovering**
Acute respiratory failure, n (%)	1467 (7.7)	861 (7.1)	320 (6.9)	93 (10.4)	193 (14.4)
Abdominal infection‡, n (%)	1055 (5.5)	598 (4.9)	150 (3.2)	113 (12.7)	194 (14.4)
Other infection, n (%)	1582 (8.3)	961 (7.9)	484 (10.4)	63 (7.1)	74 (5.5)
Pneumonia, n (%)	5373 (28.2)	3717 (30.6)	1249 (26.9)	166 (18.6)	241 (17.9)
Sepsis, n (%)	938 (4.9)	529 (4.4)	300 (6.5)	48 (5.4)	61 (4.5)
Septic shock, n (%)	287 (1.5)	104 (0.9)	76 (1.6)	28 (3.1)	79 (5.9)
Skin infection, n (%)	1069 (5.6)	807 (6.6)	210 (4.5)	23 (2.6)	29 (2.2)
UTI, n (%)	1820 (9.6)	1118 (9.2)	545 (11.7)	60 (6.7)	97 (7.2)
Outcomes					
Death within 30 days, n (%)	3648 (13.0)	1843 (10.6)	1271 (17.7)	252 (18.4)	282 (13.2)
Anemia from day 7-30, n (%)	3448 (12.3)	1173 (6.8)	1489 (20.8)	408 (29.7)	378 (17.7)
- Outpatient anemia dx, n (%)	175 (0.6)	34 (0.2)	116 (1.6)	13 (0.9)	12 (0.6)
- Anemia workup, n (%)	2332 (8.3)	938 (5.4)	948 (13.2)	216 (15.7)	230 (10.8)
- Blood transfusion, n (%)	1404 (5.0)	304 (1.8)	633 (8.8)	257 (18.7)	210 (9.8)

Note:

COPD = chronic obstructive pulmonary disease.

* Defined according to Sepsis-3 criteria.

‡ Including acute pancreatitis.

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Identification of risk factors for myocardial injury after non-cardiac surgery – a multi-study analysis of continuously monitored patients

Julie Terp Holm[1] Aslak Broby Johansen[2], Jesper Mølgaard[2], Eske Kvanner Aasvang[2,3*], Christian S. Meyhoff [1,3*]

[1] Department of Anaesthesia and Intensive Care, Copenhagen University Hospital - Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
2 Department of Anesthesiology, Center for Cancer and Organ Diseases, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark
[3]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark

*Shared last authorship

Introduction

Myocardial Injury after Non-Cardiac Surgery (MINS) increases 30-day postoperative mortality. A challenge in identifying patients with MINS is that 90% of cases are asymptomatic. [(1–3)] We aimed to determine pre- and postoperative risk factors for MINS in patients monitored with continuous vital sign monitoring.

Methods

This observational study included patients >18 years from 3 cohorts (NCT04640415, NCT03491137, NCT04473001), admitted to Rigshospitalet or Bispebjerg Hospital for major non-cardiac surgery. Primary outcome was MINS, defined as hsTnT; 20 to less than 65 ng/L (absolute change of at least 5 ng/L / hsTnT level of at least 65 ng/L). Risk factors for MINS were age > 65, diabetes, renal disease, myocardial infarction, ASA ≥3, BMI > 25, SpO2 <88%, SpO2 <85%, SpO2 <80%, HR >110 , HR>130, RR<11, RR>24, RR>30. We used Fisher's exact test and Welch's T-test. Patients were grouped by number of risk factors and stratified by MINS.

Results

We included 1003 patients (2018-2023). MINS was registered in 21.9%. Significant risk factors for MINS: Age (73 years [MINS] vs. 69 years [No MINS]); ASA-score (62% ASA3 [MINS] vs. 44% ASA3 [No MINS]); RR>24 brpm, for $\geq$ 5min (9.6% [MINS] vs. 18.1% [No MINS]).

Patients had a 16.8% risk of MINS with 1 preoperative risk factor, increasing to 25.5%, 27.0%, and 38.2% with 2, 3, and 4 risk factors, respectively.

Conclusion

Patients developing MINS were older, had higher ASA scores, and exhibited vital sign deviations. Future studies may combine preoperative risk factors with continuous postoperative monitoring and optimize prognostic ability.

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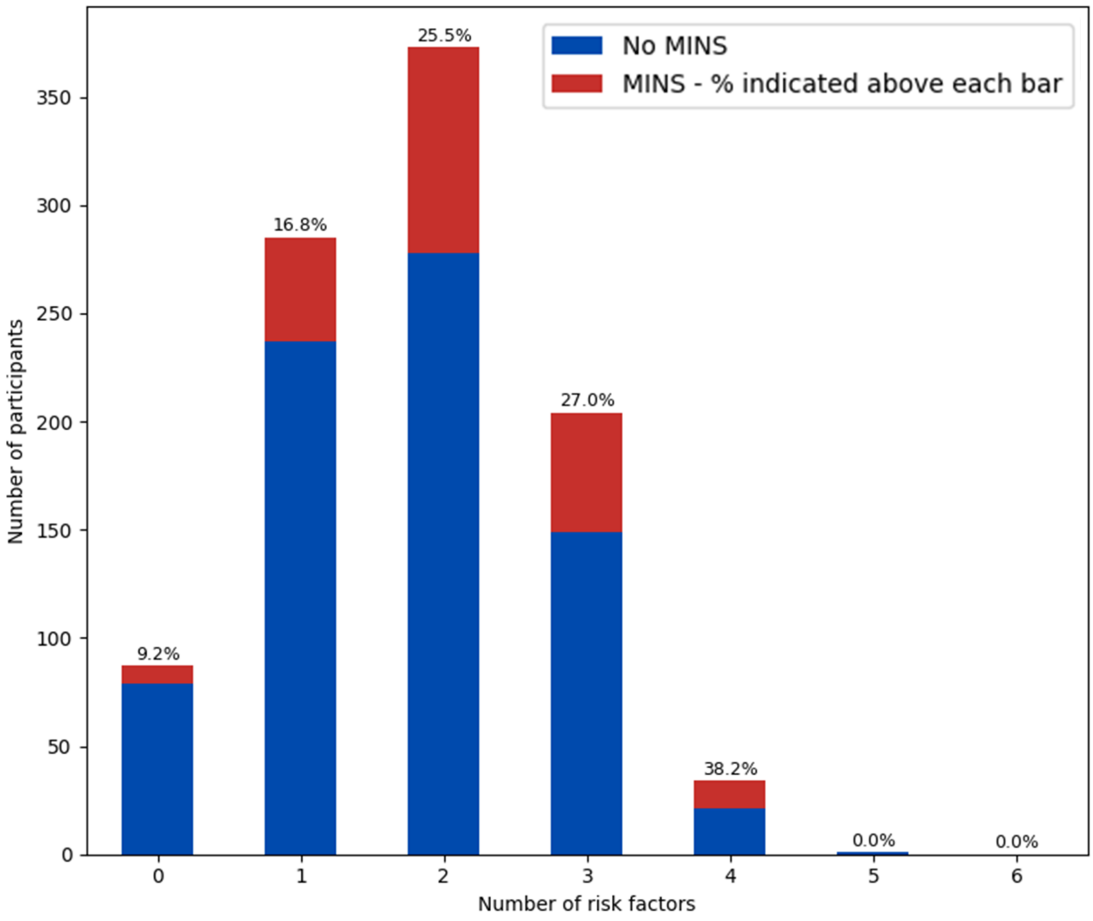
Figure 1: Participants by number of risk factors and MINS



Physical activity level trajectories during midlife and associations with muscle strength and physical function at 20-year follow-up

Forfatter: Emil Buch Fromberg
Medforfattere: Mette Aadahl, Christina Bjørk Petersen og Karl Bang
Institution: Center for klinisk forskning og forebyggelse.

Indledning

Fysisk aktivitet er en hjørnesten i forebyggelsen af kroniske sygdomme og i at bevare helbred og funktionsniveau gennem livet. Med alderen sker et naturligt tab af muskelstyrke og fysisk funktion, hvilket øger risiko for død, tab af uafhængighed, ikke-smitsomme sygdomme og derved øgede omkostninger for samfundet. Dette studie undersøger, om fysisk aktivitetsniveau gennem voksenalderen er associeret med muskelstyrke og fysisk funktion.

Metode

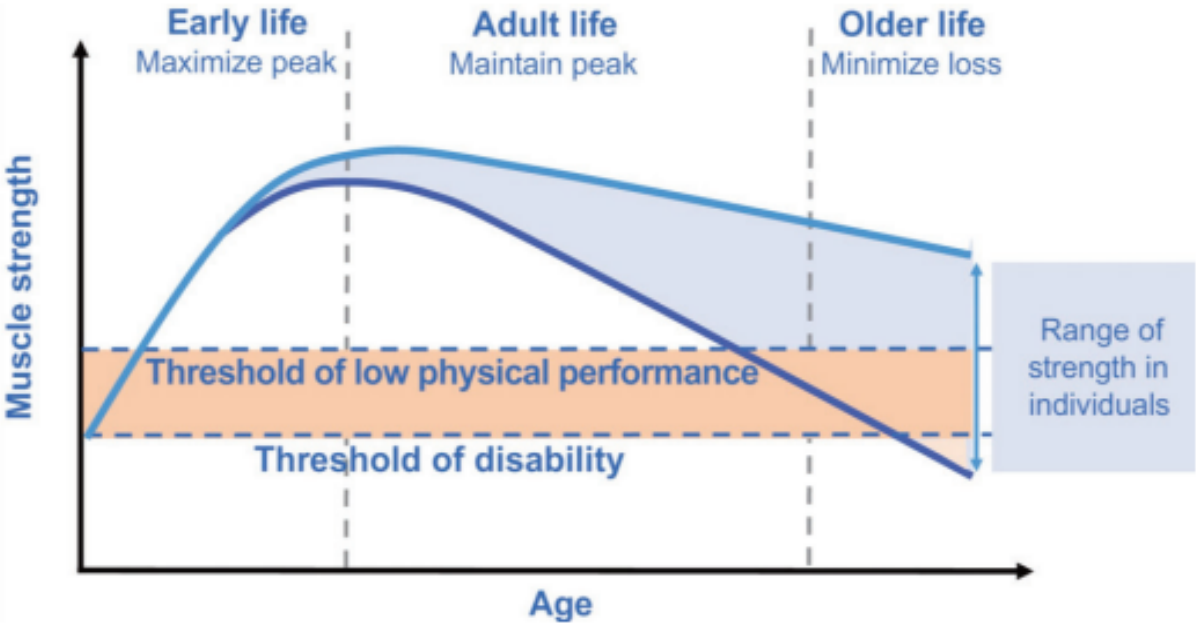
Ved anvendelse af data fra Inter99-kohorten, specifikt 1870 deltagere fulgt over 20 år, med fuld opfølgning på fysisk aktivitetsniveau målt med Saltin- og Grimsby-spørgeskemaet ved baseline, og 5-, 10- og 20-års follow-up, og et testresultat fra maksimal håndgrebsstyrke (N = 1862) eller 30 sekunders rejse-sætte-sig test ved 20-års follow-up (N = 1779). Deltagerne blev kategoriseret i fem grupper baseret på deres fysiske aktivitetsniveau mønstre over de 20 år. Grupperne blev sammenlignet med gruppen med laveste fysiske aktivitetsniveau i forhold til de to outcomes ved brug af ANOVA, t-test og multipel regression med justering for mulige confounders.

Resultater

Sammenlignet med laveste aktivitetsniveau-mønster var den gennemsnitlig forskel i håndgrebsstyrke på mellem 0.4-2.4 kg for mænd (ANOVA P=0.02) og 0.8-2.9 kg for kvinder (ANOVA P=0.00). For rejse-sætte-sig-testen var forskellen 0.2-3.9 gentagelser for mænd (ANOVA P=0.00) og 2-3.5 gentagelser for kvinder (ANOVA P=0.00). Resultater forblev generelt stabile efter justering.

Konklusion

Et højere selvrapporteret fysisk aktivitetsniveau var generelt forbundet med bedre muskelstyrke og fysisk funktion senere i livet. Sammenhængen var større for fysisk funktion i underekstremiteter. Resultaterne understøtter, enhver fysisk aktivitet gennem livet kan bidrage til at bevare muskelstyrke og fysisk funktion.


Early life
Maximize peak
Adult life
Maintain peak
Older life
Minimize loss
Muscle strength
Threshold of low physical performance
Threshold of disability
Range of strength in individuals
Age

Prevalence of dyslipidemia in furosemide users and identification of risk groups using real-world data

Authors: Rasmus Borup Hansen[1,2], Andreas Geest[1,2], Thomas Leth Jensen[2], Espen Jimenez Solem[1,2], Sanne Møller Thysen[2]

Affiliations
[1]University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark
[2]Department of Clinical Pharmacology, Bispebjerg and Frederiksberg Hospital

Background and aim
Furosemide has hyperlipidemia and hypertriglyceridemia listed as common (1-10%) and very common (<10%) adverse drug reactions (ADRs). However, these estimates are based on small, inconclusive clinical trials, highlighting the need for real-world evidence. This study aims to estimate the incidence of hyperlipidemia and hypertriglyceridemia following furosemide initiation and to identify groups at risk of these ADRs.

Methods
We will conduct a nationwide register-based cohort study including all new furosemide users between 2008-2023. The primary outcomes are new-onset hyperlipidemia and hypertriglyceridemia within 180 days of furosemide initiation. Bendroflumethiazide users will serve as an active comparator group. Poisson regression with inverse probability of treatment weighting will be applied to estimate adjusted incidence rate ratios (IRRs). Subgroup analyses will be performed by age, sex, and type 2 diabetes.

Results
Analyses are ongoing. Results will be ready to be presented at Lassendagen.

Conclusion
The results will offer new insight into the actual risk of hyperlipidemia and hypertriglyceridemia associated with furosemide, while also identifying patient groups at increased risk of developing these ADRs.

Recall pain ratings as a marker of the total pain burden

Markus Kien Trung Nguyen[1], MSc Med, ckj679@alumni.ku.dk ,Pernille Bjersand Sunde[1], MD, PhD-student, Trang Xuan Minh Tran[1], MSc Med, BA Psych, Ole Mathiesen[2,3], MD, PhD, Professor, Markus Harboe Olsen[4,5], MD, PhD, Anders Peder Højer Karlsen[1,2] , MD, PhD, Assoc. Professor.

[1] Department of Anaesthesia and Intensive Care, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark
[2] Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark
[3] Centre for Anaesthesiological Research, Department of Anaesthesiology, Zealand University Hospital, Lykkebaekvej 1, Koege, Denmark
[4] Copenhagen Trial Unit, Centre for Clinical Intervention Research, The Capital Region, Copenhagen University Hospital – Rigshospitalet, Copenhagen, Denmark
[5] Department of Neuroanaesthesiology, Neuroscience Centre, Copenhagen University Hospital – Rigshospitalet, Copenhagen, Denmark

Introduction
Postoperative pain management is essential but resource intensive. Recalled pain ratings may offer a feasible alternative if they reflect the total pain burden. Previous studies suggest recall accuracy declines over time. This study investigates if recalled pain at PACU discharge reflects the total pain burden (AUC) and worst pain and how recall accuracy changes over time.

Methods
This STROBE-compliant retrospective sub study was embedded in a larger observational cohort and its pilot study. Adults undergoing surgery under general anesthesia with ≥3 PACU pain assessments and ≥1 recalled pain rating were included. Recalled pain ratings were collected at PACU discharge, postoperative day (POD) 1, and POD14. The primary outcome was the absolute difference (ΔNRS) between recalled mean pain and AUC for real-time PACU scores; the secondary outcome was ΔNRS between recalled and maximum PACU pain. The minimal clinically important difference (MCID) was defined as ≥1 NRS point.

Results
Of 815 patients assessed, 606 met inclusion criteria. For mean recalled pain, ΔNRS was 0.84 at discharge, 1.25 at POD1, and 1.51 at POD14, with 66.6% to 44.7% below MCID. For worst pain, ΔNRS was 0.58, 1.29, and 1.69, with 61.9% to 29.6% below MCID. Actual mean differences were near zero across time points.

Conclusion
Recalled pain ratings were clinically acceptable at discharge but declined over time. On a cohort level, recall remained consistent, indicating discharge recall can represent individual PACU pain, while in larger cohorts, recalled ratings up to day 14 can approximate the group's overall pain burden.

Figure:

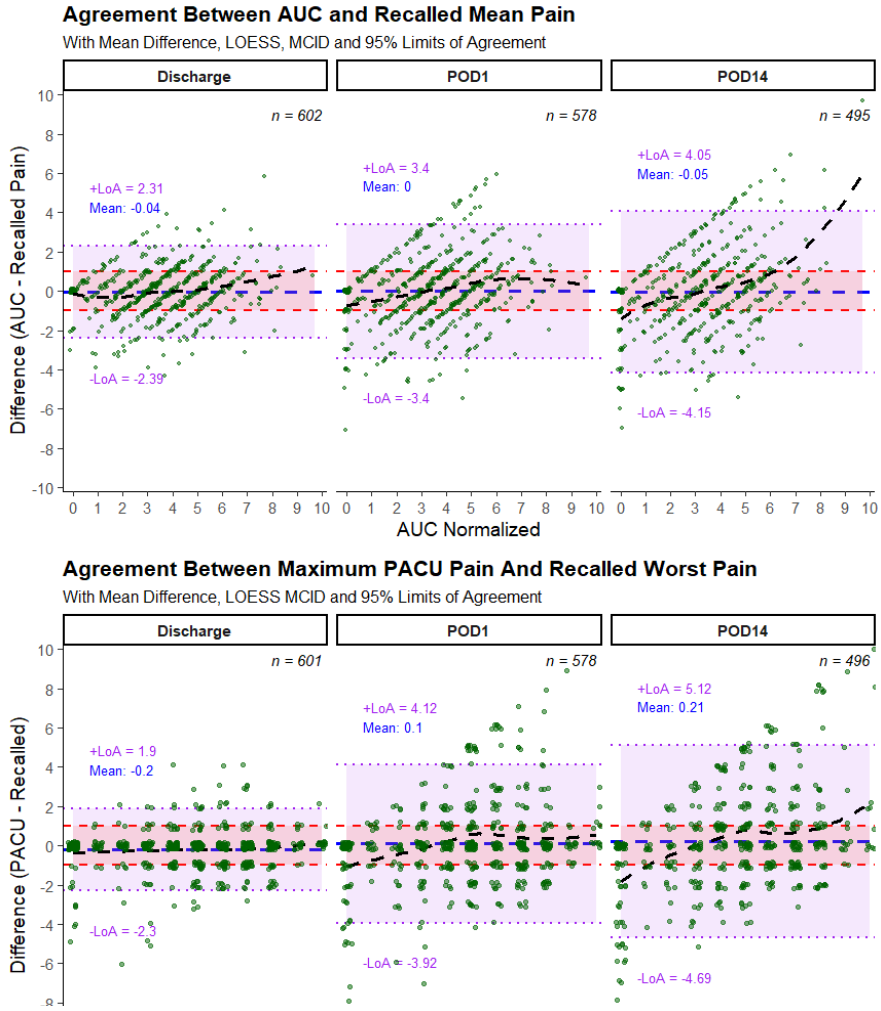


Table:

		Absolute Difference			Actual Difference		
Time	Delta NRS	95CI	95RI	Percentage <1 NRS Difference	Mean Difference	95 CI	95RI
Recalled Mean Pain							
Discharge (n = 602)	0.84	[0.77-0.91]	[0-3.19]	66.61	-0.04	[-0.13-0.06]	[-2.61-2.45]
POD1 (n= 578)	1.25	[1.15-1.35]	[0-4.5]	51.73	0.00	[-0.14-0.14]	[-3.87-3.72]
POD14 (n= 495)	1.51	[1.39-1.64]	[0-5]	44.65	-0.05	[-0.23-0.14]	[-4.3-4.53]
Recalled Worst Pain							
Discharge (n = 601)	0.58	[0.51-0.66]	[0-3]	61.90	-0.20	[-0.29--0.11]	[-3-2]
POD1 (n= 578)	1.29	[1.16-1.42]	[0-6]	40.83	0.10	[-0.07-0.27]	[-4-5]
POD14 (n= 496)	1.69	[1.53-1.85]	[0-6.62]	29.64	0.21	[-0.01-0.43]	[-4.62-6]

The Circulatory effects of endotheliopathy in community acquired pneumonia

Charlotte Wikenhauser[1], Martin Schønemann-Lund[2], Morten H. Bestle[2, 4], Birgitte Lindegaard[3, 4], Theis S. Itenov1, 4

[1]: Department of Anaesthesia and Intensive Care, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark [2]: Department of Anaesthesia and Intensive Care, Copenhagen University Hospital-North Zealand, Hillerød, Denmark.
[3]: Department of Pulmonary and Infectious Diseases, Copenhagen University Hospital-North Zealand, Hillerød, Denmark.
[4]: Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.

Aim

During acute infections including community acquired pneumonia (CAP), damage of the cardiovascular endothelium has been to contribute to circulatory failure.[1] We aimed to investigate if endothelial damage was independently associated with severity and duration of circulatory failure in patients with CAP.[2, 3]

Methods and Materials

This prospective cohort study included adult patients in the emergency department at North Zealand Hospital (Hillerød) with CAP through 2019 - 2024. At inclusion, levels of endothelial biomarkers (soluble thrombomodulin (sTM) and Syndecan-1) were measured to assess baseline endotheliopathy. The primary outcome was baseline circulatory status defined as heart rate (HR), systolic/diastolic blood pressure and plasma lactate. The secondary outcome was change in circulatory status day one through five. The association was assessed with linear regression and mixed model linear regression respectively, adjusted for gender, age, diabetes, arteriosclerosis and chronic kidney disease.

Results

We included in total 940 patients. Median baseline concentration for sTM was 5.3 ng/ml (inter quartile range (IQR) 2.8-9.6) and a median level of Syndecan-1 of 40.4 ng/ml (IQR 24.5-78.5). Higher sTM levels were associated with lower systolic blood pressure (-0.03 mmHg / increase in sTM (95%-CI -0.06 to 0.01; P <0.001)). No other cardiovascular measures were associated with endotheliopathy (Table 1). We found no effect of endotheliopathy on change in cardiovascular status over days 1-5, Table 2 and Figure 1.

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Conclusion

Endotheliopathy was not consistently correlated with cardiovascular status. These findings suggest that endotheliopathy does not contribute to circulatory failure in unselected patients with CAP.

Tabel 1: Baseline endotheliopathy and circulatory status at admission (linear model)

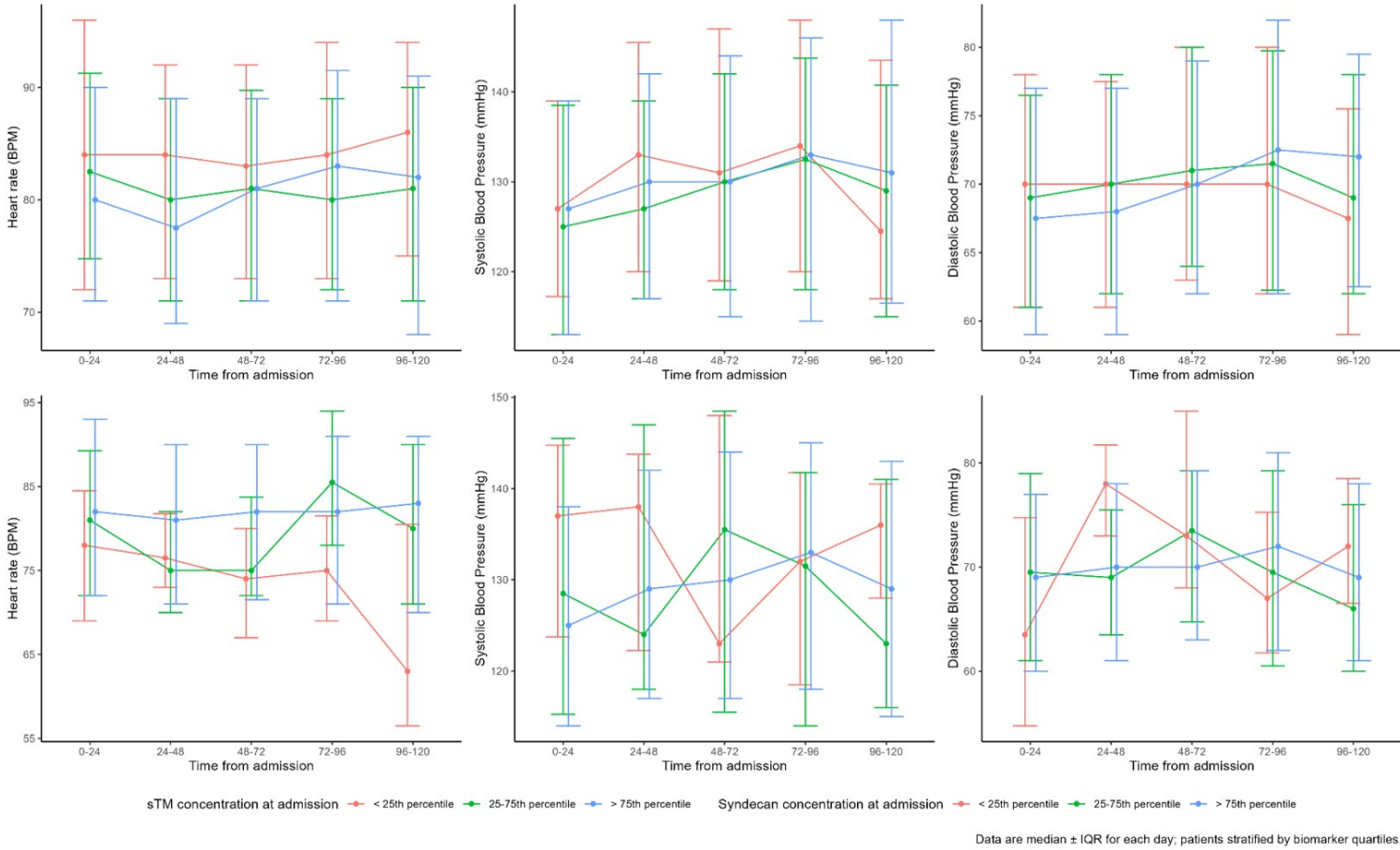
	Univariate			Multivariate		
	Beta	**95% CI**	**p-value**	**Beta**	**95% CI**	**p-value**
Syndecan-1						
Heart Rate	-0.06	-0.26, 0.14	0.5	-0.03	-0.25, 0.18	0.8
Systolic bloodpressure	-0.04	-0.06, -0.02	**<0.001**	-0.03	-0.06, -0.01	**0.005**
Diastolic bloodpressure	0.01	-0.01, 0.02	0.5	0.00	-0.02, 0.01	0.6
Lactate	0.00	0.00, 0.00	0.1	0.00	0.00, 0.00	0.2
Soluble Thrombomodulin						
Heart Rate	-0.06	-0.26, 0.14	0.5	-0.03	-0.25, 0.18	0.8
Systolic bloodpressure	-0.21	-0.44, 0.02	0.07	-0.15	-0.39, 0.10	0.2
Diastolic bloodpressure	-0.22	-0.37, -0.06	**0.007**	-0.11	-0.28, 0.05	0.2
Lactate	0.01	0.00, 0.02	0.2	0.02	-0.01, 0.02	0.3

Tabel 2: Baseline endotheliopathy and circulatory status day 1-5 (multivariate)

Group	Characteristic	p-value
sTM vs. HR	Time[1]	0.079
	sTM[2]	0.6
	Interaction time / sTM[3]	0.6
Syndecan vs. HR	Time	**0.032**
	Syndecan	0.4
	Interaction time / Syndecan	0.3
sTM vs. sBP	Time	**0.025**
	sTM	0.2
	Interaction time / sTM	0.4
Syndecan vs. sBP	Time	**0.027**
	Syndecan	0.052
	Interaction time / Syndecan	0.2
sTM vs. dBP	Time	0.10
	sTM	0.3
	Interaction time / sTM	0.4
Syndecan vs. dBP	Time	0.087
	Syndecan	0.6
	Interaction time / Syndecan	0.3

[1] = Change in biomarker concentration over time.
[2] = Parallel displacement during the 5 days of a specific biomarker
[3] = Describes whether biomarker concentration is time dependent or not.

Figur 1: Change in cardiovascular status day 1-5



Data are median ± IQR for each day; patients stratified by biomarker quartiles.

Trajectories of body mass index in childhood and childlessness in women

Dorthe C. Pedersen[1], Julie Aarestrup[1], Lise G. Bjerregaard[1], Elisabeth W. Andersen[1], Allan Jensen[2], Susanne K. Kjær[2,3], Petur B. Juliusson[4,5], Kathleen M. Rasmussen[6], Jennifer L. Baker[1]

[1] Center for Clinical Research and Prevention, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

[2] Virus, Lifestyle and Genes, Danish Cancer Institute, Copenhagen, Denmark

[3] Department of Gynecology, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark

[4] Department of Health Registry Research and Development, National Institute of Public Health, Bergen, Norway

[5] Department of Clinical Science, University of Bergen, Bergen, Norway

[6] Division of Nutritional Sciences, Cornell University, Ithaca, NY, USA

Keywords: Childhood body mass index, childlessness, cohort study, trajectories

Background and aim

Overweight and obesity among women are associated with a lower reproductive capacity, but links with body size earlier in life are underexplored. We investigated whether trajectories of body mass index (BMI) across childhood were associated with childlessness in women.

Material and Methods

We included 67,329 women (born 1950-1989) from the Copenhagen School Health Records Register with information on measured heights and weights at ages 6-15 years. Using latent class trajectory modeling, we identified five distinct childhood BMI trajectories: below-average, average, above-average, overweight, and obesity. Women giving birth at ages 20-45 years were identified in the Danish Medical Birth Register during 1977-2022. Hazard ratios (HR) and 95% confidence intervals (CI) were estimated using Cox regression models.

Results

During follow-up, 16,158 (24%) women were identified as never having children. Compared with women with the average BMI trajectory (37%), women with the overweight (12%) or obesity (4%) BMI trajectories in childhood had lower hazards of giving birth (HR=0.90 [95% CI: 0.87-0.93] and HR=0.79 [0.75-0.83]), respectively. Women with the below- (22%) or above-average (25%) BMI trajectories in childhood had similar hazards of giving birth (HR=0.97 [0.95-1.00] and HR=0.97 [0.95-1.00], respectively), as women with the average BMI trajectory.

Conclusion

Our results showed that having a high BMI trajectory in childhood is associated with childlessness in adulthood. Although our results suggest that childhood may be an important period for the establishment of reproductive capacity, we cannot rule out social effects of overweight and obesity in relation to later marriage-patterns.

Title: Identifying Probable Sarcopenia in Hospitalized Older Patients: Disagreement between European (EWGSOP2) and Danish Normative Cut-offs

Authors: Pernille Hansen,[1] Hanne Nygaard,[2] Camilla Kampp Zilmer,[3] Rasmus Gregersen Mottlau,[2,4] Mette Aadahl,[4,5] Charlotte Suetta,[1,5] Christian Have Dall,[3,5] Morten Tange Kristensen,[3,5]
[1]Geriatric Research Unit, Department of Geriatric and Palliative Medicine
[2]Department of Emergency Medicine
[3]Department of Physical and Occupational Therapy
[4]Center for Clinical Research and Prevention, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark
[5]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark

Background
"Probable sarcopenia", defined by low muscle strength, is highly prevalent in hospitalized older patients and associated with falls, functional decline, and prolonged hospital stay. Muscle strength is often assessed by handgrip strength (HGS). However, it remains uncertain whether to use European standards (EWGSOP2) or local normative data as cut-offs. Accordingly, we compared the proportion of probable sarcopenia using EWGSOP2-HGS cut-offs versus Danish normative reference data in older patients.

Material and Methods
A cross-sectional study of patients aged ≥60 years admitted to medical and surgical wards at Bispebjerg Hospital were included over one year. Low HGS was defined by EWGSOP2 as <16 kg (women) and <27 kg (men), and Danish sex- and age-specific normative data (<–1 SD of average).

Results
In total, 2178 patients (mean age 78.2±8.9; 1230 women, 948 men) were included. Using EWGSOP2 cut-offs, probable sarcopenia was identified in 39% women and 41% men, whereas Danish normative data classified 43% and 48% as having low muscle strength, respectively. Among patients aged 60–79 years, EWGSOP2 identified fewer with probable sarcopenia than normative data (women: 22% vs. 40%; men: 29% vs. 51%), whereas in those aged ≥80 years, EWGSOP2 identified more (women: 55% vs. 47%; men: 60% vs. 43%).

Conclusion
EWGSOP2-HGS cut-offs potentially underestimates probable sarcopenia in hospitalized older patients aged 60-79 years compared to normative data, while the opposite trend appears for patients ≥80 years. Further validation is needed to establish more precise cut-offs, which may enhance early detection of at-risk patients and support tailored rehabilitation strategies.

Impact of smoking and obesity on reintervention for complications after open elective umbilical hernia repair – A nationwide study

Jeppe Fredberg[1], Erling Oma[1], Frederik Helgstrand[2], Lars Nannestad Jørgensen[1]

1. Digestive Disease Center, Bispebjerg Hospital, University of Copenhagen, Copenhagen, Denmark

2. Department of Surgery, Zealand University Hospital, Køge, Denmark

Background

There is little solid data on the impact of obesity, smoking and repair techniques on reinterventions for complications following elective primary umbilical hernia repair (UHR).

Material and Methods

This was a nationwide study through nationwide registries and scrutiny of medical files of patients who underwent UHR from 2017 to 2020. Follow-up was December 2023. Primary and secondary outcomes were the impact of smoking and obesity (body-mass-index (BMI)>30kg/m^2) on reoperation for recurrence and other complications, respectively. Cause-specific hazard regressions were adjusted for sex, age, hernia size, BMI (smoking-analysis) and smoking (obesity-analysis).

Results

Among 3,248 patients included, 74.0% underwent mesh-repair. In total, 565(17.4%) were smokers and 817(25.2%) were obese. Follow-up was 99.9%, median 4.8 years. Reoperation after mesh repair was less frequent in non-smokers (hazard-ratio 0.61(0.41 to 0.94), p=0.024). Incidence of reoperation was comparable in smokers with mesh repair and patients with suture-repair. The difference between smokers and non-smokers was driven by an increase in non-recurrence complications among smokers with mesh-repair (2.36(1.19-4.68), p=0.014). Operation for hernia recurrence was similarly prevented by mesh repair among smokers and non-smokers (0.27(0.08-0.92), p=0.037 vs. 0.34(0.18-0.65), p=0.001). Obesity was associated with an increase in non-recurrence complications (2.25(1.17-4.34), p=0.016). Operation for recurrence was similarly reduced by mesh repair among obese and non-obese patients (0.27(0.10-0.75), p=0.012 vs. 0.39(0.21-0.74), p=0.004).

Conclusions

Mesh repair is effective in reducing operations for recurrence across all demographic variables. The trade-off of mesh repair was an increase of operations for non-recurrence complications among smokers and obese, thereby increasing their overall risk of reinterventions.

Mapping inequality of depression in Denmark: Results from a register-based multilevel study across Danish municipalities between 2012-2023

Marie B Raft (1,2), Terese SH Jørgensen (2,3), Jan Renneberg (1), Christina F Lassen (1), Anders Jørgensen (4, 5), Martin B Jørgensen (4, 5), Merete Osler (2).

(1) Department for Social Medicine, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
(2) Center for Clinical Research and Prevention, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
(3) Institute of Public Health, University of Copenhagen, Denmark
(4) Psychiatric Center Copenhagen, Mental Health Services, Copenhagen, Denmark
(5) Department of Clinical Medicine, University of Copenhagen, Denmark.

Introduction
Depression is the most common mental disorder worldwide, yet its distribution is uneven across populations and places. Understanding how local socioeconomic conditions influence the risk of being diagnosed or treated for depression may inform strategies to address geographic inequalities in mental health. This study examined the geographical distribution of recognized incident depression across Danish municipalities and assessed the association between municipality-level socioeconomic disadvantage and depression.

Method
Using nationwide register data, we followed 5.6 million adults (2012–2023). We assessed two outcomes to identify incident depression cases: first-time antidepressant prescriptions (antidepressants) and hospital-based depression diagnoses (diagnoses). Hazard ratios (HRs) were estimated for (1) antidepressants and diagnoses across municipalities and (2) antidepressants and diagnoses across four municipality-level indicators of disadvantage. Multilevel models accounted for individuals (level 1) nested within municipalities (level 2) and were adjusted for individual socioeconomic position (SEP).

Results
Depression risk varied across municipalities in a spatially detectable pattern. In some municipalities, HRs for antidepressants and diagnoses conflicted, showing higher HRs for one outcome but lower for the other. Multilevel models showed higher HRs for antidepressants in municipalities with lower socioeconomic indicators. The strongest association was for municipalities with a high proportion of residents with short education (HR 1.15, 95% CI 1.09–1.21).

Conclusion
Municipalities with socioeconomic disadvantage had higher antidepressant prescription rates without corresponding increases in hospital diagnoses. These findings suggest that local social resources, rather than differences in disease severity, may influence treatment pathways for depression, highlighting the importance of considering contextual factors in mental health policy.

The association between paraclinical and clinical examinations in patellar tendinopathy following 12 weeks of strength training – a secondary analysis

Frederik Kronvold Nielsen[1,3], Mikkel Holm Hjortshøj[1,3], René B. Svensson[1,6], Peter Schjerling[1], Robert Herzog[3], Mathilde Lundgaard-Nielsen[3], Philip Hansen[7], Jesper Petersen[1,2], Per Aagaard[4], Michael Kjær[1,2], Stig Peter Magnusson[1,2,3], Christian Couppé[1,2,3,5].

1. Institute of Sports Medicine Copenhagen, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark
2. Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark
3. Department of Physical and Occupational Therapy, Bispebjerg and Frederiksberg University Hospital, Copenhagen Denmark
4. Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark
5. BIND-Behavioral Imaging and Neural Dynamics Center, University "G.d'Annunzio" of Chieti-Pescara, Chieti, Italy
6. Center for Fast Ultrasound Imaging, Department of Health Technology, Technical University of Denmark, Lyngby, Denmark
7. Department of Radiology, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark

Introduction

The prognostic role of imaging structural parameters within the patellar tendon and infrapatellar fat pad (IFP) in estimating clinical outcomes remains unclear in patellar tendinopathy (PT) patients. This study investigated the prognostic value of baseline structural imaging parameters of the patellar tendon and IFP in PT, and their association with changes in clinical outcomes following 12-weeks of exercise.

Material and methods

This secondary analysis of RCT data included 35 men with unilateral PT, randomized into two 12-week exercise programs. Participants underwent magnetic resonance imaging (MRI), ultrasonography (thickness, echogenicity, power Doppler area [PDA]) and clinical test (Single Leg Decline squat (SLDS), function and symptoms (Victorian Institute of Sports Assessment – Patella (VISA-P), maximal tendon pain (Visual Analog Scale, VAS) during physical activity at baseline and after 12 weeks. Imaging analysis were performed in ITK-Snap and ImageJ.

Results

A larger baseline IFP volume on MRI was associated with positive improvements in VISA-P (β=65.14, R^2=0.13, p=0.04), NRS during SLDS (β=-9.84, R^2=0.14, p=0.01), and maximal pain during physical activity (β=-193.79, R^2=0.14, p=0.01). A larger baseline distal thickness of the patellar tendon was associated with positive improvements in VISA-P (β=22.79, R^2=0.10, p=0.04). Reduced PDA at baseline was associated with positive improvements in VISA-P (β=-0.36, R^2=0.07, p<0.001) and maximal pain during physical activity (β=0.54, R^2=0.07, p=0.002).

Conclusion

This prospective cohort study suggests that baseline patellar tendon (PDA and distal thickness) and IFP (volume) imaging parameters may predict positive clinical outcomes in PT patients following 12 weeks of exercise, with IFP parameters representing the most novel finding.

Suppression of plasma angiotensin II by GLP-1 infusion in healthy humans occurs with no change in plasma concentrations of angiotensinogen, ACE2, and Ang1-7

Muskaan Akram[1], Jesper K Andresen[2], Boye L Jensen[2], Ali Asmar[1,3]

[1]Department of Clinical Physiology and Nuclear Medicine, Bispebjerg and Frederiksberg Hospital, University Hospital of Copenhagen, Copenhagen, Denmark
[2]Department of Cardiovascular and Renal Research, Institute of Molecular Medicine, University of Southern Denmark, Odense, Denmark
[3]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University Hospital of Copenhagen, Copenhagen, Denmark

Background

GLP-1 elicits cardiovascular and renal protection. In humans, GLP-1 reduces plasma angiotensin II (ANGII) and increases renal perfusion, leading to increased natriuresis. The mechanisms underlying this selective suppression of ANGII remain unclear but may involve ACE2 activation and/or decrease in angiotensinogen (renin substrate).

Methods

To address the hypothesis, we performed *post hoc* analyses on stored arterial plasma samples from a published study (1). Using a randomized, placebo-controlled, cross-over design in which eight healthy men were on standardized sodium intake for 4 days and in steady state. Participants were examined during a 3-hour infusion of GLP-1 (1.5 pmol/kg/min) or vehicle together with an intravenous infusion of 0.9% NaCl (750 mL/h) to expand the extracellular volume (ECV). Renal uptake and release of hormones, peptides, and ions were measured via Fick's Principle with a catheter placed in the renal vein and radial artery.

Results

As published, GLP-1 infusion increased urinary sodium significantly (2-fold), plasma renin levels decreased similarly, and ANGII levels decreased significantly only during GLP-1 infusion. Circulating angiotensinogen levels decreased similarly (parallel to renin levels) during GLP-1 and vehicle probably due to the ECV expansion on both days. Circulating ACE2 levels remained unchanged during infusions of saline with and without GLP-1. Consistent with this, circulating ANG1-7 peptide levels did not change with infusions of saline with and without GLP-1.

Conclusions

GLP-1 does not have selective suppressive effects on angiotensinogen available for cleavage by renin. Also, the unchanged levels of ACE2 and Ang1-7 indicate no increased degradation of ANGII along this pathway.

1. Asmar A et al. Extracellular fluid volume expansion uncovers a natriuretic action of GLP-1: a functional GLP-1-renal axis in man. *J Clin Endocrinol Metab.* 2019 Jul 1;104(7):2509-2519.

Extended restitution time does not enhance the benefits of 12 weeks exercise-based treatment for patellar tendinopathy: A Randomized Controlled Clinical Trial (The TEREX trial)

Authors:
Anne-Sofie Agergaard, PT, PhD [1,2], Rene B. Svensson, PhD [1,3], Rikke Hoeffner, PT, PhD [1,2]
Syed Zahra Gillani, PT, MSc[1], S. Peter Magnusson, PT, DMSc [1,2]

Affiliations:
1. Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark & Center for Healthy Aging, Department of Clinical Medicine, University, University of Copenhagen, Denmark.
2. Department of Physical and Occupational Therapy, Bispebjerg and Frederiksberg University Hospital, Copenhagen, Denmark.
3. Center for Fast Ultrasound Imaging, Department of Health Technology, Technical University of Denmark, Lyngby, Denmark

Background

Loading intervention is the predominant treatment strategy for tendinopathy and tendon tissue responses may depend on the restitution time between loading exposure.

Purpose

To investigate if the outcome of a 12-week exercise-based rehabilitation regime for patellar tendinopathy is influenced by restitution time.

Methods

Fifty-two participants with chronic patellar tendinopathy were included and randomized to a short restitution group (SR, 3 exercise days per week), or an extended restitution group (ER, 1 exercise day per week), with impact activities restricted in both groups. Function and symptoms (VISA-P), tendon pain during activity (NRS), tendon function (functional tests), and ultrasound (tendon vascularization and swelling) were assessed before and after the 12-week intervention period. Self-reported improvement from baseline and satisfaction with function and treatment were measured at week 12.

Results

ER was not superior to SR for any of the measured outcomes. Both the SR and ER group attained significant improvements for the measured clinical outcomes and in muscular strength. Conversely there were no improvements in jumping height or tendon structure. Moreover, there were no group difference in self-reported improvement or satisfaction with function or treatment at week 12.

Conclusion

There was no superior effect of 1 exercise day per week (ER) compared to 3 exercise days per week (SR). Both groups demonstrated equal clinical and muscular strength improvement after 12 weeks without a significant improvement in structure or jumping performance. Moreover, there were no group differences in self-reported improvement from baseline at week 12 or satisfaction with function or treatment at week 12.

Renal hemodynamics in humans measured using Fick's Principle with the ^{99m}Tc-DTPA tracer

Carina V Christensen[1], Anna B Bomholt[1,2], Ali Asmar[1,3]

[1]Department of Clinical Physiology and Nuclear Medicine, Bispebjerg and Frederiksberg Hospital, Copenhagen University Hospital, Copenhagen, Denmark
[2]Department of Biomedical Sciences, Faculty of Health and Medical Sciences, University Hospital of Copenhagen, Copenhagen, Denmark
[3]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University Hospital of Copenhagen, Copenhagen, Denmark

Background

Accurate measurements of renal plasma flow (RPF) and glomerular filtration rate (GFR) are essential for assessing kidney function. In 2018, the production of ^{51}Cr-EDTA, a validated and widely used tracer for measuring RPF and GFR, was halted. DTPA is structurally very similar to EDTA and can be labelled ^{99m}Tc-DTPA – a tracer, validated for GFR measurement with a single bolus injection used in a clinical setting.
In acute human studies, Fick's Principle remains gold standard for assessing renal hemodynamics, enabling a high time resolution.
This study aimed to determine the time required for the kidneys to reach steady state during ^{99m}Tc-DTPA infusion, using the same ratio of primer to infusion as for ^{51}Cr-EDTA.

Methods

Eight healthy men were examined under fixed sodium intake and in steady state. RPF and GFR were measured by Fick's Principle after catheterization of a renal vein and a radial artery, using ^{99m}Tc-DTPA as indicator. An intravenous bolus injection (56 ± 1 MBq) in 2 mL of 0.9% NaCl was given, followed by intravenous infusion (15 MBq/h for 6 hours) in 0.9% NaCl (10 mL/h). Renal venous and arterial blood samples were drawn simultaneously every 20 minutes throughout the experiments.

Results

All participants completed the salt standardized diet for 4 days confirmed by 24-hour urine collections. Arterial steady state plasma levels of ^{99m}Tc-DTPA were achieved after ˜120 minutes comparable to previous identical experimental conditions, using ^{51}Cr-EDTA.

Conclusion

We conclude that ^{99m}Tc-DTPA is a reliable alternative to ^{51}Cr-EDTA for continuous RPF and GFR measurements, using Fick's Principle.

The effects of glucose-dependent insulinotropic polypeptide on net splanchnic blood flow in lean humans

Meena Asmar[1], Jens Bülow[1], Lene Simonsen[1], Jens Juul Holst[2], Ali Asmar[1,3]

[1]Department of Clinical Physiology and Nuclear Medicine, Bispebjerg and Frederiksberg Hospital, Copenhagen University Hospital, Copenhagen, Denmark
[2]NNF Center for Basic Metabolic Research, University of Copenhagen, Copenhagen, Denmark
[3]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University Hospital of Copenhagen, Copenhagen, Denmark

Background

Glucose-dependent insulinotropic polypeptide (GIP) in combination with hyperinsulinemia increases blood flow (5-fold) and triglyceride clearance in subcutaneous abdominal adipose tissue in lean humans. The aim of this study was to examine the effect of GIP on hepatic blood flow, both independently and in combination with hyperglycemia and hyperinsulinemia.

Methods

In a randomized, controlled, crossover trial, eight healthy lean male participants underwent four separate experimental conditions. Splanchnic blood flow was measured by Fick's Principle after catheterization of a hepatic vein and radial artery, using indocyanine green as indicator. The interventions included intravenous infusions of either GIP at a rate of 1.5 pmol/kg/min or saline, administered alone or in combination with a hyperglycemia and hyperinsulinemia clamp, respectively.

Results

Splanchnic blood flow increased comparably across all experimental conditions, with no significant differences observed between the GIP and saline infusions or in the context of combined hyperglycemia and hyperinsulinemia.

Conclusion

Under the applied conditions, GIP does not appear to play a substantial role in the acute regulation of net splanchnic blood flow, either alone or in combination with induced hyperglycemia and hyperinsulinemia.

There is no valid PROM for patellofemoral instability, causing uncertain measurement for these patients: a COSMIN evaluation of 26 PROMs

MD, PhD-student Ebrahim Rahdi[1], MD Jonas Hammershøy, MD, PhD, Prof. Michael Rindom Krogsgaard[1,2,3], MD, PhD, Prof. Kristoffer Weisskirchner Barfod[1,2], MD, PhD, Christian Fugl Hansen[1]

[1] Section for Sport Traumatology, Department of Orthopedic Surgery, Bispebjerg and Frederiksberg Hospital, Copenhagen University Hospital, Copenhagen, Denmark

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

[3] Institute of Sports Medicine, Department of Orthopedic Surgery, Bispebjerg and Frederiksberg Hospital, Copenhagen University Hospital, Copenhagen, Denmark **Objectives**

Content validity is the most essential property of patient-reported outcome measures (PROMs), as items and subscales define what is measured. For patellofemoral instability (PFI), various PROMs have been used, but their content quality has never been systematically assessed. This study aimed to evaluate the content validity of PROMs used in PFI using the COSMIN checklist, the current gold standard for assessing measurement properties.

Methods

A PubMed and EMBASE search string was built using the COSMIN algorithm to identify PROMs either developed for or used for PFI. 37 PROMs were identified. A second search retrieved their development and content validity studies. Ten predefined COSMIN standards for PROM development were rated as very good, adequate, doubtful, or inadequate, by two independent reviewers.

Results

The initial search yielded 1,600 records, of which 1,137 were full-text screened. 11 PROMs were excluded, and 26 PROMs were analyzed. The most frequently used PROMs were the Kujala score (255 studies), IKDC (110), BANFF 2.0 (38), and NPI (18), all rated ‘inadequate’. Of the remaining PROMs, the KOOS-Child was rated "doubtful" while all others were "inadequate". No subsequent content validity studies were identified. The inadequate ratings were primarily due to insufficient involvement of patients with PFI during the development process.

Conclusion

According to COSMIN standards, no existing PROM demonstrates adequate content validity for PFI. It remains unclear what these measures truly capture, and they cannot be relied upon to reflect patients’ perspectives. Development of a new PROM specifically for PFI is therefore strongly recommended.

Development of an Item Bank for Patellofemoral Instability

MD, PhD-student Ebrahim Rahdi[1], MD, PhD, Christian Fugl Hansen[1], MD, PhD, Prof. Kristoffer Weisskirchner Barfod[1,2], MD, PhD, Prof. Michael Rindom Krogsgaard[1,2,3]

[1] Section for Sport Traumatology, Department of Orthopedic Surgery, Bispebjerg and Frederiksberg Hospital, Copenhagen University Hospital, Copenhagen, Denmark
[2] Department of Clinical Medicine, University of Copenhagen, Denmark
[3] Institute of Sports Medicine, Department of Orthopedic Surgery, Bispebjerg and Frederiksberg Hospital, Copenhagen University Hospital, Copenhagen, Denmark

Objectives

Patient-reported outcome measures (PROMs) capture patients' perspectives on symptoms, function, and participation in daily life. For patellofemoral instability (PFI), only few condition-specific PROMs exist, and they lack sufficient content relevance and comprehensiveness, leaving key aspects of the patient experience underrepresented. The first step toward developing a valid PROM for PFI is to establish an item bank. This study aimed to identify PROMs used in PFI research, extract their items, and classify them according to the International Classification of Functioning, Disability and Health (ICF) model to develop such an item bank.

Methods

A comprehensive literature search was conducted in MEDLINE (via PubMed), EMBASE (Ovid), CINAHL, and PEDro to identify studies that have used PROMs to evaluate patients with PFI. PROMs applied as outcomes were extracted, and their items were retrieved from original publications or supplementary sources. Items were categorized by two independent observers according to the ICF model: Impairment (symptoms), Activity (daily living and sport/recreation), and Participation (psychosocial). Redundant items, and items with overlapping content were condensed into representative formulations through consensus between the two observers.

Results

The literature search resulted in 3,284 records, of which 252 articles were included. Across these studies, 60 PROMs were identified, providing a total of 788 individual items. Following the condensation process, the item bank was reduced to 214 items.

Conclusion

This study established an item bank for PFI, based on PROMs used for PFI. The resulting item bank is ready to be used during the development of a new condition-specific PROM for PFI.

Occupational exposure to endotoxins and the risk of incident acute myocardial infarction

Regitze Sølling Wils[1], Esben Meulengracht Flachs[1], Vivi Schlünssen[2], Hans Kromhout[3], Henrik A. Kolstad[4,5], Ioannis Basinas[6], Nikoline Leo Fleischer[1], Zara Ann Stokholm[4], Jens Peter Bonde[1]

[1] Department of Occupational and Environmental Medicine, Bispebjerg Hospital, Copenhagen, Denmark
[2] Department of Public Health, Danish Ramazzini Centre, Aarhus University, Aarhus, Denmark
[3] Institute for Risk Assessment Sciences, Utrecht University, Utrecht, The Netherlands
[4] Department of Occupational Medicine, Aarhus University Hospital, Aarhus, Denmark
[5] Institute of Clinical Medicine, Aarhus University, Aarhus, DK
[6] School of health Sciences, The University of Manchester, Manchester, UK

Objectives

The aim of the study was to investigate the association between exposure to endotoxins at work and first-time acute myocardial infarction (AMI).

Methods

The study is based on register data on occupation, health, and sociodemographic factors in the Danish working population (DOC*X Dust cohort, n =903.415). Throughout the period of 1976-2017, annual job information was linked to exposure estimates of endotoxins obtained from a quantitative job exposure matrix, based on measurements in mainly animal farmers. Incidence rate ratios (IRR) for AMI were computed through Poisson regression, adjusting for sex, age, socio-economic factors, and other exposures.

Results

During the follow-up period, comprising almost 20 million person-years, 35.511 AMIs occurred. Within the study population, 60,360 individuals had been exposed to endotoxins at work. In the fully adjusted model assessing cumulative exposure to endotoxin, the preliminary analysis showed a reduced IRR in all of the quartiles of exposure. The analysis of recent exposure showed similar results. However, when limiting the analysis of recent exposure to endotoxin-exposed only, we found a higher IRR for AMI in the two highest exposure quartiles (Q4:IRR=1.35(0.99-1.85)).

Conclusions

These preliminary results did not indicate increased risk of incident AMI by cumulative or recent endotoxin dust exposure. The observed lower IRR may be influenced by confounding factors, as certain occupations with endotoxin exposure—such as farming—are often associated with healthier lifestyles. The results from the analysis of endotoxin-exposed only, could suggest some effect of endotoxin, as confounding may be less pronounced in this analysis.

Exposure to PFAS in potential high-risk occupations in Denmark and associations with a plasma marker for oxidative stress

Authors: Marcus Kjær Sørensen[1,2], Linnea Ferm[1], Esben Meulengracht Flachs[1], Regitze Sølling Wils[1, 2], Anne Thoustrup Saber[3], Maria Helena Guerra Andersen[3], Ulla Vogel[3], Johnni Hansen[4], Christian Lindh[5], Marc-André Verner[6], Kajsa Kirstine Ugelvig Petersen[1], Sandra Søgaard Tøttenborg[1, 2]

[1] Department of Occupational and Environmental Medicine, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark

[2] Department of Public Health, Section of Environmental Health, University of Copenhagen, Øster Farimagsgade 5A, DK-1014 Copenhagen K, Denmark.

[3] The National Research Centre for the Working Environment – NFA, Lersø Parkallé 105, DK-2100 Copenhagen, Denmark
[4] The Danish Cancer Society, Strandboulevarden 49, DK-2100 Copenhagen, Denmark
[5] Department of Occupational and Environmental Medicine, Applied Mass Spectrometry in Environmental Medicine, Lund University, Sweden
[6] École de Santé Publique, Département de Santé Environnementale et Santé au Travail, Université de Montréal, Canada

Background

Per- and polyfluoroalkyl substances (PFAS) are synthetic chemicals widely used across various industries due to their stability and surface-active properties. In Denmark, tons of PFAS are imported annually for industrial applications. Consequently, these substances are present in chemical work environments, posing a potential exposure risk for employees. While international studies have identified elevated PFAS levels among occupationally exposed workers, research has been limited to a few industries, and fundamental knowledge on PFAS exposure within the Danish occupational context remains lacking. PFAS exposure has been linked to various adverse health effects, including cardiovascular diseases, emphasizing the need for further investigation into occupational exposure levels.

Methods

Based on data from the Product Register, available reports, and scientific literature, five industries with potentially high PFAS exposure in Denmark will be selected. PFAS use will be mapped in relation to specific job functions and working conditions, following clinical guidelines for occupational health assessments. For each industry, 75 employees will be recruited to participate in group studies (N = 375), involving an electronic questionnaire and blood sample collection. Blood samples will be analyzed for 15 PFAS compounds and a sensitive marker of oxidative stress (8-hydroxy-2′-deoxyguanosine). Multiple linear regression will be used to assess associations between individual PFAS and oxidative stress, while combination effects will be examined using quantile-based g-computation.

Results

No results are available yet, as the study has not been initiated.

Conclusion

This study will provide essential knowledge on occupational PFAS exposure in Denmark and strengthen the foundation for evidence-based prevention.

Prognostic value of systemic vascular resistance in acute infection

Rakin Hadad, MD[1]; Emma H. J. Malm, MS[1;] Philip B. Christensen, MD[1]; Umema I. Ahmed, MD[1]: Helena Dominguéz, PhD[1]; Finn Erland Nielsen, DMSc[2,3]; Steen B. Haugaard, DMSc[4]; Ahmad Sajadieh, DMSc[1]

[1]Department of Cardiology, Copenhagen University Hospital of Bispebjerg, Bispebjerg Bakke 23, Copenhagen NV 2400, Denmark
[2] Department of Emergency Medicine, Copenhagen University Hospital of Bispebjerg, Bispebjerg Bakke 23, Copenhagen NV 2400, Denmark
[3]Department of Clinical Medicine – Department of Clinical Epidemiology, Aarhus University Hospital, Olof Palmes Allé 43-45, 8200 Aarhus N, Denmark
[4]Department of Endocrinology, Copenhagen University Hospital of Bispebjerg, Bispebjerg Bakke 23, Copenhagen NV 2400, Denmark

Abstract

Background

We investigated whether hemodynamic parameters measured in the acute phase of infections predicts adverse outcomes.

Material and methods

We studied 942 patients admitted acutely to the medical emergency room between 2021-2023. Patients were evaluated by physical examination, laboratory-testing, and non-invasive hemodynamic evaluation using pulse-contour methodology. Primary outcome was death or unplanned readmission within 3 months after discharge.

Results

Primary outcome was detected in 280 patients (30%). Patients admitted with infectious diseases (n=120, 13%) had higher event rate (42%) than non-infected patients (28%, p=0.005). In a Cox model adjusted for age, sex, and Charlsons comorbidity index, infectious diseases were associated with a higher 3-month rate of death or readmission: Hazard Ratio (HR): 1.51, (95%CI 1.12-2.10), p=0.009. Systemic vascular resistance(SVR) was significantly lower in patients with infectious diseases: (median 827 versus 944 dyn*s/cm^5, p=0.022), which was not compensated by increased cardiac index (3.37 versus 3.35 l/m/m^2,p=0.91). Among patients with infection, low SVR was associated with outcome; with adjusted HR 1.24 (1.01 – 1.51), p=0.02, for each quintile decrease in SVR.

Conclusions

Patients with acute infection exhibit higher rate of death and readmission in the months after an index admission compared to non-infected patients. SVR was significantly reduced in patients with acute infection and was associated with an adverse prognosis.

Prænatal eksponering for polyklorerede bifenyler i boligen og risikoen for neuroudviklingsforstyrrelser samt nedsat kognitiv funktion.

Alberte Brix Curtis[1*], Nikoline Leo Fleischer[1*], Laura Deen[1], Regitze Sølling Wils[1], Sandra Søgaard Tøttenborg[1].

[*]Delt førsteforfatterskab

[1]Arbejds- og Miljømedicinsk Afdeling, Bispebjerg Hospital, København, Danmark

Baggrund

Mange borgere udsættes dagligt for polyklorerede bifenyler (PCB), der fordamper fra byggematerialer til indeluften, til trods for et forbud i 1977. Den eksisterende viden om helbredeffekterne af PCB er primært baseret på højt-kloreret PCB fra kosten med andre formodede virkningsmekanismer end lavt-kloreret PCB i indeluften. Den prænatale periode udgør en særlig sårbar periode over for eksponering, idet lavt-kloreret PCB kan krydse moderkagen og påvirke hjernens udvikling.

Formålet er derfor at undersøge, om prænatal eksponering for PCB i boligen er forbundet med øget risiko for neuroudviklingsforstyrrelserne Attention Deficit Hyperactivity Disorder (ADHD) og autismespektrumforstyrrelser (ASF) samt nedsat kognitiv funktion, målt ved grundskolekarakterer og intelligenskvotient (IQ), hvilket ingen tidligere studier specifikt har undersøgt.

Materiale og metode

Studiepopulationen består af børn født af kvinder, der på et tidspunkt i perioden 3,6 år før undfangelse og indtil fødslen boede i Farum Midtpunkt eller Brøndby Strand Parkerne. Omkring en tredjedel af lejlighederne er bygget med PCB-holdige materialer, mens de resterende lejligheder er bygget med PCB-fri materialer. Derved kan populationer med henholdsvis høj og lav eksponering for PCB i indeluften, som er ens på andre karakteristika såsom baggrundsrisiko, socioøkonomi og livsstil, sammenlignes. PCB-eksponering er baseret på målinger i indeluften og varigheden af moderens bopæl i lejligheden. Data om udfaldene er udtrukket fra forskellige danske registre. Vi vil estimere justerede hazard ratioer for ADHD og ASF ved Cox-regression med tidsvarierende eksponering, og justerede beta-koefficienter for karakterer og IQ ved lineær regression.

Resultater og konklusion

Analyserne er under udarbejdelse og resultaterne vil være klar til præsentationen.

Identifying molecular pathways underlying the influence of mechanical loading on the tendon circadian rhythm

Ask Møbjerg[1,2], Michal Dudek[3], Peter Schjerling[1,2], Anja Jokipii-Utzon[1,2], Mariane Backer[4], Birgitte Georg[5], Jens Hannibal[2,5], Michael Kjaer[1,2], Nicolai J. Wewer Albrechtsen[5,6], Qing-Jun Meng[3], Ching-Yan Chloé Yeung[1,2]

[1]Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Copenhagen University Hospital–Bispebjerg and Frederiksberg, Copenhagen, Denmark;
[2]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark;
[3]Faculty of Biology, Medicine and Health, University of Manchester, Oxford Road, Manchester, United Kingdom;
[4]Capio Privathospital Hellerup, Copenhagen, Denmark;
[5]Department of Clinical Biochemistry, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark;
[6]Center for Translational Research, Copenhagen University Hospital–Bispebjerg and Frederiksberg, Copenhagen, Denmark;

Abstract

Tendons function as peripheral clocks, maintaining their own circadian rhythms that can be entrained by external cues such as exercise. In tendinopathy, this circadian rhythm becomes disrupted, potentially contributing to impaired tissue homeostasis. Exercise is currently the most effective treatment, but the mechanisms by which it restores tendon function and re-establishes circadian rhythms remains unknown. We hypothesize that mechanical loading entrains the tendon clock, thereby promoting extracellular matrix homeostasis. To test this, we combined an in vitro tissue-engineered tendon cyclic loading model (FlexCell; n=3) with a treadmill-running mouse model (n=5) to investigate the time-dependent effects of mechanical loading and exercise on the circadian rhythm of tenocytes using RT-qPCR, phosphoproteomics, and RNA-seq analyses. RT-qPCR analysis revealed 24-h rhythmic expression of core clock genes (*CRY1, NR1D1*) in tissue-engineered tendons subjected to repeated, scheduled loading ($p<0.05$, MetaCycle analysis). Furthermore, RNA-seq analysis of treadmill-trained mice using DESeq2 identified seven genes significantly affected by the interaction between exercise and time (Log2FC > 1, FDR < 0.05). Our findings to date show that repeated, scheduled mechanical loading synchronizes circadian rhythms in tendon cells and that exercise effects on tendons are time dependent. Current phosphoproteomic analysis of loaded tissue-engineered tendon aims to identify the pathways mediating entrainment.

Occupational standing, walking, and forward bending during pregnancy and the risk of miscarriage - A Danish nationwide register-based cohort study

Hannah Nørtoft Frankel[1,2], Camilla Sandal Sejbaek[1], Esben Meulengracht Flachs[1], Mette Korshøj[3], Sandra Søgaard Tøttenborg[1,2], Jens Peter Bonde[1], Laura Deen[1], Jonathan Aavang Petersen[1,2], Christina Bach Lund[1,2], Luise Mølenberg Begtrup[1,2]
[1]Department of Occupational and Environmental Medicine, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark
[2]Department of Public Health, University of Copenhagen, Copenhagen, Denmark
[3]Department of Occupational and Social Medicine, Copenhagen University Hospital Holbæk, Denmark

Objective
We aimed to investigate the association between occupational standing, walking, and forward bending during pregnancy and the risk of miscarriage.

Methods
This register-based study examined all labor-active pregnant women in Denmark between 2004 and 2018, comprising 803,829 pregnancies among 475,312 women. Occupational exposure to standing, walking, and forward bending ≥ 30 degrees was assessed with a quantitative, pregnancy-specific job exposure matrix, based on the woman's occupational code in the occupational and industry register, at the year of pregnancy start. Information on miscarriage was retrieved from the Danish National Patient Register (DNPR). Statistics Denmark, the Danish Medical Birth Registry, and the DNPR provided information for potential confounders. Data on sickness absence were obtained from the Danish Register for Evaluation and Marginalization and assessed as an effect modifier. We estimated adjusted hazard ratios (aHR) using Cox regression.

Preliminary results
All three exposures were associated with increased hazards for miscarriage. The aHR for miscarriage was 1.03 (95% CI: 1.02-1.04) per additional hour of occupational *standing*, 1.18 (95% CI: 1.15-1.22) per additional hour of occupational *walking*, and 1.36 (95% CI: 1.30-1.41) per additional hour of occupational *forward bending*. The effect was more pronounced in women with sickness absence and less so in women without sickness absence. Quartile analyses did not fully confirm exposure-response relationships for either standing or walking, although a consistent relationship was observed for standing.

Conclusion
Our findings demonstrate an elevated risk of miscarriage associated with all three occupational exposures. Replication in similar populations is warranted to validate these associations and address potential residual confounding.

Prevalence and risk factors of losartan-associated anemia: A nationwide pharmacoepidemiologic study

Authors
Authors: Andreas Geest[1,2], Rasmus Borup Hansen[1,2], Thomas Leth Jensen[2], Espen Jimenez Solem[1,2], Sanne Møller Thysen[2]
Affiliations: [1]University of Copenhagen, Faculty of Health and Medical Sciences, Copenhagen, Denmark [2]Department of Clinical Pharmacology, Bispebjerg and Frederiksberg Hospital

Purpose
This nationwide cohort study aims to assess the incidence rate of losartan-associated anemia and identify risk populations. Based on real-world data, the findings will enable clinicians to make better-informed treatment decisions.

Background
In Denmark alone there are 500.000 users of losartan, which in the product information leaflet states that anemia, a potentially life-threatening condition, is a common adverse drug reaction (ADR) experienced by 1-10% of users.
Evidence suggests that losartan-associated anemia may occur in specific patient subgroups, mainly patients suffering from diabetes with nephropathy, and patients who have undergone renal transplantation. Currently there is no solid evidence towards losartan-associated anemia in patients without the aforementioned health conditions, thus making the ADR risk assessment potentially misleading. The accuracy of ADR risk assessments is crucial as these are used by clinicians daily.

Methods
This is a nationwide registry-based cohort study utilizing National Danish Health registries. The study population consists of all new losartan-users between 2008 - 2023 who have registered a blood-hemoglobin within both 90 days before and 450 days after losartan initiation. The primary outcome will be the prevalence of new-onset anemia, using blood-hemoglobin and gender specific anemia thresholds. Secondary endpoints include changes in hemoglobin levels and transfusion-requiring anemia.
Amlodipin will serve as an active comparator, and differences will be assessed using Poisson-regression with robust standard errors, adjusting for baseline hemoglobin and relevant covariates.

Perspectives
Results from this study will improve the accuracy and specificity of losartan-associated anmeia risk assessments, elevating patient pharmacotherapy safety.

Conclusion
Analyses are ongoing, results will be presented at Lassendagen.

Validating National Registry Data for Randomised trials: Comparison of adjudicated and registry-derived cardiovascular outcomes in the BETAMI-DANBLOCK trial

Therese Lucia Friis Holmager, Anna Meta Dyrvig Kristensen, Eva Irene Bossano Prescott
Department of Cardiology, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Denmark.

Background

Increasingly, registry-based randomised clinical trials rely solely on registry-derived outcomes, offering advantages in feasibility, representativeness, and data capture. However, registry-based events might be biased from misclassification or incomplete information.

Methods

BETAMI-DANBLOCK enrolled 5,574 patients with myocardial infarction (MI) and left ventricular ejection fraction ≥40% from 2018 through 2024. Patients were randomised to beta-blocker therapy or no beta-blocker therapy. The primary composite endpoint events (all-cause mortality, MI, ischemic stroke, heart failure, unplanned coronary revascularisation and malignant ventricular arrhythmias) were identified from the Norwegian (NPR) and Danish national patient registries (DPR) and adjudicated centrally in a blinded fashion.

Using registry-based and adjudicated events, respectively, we compared agreement across event types and compared the hazard ratios (HRs) for beta-blocker treatment versus controls derived from registry versus adjudicated outcomes.

Results

For the primary composite endpoint, the incidence rate was 62.3 per 1000 person-years for the registry-based events and 44.3 for the adjudicated events. Validation rates varied substantially by event type: Registry-based ischemic stroke was confirmed in 96% whereas only 45% of unplanned coronary revascularisations and 48% of heart failure diagnosis were validated. Despite the limited validation of several registry-derived endpoints, the estimated treatment effects were consistent using adjudicated or registry-based events (HR for the composite endpoint 0.85, 95% confidence interval (CI): 0.75-0.98 and 0.88, 95% CI: 0.78-0.99, respectively), with no meaningful differences across individual event types.

Conclusion

High-quality registry data may provide treatment effect estimates comparable to adjudication and offer a valid alternative in registry-based trials, though event-specific misclassification remain a key limitation

Correlations between frequency of dietary intake and selected biomarkers of vitamin K

Authors

Vasileios Michalopoulos[1], Mette Bagge Jensen[3], Jette Jacobsen[3], Julie Aaberg Lauridsen[1], Camilla Friis Bryde Nielsen[1], Nicola Patricia Dalgaard[4], Inge Tetens[2], Allan Linneberg[1,5], Anne Ahrendt Bjerregaard[1]

Affiliations

1 Center for Clinical Research and Prevention, Copenhagen University Hospital - Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark.

2 Department of Nutrition, Exercise, and Sports, Copenhagen University, Denmark

3 National Food Institute, Technical University of Denmark, Denmark

4 Danish Cancer Institute, Copenhagen, Denmark

5 Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen

Introduction

Studies investigating associations between vitamin K intake and diseases often use dietary intake data that lack validation against biomarkers. However, there is no gold-standard biomarker of vitamin K intake. Our aim was to compare frequency of dietary intake of vitamin K with circulating biomarkers (phylloquinone (PK), menaquinones (MK-7 and MK-8), and uncarboxylated matrix Gla protein (dp-ucMGP, an inverse biomarker of functional vitamin K status)) in a general Danish population.

Methods

Frequency of dietary intake of vitamin K-rich foods (servings/day) was assessed using a validated food frequency questionnaire among 488 randomly selected adults (mean age: 51.2 ± 12.9 years). Fasting circulating levels of PK, MK-7, MK-8, dp-ucMGP, and triglycerides (TG) were analyzed. Spearman correlations between dietary frequency and vitamin K biomarkers and between TG and vitamin K biomarkers were assessed.

Results

Dietary intake (median, range) was 2.5 servings/day (0.0-6.1) while circulating levels were PK: 0.65 nmol/L (0.11–17.9), MK-7: 0.52 nmol/L (0.15–4.14), MK-8: 0.72 nmol/L (0.28–6.64), dp-ucMGP: 434 pmol/L (299–3230), TG: 1.02 mmol/L (0.32–10.5). No significant correlations between frequency of dietary intake and biomarkers were found. However, correlations were significant between TG and PK, MK-7, MK-8, and dp-ucMGP (0.23, 0.47, 0.28, 0.25, respectively).

Conclusion

Frequency of dietary intake of vitamin K did not significantly correlate with vitamin K biomarkers, but TG did. This may reflect limitations related to fasting sample collection, bioavailability of vitamin K, and absence of fat content data. Further research is warranted to determine their applicability in both population-based studies and clinical assessments.

Loneliness among socially disadvantaged individuals – a pilot-study from Bispebjerg Hospital

Amanda Sehested Henriksen[1], Pernille Tanggaard Andersen[2], Jens Henning Rasmussen[1], Hanne Nygaard[1]

[1] Department of Emergency Medicine, Copenhagen University Hospital, Bispebjerg and Frederiksberg, Copenhagen, Denmark

[2] Faculty of Health Sciences, Department of Health Services Research, University of Southern Denmark, Odense, Denmark

Background and aim

Loneliness is particularly prevalent among people in socially disadvantaged life situations. Despite this, previous research has primarily focused on loneliness experienced in older individuals, leaving a gap in research among socially disadvantaged individuals. This pilot-study aimed to explore the prevalence of loneliness and related factors, as well as to assess the feasibility of using the Three-Item Loneliness Scale (T-ILS) in this population.

Material and Methods

Cross-sectional data from 39 socially disadvantaged individuals were used in this pilot-study. Descriptive statistics were applied to investigate the prevalence of loneliness, and the characteristics shared by socially disadvantaged individuals categorized as lonely. In addition, the relative risk was calculated for loneliness cases among socially disadvantaged individuals and the general population. A chi-square test was performed to examine whether the proportion of loneliness cases between socially disadvantaged individuals and the general population differed significantly.

Results

Loneliness was highly prevalent (61.5%) among socially disadvantaged individuals, with increased rates among those unmarried, living alone, homeless, with substance or alcohol misuse, or with mental disorders. Compared to the general population, the relative risk of loneliness was 7.5 times higher, with a significant difference between groups ($p < 0.001$).

Conclusion

This pilot-study revealed a surprisingly high prevalence of loneliness among socially disadvantaged adults. Due to the small sample size, the findings cannot be generalized, but they highlight the need for larger cohort studies to further explore the link between social disadvantage and loneliness.

Effectiveness of a digital support intervention (HealthyPregnancy) for pregnant women with BMI ≥25 in addition to standard care. Study protocol for a stepped wedge cluster randomized trial.

Mette Kabell Hansen[a], Michaela Louise Schiøtz[a,b], Bjarke Lund Sørensen[c], Theis Lange[d], Jane Marie Bendix[e], Ellen Løkkegaard[e,f], Lotte Broberg[a,c,f]

[a] Center for Clinical Research and Prevention, University Hospital – Bispebjerg-Frederiksberg, Nordre Fasanvej 57, Hovedvejen, Entrance 5, 2000 Frederiksberg, Denmark

[b] Research Unit of General Practice, Department of Public Health, University of Southern Denmark, Campusvej 55, 5230 Odense M, Denmark.

[c] Department of Gynecology and Obstetrics, Slagelse Hospital, Fælledvej 14, 4200 Slagelse, Denmark.

[d] Department of Public Health, University of Copenhagen, Øster Farigmagsgade 5, 1353 Copenhagen K, Denmark.

[e] Department of Gynecology and Obstetrics, Copenhagen University Hospital – North Zealand, Dyrehavevej 29, 3400 Hillerød, Denmark.

[f] Department of Clinical Medicine, University of Copenhagen, Blegdamsvej 3B, 2200 Copenhagen N, Denmark.

Background

Being overweight is one of the most common conditions that potentially complicate pregnancy, childbirth, and postpartum period. Moreover, excessive gestational weight gain increases the risk of complications. Overweight and excessive gestational weight gain further increase the risk of long-term obesity-related health issues. Lifestyle interventions are shown to help reduce pregnancy weight gain and recent studies suggest that digital lifestyle interventions may be effective.

Objective

The HealthyPregnancy study aims to assess the effectiveness of a digital care guide providing information, support, and online exercise for pregnant women with a body mass index (BMI) ≥25. The primary outcome is gestational weight gain, secondary outcomes include mental well-being and postpartum weight retention.

Methods

The study is performed as a stepped-wedge cluster randomized study involving two participating hospitals. In total 450 participants are anticipated. Eligible participants are pregnant women with a BMI ≥25 at their first antenatal contact. All participants receive standard pregnancy care, and the intervention group in addition the digital care guide with information and support. The content of the care guide was developed in collaboration with multidisciplinary health-care professionals and pregnant women.

Results

Participant recruitment for the study group began in September 2024 and proceeds for a total of three periods of two months duration concluding in October 2025.

Conclusion

The results will contribute to the evidence of digital interventions targeting excessive gestational weight gain. If effective, the digital intervention is scalable and could be implemented in antenatal care to support the increasing group of women with BMI ≥25.

Adherence to National Early Warning Score (NEWS) prior to cardiac arrest in an emergency department. A retrospective study

Authors: Cecilie H. Nymann[1], Casper Pedersen[1], Frans Wiberg[1], Hanne Nygaard[2], Peter O. Andersen[1,3], Theis S. Itenov[1,3], Christian S. Meyhoff[1,3]

Institutions: Department of Anesthesiology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark[1], Department of Emergency Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark[2], Department of Clinical Medicine – University of Copenhagen, Denmark[3]

Introduction

In-hospital cardiac arrest (IHCA) is a significant risk in emergency departments (ED), associated with high mortality and poor neurological outcomes. Early detection of clinical deterioration is crucial but often impeded by infrequent monitoring. We aimed to determine if lack of adherence to the National Early Warning Score (NEWS) protocol was a risk factor for IHCA in the ED.

Methods

We conducted a retrospective cohort study in the ED at Bispebjerg Hospital between April 1st, 2020, and December 31st, 2024. IHCA cases were identified through the Danish In-Hospital Cardiac Arrest Registry (DANARREST), and data were extracted from electronic health records. Cases were compared with controls from the same department and study period, matched by age, sex, and method of arrival in a 1:2 ratio.
The primary exposure was adherence to the NEWS escalation protocol, evaluated dichotomously. Groups were compared using Fisher's exact test.

Results

Sixty-four IHCA cases and 128 controls have been reviewed. The population had a mean age of 73.8 years, 55% were male, and 73% arrived by urgent transport. Non-adherence to NEWS protocol was observed in 14 (21.9%) of IHCA cases and 19 (14.8%) of controls (p=0.23). Non-adherence was significantly more common among patients aged ≥70 years (22.8%) compared to <70 years (9.0%, p=0.018), with no significant difference between urgent and non-urgent transport (p=0.19).

Conclusion

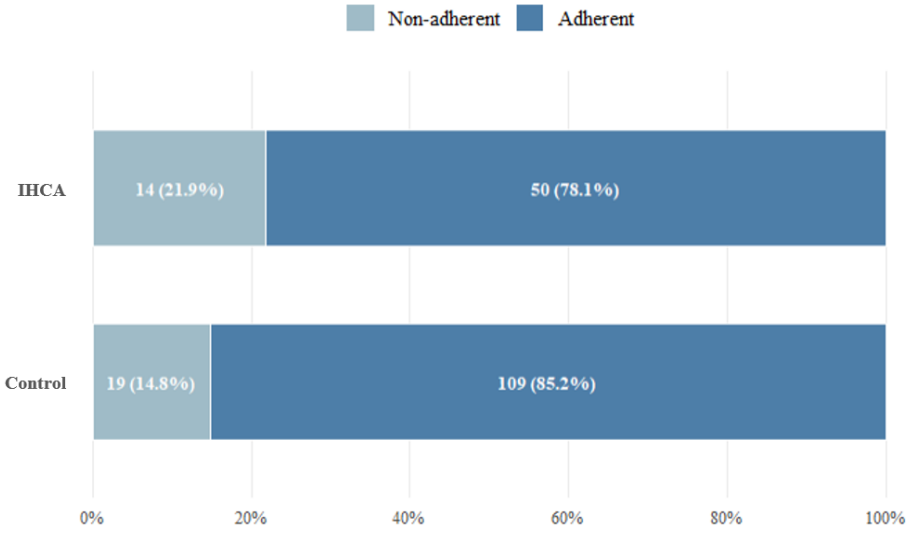
Non-adherence to NEWS protocol occurred in 18.4% of patients, with no statistically significant difference between IHCA cases and controls. These findings may strengthen awareness of systematic and timely monitoring of vital signs.

TABLE 1. Patient characteristics stratified by IHCA status

Variable	Overall N = 192[1]	IHCA N = 64[1]	Control N = 128[1]
Age (years)	73.8 (10.6)	73.9 (10.6)	73.8 (10.7)
Sex			
Male	105 (55%)	35 (55%)	70 (55%)
Female	87 (45%)	29 (45%)	58 (45%)
Body Mass Index (BMI)	25.0 [21.9, 28.5]	24.0 [21.8, 29.0]	25.2 [21.9, 28.5]
Charlson Comorbidity Index (CCI)	5 [3, 6]	5 [4, 6]	4 [3, 6]
NEWS score on admission	2 [0, 4]	3 [2, 6]	1 [0, 3]
Triage on admission			
Red (1)	2 (1.1%)	1 (1.7%)	1 (0.8%)
Orange (2)	87 (47%)	30 (50%)	57 (45%)
Yellow (3)	82 (44%)	25 (42%)	57 (45%)
Green (4)	15 (8.1%)	4 (6.7%)	11 (8.7%)
Method of arrival			
Emergency or urgent transport	141 (73%)	47 (73%)	94 (73%)
Other (e.g. non-emergency transport, self-referral)	51 (27%)	17 (27%)	34 (27%)
Clinicians presumed reason of admission			
Infectious	44 (24%)	17 (30%)	27 (22%)
Cardiovascular	44 (24%)	17 (30%)	27 (22%)
Trauma-related	27 (15%)	2 (3.6%)	25 (20%)
Gastrointestinal	12 (6.6%)	5 (8.9%)	7 (5.6%)
Respiratory	11 (6.1%)	6 (11%)	5 (4.0%)
Poisoning	11 (6.1%)	3 (5.4%)	8 (6.4%)
Neurological	8 (4.4%)	0 (0%)	8 (6.4%)
Other	24 (13%)	6 (11%)	18 (14%)
ED duration time (min)	305 [177, 620]	330 [99, 989]	301 [199, 519]

[1]Missing data: Body Mass Index (BMI) (79), Triage on admission (6), Clinicians presumed reason of admission (11). Age is summarized as mean (SD). All other continuous variables are summarized as median [IQR].

FIGURE 1. Adherence to NEWS protocol



Adherence to NEWS protocol. Cases (%).

Repeatability and intra-individual variability of [O^{15}]H_2O-PET myocardial perfusion imaging

Authors:
Laila Seidelin, MD[1], Eva Prescott, MD, Prof.[1,3], Rasmus Haahr[1], MD, Maira Rauf[1], MD, Mads Fischer, PhD. [1,4], Peter Hovind, MD, DMSc[2], Martin Krakauer, MD, PhD.[2]
Institutions:
[1] Department of Cardiology, Copenhagen University Hospital – Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
[2] Department of Clinical Physiology and Nuclear Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
[3] Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark
[4] Department for Nutrition, Exercise and Sports, University of Copenhagen, Copenhagen, Denmark

Background and aim
Positron emission tomography (PET), using [O^{15}]H_2O as the radioactive tracer, is the non-invasive reference standard for quantitative assessment of myocardial blood flow (MBF). Although technical precision is well established, its repeatability in clinical practice remains unclear. This study aimed to evaluate the reproducibility of [O^{15}]H_2O-PET-CT measurements of myocardial flow in a population of patients suffering from angina.

Materials and methods
Twenty-one patients (Age 70 ± 8 years, 50 % female) who underwent a clinically indicated [O^{15}]H_2O-PET-CT scan due to angina, had a second [O^{15}]H_2O-PET-CT scan within 30 days of the first. MBF at rest and during adenosine-induced hyperaemia was measured. Analysis was done both by random clinicians in the daily clinical setting, and by an expert with > 10 years of experience. Reproducibility was assessed with paired t-tests, Bland–Altman plots, repeatability coefficient (RC), and within-subject coefficient of variation (CV).

Results
Strong correlations were observed between the first and second scans for resting MBF (r = 0.87) and hyperaemic MBF (r = 0.82). RC values were 0.23 mL/min/g for resting MBF and 0.98 mL/min/g for hyperaemic MBF. Rate–pressure product correction increased variability. Daytime-variation or atrial fibrillation had no significant influence.

Conclusion
In routine clinical settings [O^{15}]H_2O-PET-CT provides highly reproducible measurements of resting MBF, while hyperaemic MBF has more variability. The findings highlight the impact of biological and technical factors on measurement variability, but also confirm the robustness of [O^{15}]H_2O-PET-CT, in the everyday clinical setting, for perfusion assessment.

Toward Translational Proteomics: A Python-Based Framework for Mass Spectrometry Data Preprocessing and Analysis

Anna Benedetti[1,2], Nicolai J. Wewer Albrechtsen[1,2,4], Annelaura Bach Nielsen[1,2]

1. Copenhagen Center for Translational Research, Copenhagen University Hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
2. Department of Clinical Biochemistry, Copenhagen University Hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark
3. Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

Background and Aim
Proteomics offers powerful opportunities to study the dynamic landscape of human health, but translation into clinical insights is often limited by the complexity of mass spectrometry data. Several open-source libraries have been developed to standardize preprocessing and statistical analysis of proteomics data, yet most are designed for research use, with limited focus on clinical requirements. We aimed to develop a Python-based library with clinical translation in mind, to emphasizes quality control, methodological consistency across studies, and integration with hospital laboratory information systems to accelerate translation into clinical insights.

Materials and methods
The preprocessing workflow includes quality control, missingness filtering, multiple imputation strategies, batch correction, and normalization and standardization options. For statistical inference, the toolkit implements a flexible framework supporting t-tests, linear and mixed-effects models, together with multiple hypothesis correction methods. Downstream analysis modules enable Gene Ontology enrichment and integration with customizable plotting tools for visualization.

Results
Applied in ongoing clinical proteomics studies, the framework reduces preprocessing time, automates quality control, and yields consistent results across repeated analyses, supporting standardized reporting and faster discovery. Its modular design ensures adaptability while maintaining consistency necessary for clinical deployment.

Conclusion
Unlike previous research-focused pipelines, this Python framework is developed within a clinical laboratory setting, with intended use in diagnostic workflows. By combining transparent preprocessing, robust statistics, and clinical integration, it provides a path toward implementing proteomics as a practical tool in routine medicine.

Limited recovery of pre-fracture mobility in older patients following hip fracture surgery: at discharge and 1 year. A prospective cohort study of 47 patients from a single municipality

Authors.
Camilla Kampp Zilmer[1], Anja Løve Berger[1], Søren Overgaard[2,3], Thomas Giver Jensen[2], Henrik Palm[2], Charlotte Suetta[3,4], Martin Aasbrenn[4], Morten Tange Kristensen[1,3]

[1]Department of Physio- and Occupational Therapy, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark [2]Department of Orthopedic Surgery and Traumatology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark [3]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark, [4]Department of Geriatric and Palliative, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

Background and Aim
Mobility is highlighted as what really matters by patients after hip fracture (HF) surgery. Therefore, we evaluated recovery of pre-fracture mobility in patients with HF upon hospital discharge and one-year post-surgery

Material and methods
A prospective observational follow-up study was conducted. Forty-seven out of 53 home-dwelling patients (39 women) with a mean±SD age of 81.3±6.9 years, admitted from a single municipality, Frederiksberg, who underwent surgery for an acute HF at Bispebjerg Hospital, contributed to follow-up data (6 patients had died). Recovery of mobility was evaluated with the Cumulated Ambulation Score (CAS) at discharge and the New Mobility Score (NMS) one-year post-surgery

Results
At pre-fracture, 72.3% had a good functional mobility (NMS=7-9). Upon discharge, 32% had regained their pre-fracture CAS level, while the corresponding NMS level was reached for 49% after one year. The median [IQR] NMS score changed from 9 [6;9] at pre-fracture to 7 [4;9] at one-year post-surgery. No significant differences were observed in one-year recovery regarding age, sex and pre-fracture health status. However, a significant difference was found in one-year recovery favoring those returning directly to own home vs. discharged to 24-hour care settings.

Conclusion
Recovery of pre-fracture mobility was only reached for about 1/3 of older patients with HF upon discharge and about half of the patients one-year post-surgery

Perspectives
The results highlight the urgent need of cross-sectoral rehabilitation programs focusing on improving the ambulatory level of patients after HF surgery and thereby enhancing the option of fully recovering their pre-fracture mobility level.

The GOAL study: GLP-1 receptor agonist treatment for Adolescents with Obesity secondary to Antipsychotic Medication – A feasibility study

Jonas Sveen Jespersen[1], Laura Giraldi[1], Christoffer Storm Baden[1], Troels Riis[1], Cilius Esmann Fonvig[2,3], Tina Vilsbøl[2,4], Kim Peder Dalhoff[1,2], Jon Trærup Andersen[1,2], Anders Fink-Jensen[2,5], Mikkel Bring Christensen[1,2], Anne Katrine Pagsberg[2,6], Christina Gade[1,2]

1. Department of Clinical Pharmacology, Copenhagen University Hospital Bispebjerg- and Frederiksberg, Copenhagen, Denmark
2. Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark
3. Children's Obesity Clinic, European Center of Management (EASO). Department of Pediatrics, Zealand University Hospital, Holbaek, Denmark
4. Steno Diabetes Center Copenhagen, Herlev, Denmark
5. Psychiatric Centre Copenhagen, Frederiksberg, Mental Health Services, Capital Region of Denmark and University Hospital of Copenhagen, Copenhagen, Denmark
6. Child and Adolescent Mental Health Center, Mental Health Services, Capital Region of Denmark and the Faculty of Health Science, University of Copenhagen, Copenhagen, Denmark

Introduction
Adolescents with obesity secondary to antipsychotic treatment face significant health risks, including metabolic disturbances and reduced quality of life. Current therapeutic options are limited, particularly in this vulnerable population. Glucagon-like peptide-1 receptor agonists (GLP-1-RAs), such as semaglutide, show promise in addressing obesity and its metabolic complications. This feasibility study aims to evaluate the feasibility and effects of 36 weeks GLP-1-RA treatment as an adjunct therapy to standard care for adolescents with obesity receiving antipsychotics.

Methods and analysis
The GOAL study is a single-arm, open-label feasibility trial conducted at Bispebjerg Hospital in collaboration with the Child and Adolescent Mental Health Center (CAMHS). Thirty-four participants aged 12–18 years with BMI ≥90th percentile, Body composition of Body Fat Percentage ≥95 percentile, and stable antipsychotic treatment will be recruited. Participants will receive weekly subcutaneous semaglutide injections (up to 2.4 mg) over 36 weeks, with standard obesity care. Primary outcome measure includes number of subjects completing the study from baseline to end-of-treatment, while secondary outcomes assess changes in BMI standard deviation score (SDS), body composition, metabolic biomarkers, and psychological health. Follow-up interviews six months post-intervention will evaluate the sustainability of treatment effects. Data collection involves DXA/MRI scans, blood sampling, and participant-reported diaries. Data will be analyzed using intention-to-treat principles.

Ethics and dissemination
The trial complies with the Declaration of Helsinki, EU Clinical Trials Regulation, and Danish ethical guidelines. Informed consent will be obtained from all participants and their guardians.

Trial registration
EU CT 2024-517471-21

Reduced Myocardial Flow Reserve and the Risk of Heart Failure: A Register-linked Multicenter Danish Cohort Study

Rasmus Haahr[1], MD; Therese Lucia Friis Holmager[1], MSc, Ph.D.; Peter Dall Mark[2], MD, Ph.D.; Maira Rauf[1], MD; Rasmus Ripa[2], MD, DMSc; Martin Krakauer[2], MD, Ph.D.; Eva I. B. Prescott[1], MD, DMSc.
[1]Dept. of Cardiology, Bispebjerg and Frederiksberg University Hospital, [2]Dept. of Clinical Physiology and Nuclear Medicine, Bispebjerg and Frederiksberg University Hospital.

Background
Myocardial flow reserve (MFR) is the maximal ability to augment myocardial perfusion. It is defined as the ratio from hyperemic to rest perfusion and can be noninvasively obtained with quantitative myocardial perfusion imaging. MFR independently predicts major adverse cardiovascular events and all-cause mortality and has theoretically and in smaller studies been linked to heart failure – especially heart failure with preserved ejection fraction.

Methods
We conducted a retrospective register-based multicenter study (n=3) of patients clinically referred for ^{82}Rubidium-positron emission tomography from January 2018 to August 2020. Exclusion criteria were patients with LVEF < 45% and patients with hemodynamic significant perfusion defects (reversible defect >6%). MFR was calculated as the ratio of stress to rest perfusion, and reduced MFR was defined as < 2.0. The primary outcome was hospital contact due to heart failure (ICD-10 code DI50.0–DI50.9).

Results
Among 4.285 patients with LVEF > 45 and without sign of obstructive coronary disease, 1294 patients (30%) had reduced MFR. During a median follow-up of 4.10 years, 287 (6.7%) patients were diagnosed with heart failure. In a sex and age adjusted model, reduced MFR was significantly associated with increased risk of heart failure (HR: 1.70 [95% CI: 1.33–2.16]). The association was robust across sensitivity and subgroup analyses. Furthermore, subgroup analyses revealed a stepwise association between lower MFR levels and increased risk of heart failure.

Conclusion
Reduced MFR is independently associated with an increased risk of developing heart failure, with a clear dose–response association between MFR and incident heart failure.

Deepening the understanding of acute drug toxicity in the Emergency Department – a descriptive study

Frederikke Lilholm Holmgaard[1], Hanne Nygaard[1], Dorte Fris Palmqvist[3], Kim Dahlhoff[2], Theis Skovsgaard Itenov[3], Nanna Reiter[3]

[1]Department of Emergency Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark
[2]Department of Clinical Pharmacology, Copenhagen University Hospital- Bispebjerg and Frederiksberg, Copenhagen, Denmark
[3]Department of Anaesthesia and Intensive Care, Copenhagen University Hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark

Background
In Denmark, admissions due to illicit drug use are primarily monitored through national health registries. This study aims to deepen the understanding of demographic and clinical characteristics, as well as outcomes, of patients admitted to a Danish emergency department (ED) with acute drug toxicity.

Methods
A retrospective study utilizing data extracted from medical records of patients who were admitted to Bispebjerg Hospital ED in 2024 with acute drug toxicity. A total of 200 admissions were included, grouped by age (18-25, 26-35, 36-45 and 46+ years) and analyzed descriptively.

Results
The median age was 30 years (IQR = 18), and 64.5% were male. Agitation was the most common symptom observed in the ED (19.7%), except among 18–25-year-old, where seizures were most frequent (16.6%). Half of the patients (50.3%) had a known drug addiction, and 85% had intentionally used drugs. Suicidal intent was reported in 16% of admissions, with similar rates across age groups except for the 46+ group. Single-drug use was reported in 65.5% of cases, and 37.7% had co-ingested ethanol. Opioids were the most prevalent drug type, with significantly higher rates in the 46+ group. No significant differences were found between weekend vs. weekday or daytime vs. nighttime admissions. Treatment was required in 47.5% of cases, most commonly naloxone administration. A total of 58% were medically discharged. No fatalities were recorded.

Conclusion
This study provides new insights into patients admitted with acute drug toxicity. New site inclusions and continued monitorization will further deepen this understanding in the future.

Slightly increased Potassium Levels associate independently to increased 30-Day Mortality in acutely admitted patients.

Frederikke Egeberg[1], Hanne Nygaard[1], Johannes Grand[2], Theis Skovsgaard Itenov[3], Mathias Lindquist[1], Fredrik Folke[4,5], Helle Collatz Christensen[6], Jakob Lundager Forberg[7], Ahmad Sajadieh[8], Janne Petersen[9,10], Steen Haugaard[11], Rasmus Gregersen[1]

Affiliations

[1] Department of Emergency Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

[2] Department of Cardiology, Copenhagen University Hospital-Amager and Hvidovre, Copenhagen, Denmark

[3] Department of Anesthesiology, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark.

[4] Department of Cardiology, Copenhagen University Hospital Herlev and Gentofte, Denmark

[5] Emergency Medical Services, Capital Region, Denmark.

[6] Prehospital Center Region Zealand, Naestved, Denmark.

[7] Department of Emergency Medicine, Helsingborg Hospital, Helsingborg, Sweden

[8] Department of Cardiology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark.

[9] Center for Clinical Research and Prevention, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

[10] Section of Biostatistics, Department of Public Health, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

[11] Department of Endocrinology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

Aim

To examine the association between normal and elevated plasma potassium levels and 30-day mortality in acutely hospitalized patients, and to assess how various patient characteristics, including clinical variables obtained in the acute setting, may impact this association.

Methods

We conducted a register-based study including patient contacts in emergency departments in the Capital Region of Denmark from 2017 to 2021. The population was defined as normo- and hyperkalemic patients with measurements of acute parameters within 4 hours from admission. Data sources were Danish National Registries and electronic patient records. Normokalemia was defined as 3.5–4.4 mM, and increased potassium levels were grouped in 4.5–4.9 mM, 5.0–5.9 mM, and ≥6.0 mM. Kaplan-Meier survival analyses, and cox regression analyses (normokalemia as reference group) were performed, to determine unadjusted and adjusted 30-day mortality hazard ratios (HR).

Results

In total, 234,993 patients were included with a median age of 61 years, whereof 6,613 (2.8%) died within 30 days. The 30-day mortality were 2.2%, 7.0%, 16.7%, and 25.9% for potassium level 3.5–4.4 mM, 4.5–4.9 mM, 5.0–5.9 mM, and ≥6.0 mM, respectively. Adjusted 30-day HR, using normokalaemia as reference, were 1.40 (95%CI: 1.31–1.50) for potassium level 4.5–4.9 mM, 1.80 (1.63–1.97) for 5.0–5.9 mM, and 2.13 (1.79–2.51) for ≥6.0 mM.

Conclusion

The 30-day mortality risk among acutely admitted patients with normo- or hyperkalemia was significantly and consecutively increased when serum potassium levels exceeded 4.4 mM in crude analyses and remained so after adjusting for available relevant confounders.

Allergi og eksem – forekomst, sundhed og sygdom i Region Hovedstaden

Katja Biering Leth-Møller (1); Marie Holm Eliasen(1); Marie Stjerne Grønkjær (1); Peter Elsborg (1); Anne Helms Andreasen(1); Cecilie Goltermann Toxværd (1); Julie Flyger (1); Malene Hannibal Schubart (1); Lene Heise Garvey (2); Jesper Elberling (3); Allan Linneberg (1, 4);
(1) Center for Klinisk Forskning og Forebyggelse, Bispebjerg og Frederiksberg Hospital
(2) Allergisygdomme klinik 1, afdeling for allergi hud- og kønssygdomme, Gentofte Hospital
(3) Hudsygdomme klinik 1 og Allergisygdomme klinik 1, afdeling for allergi hud- og kønssygdomme, Gentofte Hospital
(4) Institut for Klinisk Medicin, Det sundhedsvidenskabelige fakultet, Københavns Universitet

Formål

Vi ønsker at belyse selvrapporteret allergisk rhinit, fødevareallergi og eksem blandt borgere ≥16 år i Region Hovedstaden. Ydermere beskrives sammenhæng med andre sygdomme, kontakter til almen praksis og selvrapporteret fysisk og mental sundhed.

Materiale og metode

Vi anvendte spørgeskemadata fra 'Hvordan har du det?' undersøgelserne i Region Hovedstaden (2010, 2013, 2017 og 2021; N=41.356-56.245 per år) samt data fra nationale registre, som tilsammen udgør Sundhedsprofilen. I undersøgelsen spørges der ind til allergisk rhinit, fødevareallergi og eksem samt til trivsel, sundhedsadfærd, sygdomme og symptomer. For at resultaterne bliver repræsentative, blev opgørelserne vægtet i forhold til sampling og til non-respons. Vægtningen var baseret på data fra centrale registre om demografi, socioøkonomi samt antal lægebesøg og indlæggelser på sygehus.

Resultat

I 2021 rapporterede 21%, at de har allergisk rhinit, 10% at de har fødevareallergi, og 16% at de har eksem i Region Hovedstaden. Borgere med allergisk rhinit, fødevareallergi og eksem har højere prævalens af kroniske sygdomme sammenlignet med borgere uden, de har hyppigere kontakt med almen praksis og dårligere fysisk og mental sundhed, særligt er forekomsten af smerter i bevægeapparatet højere

Konklusion

Den høje prævalens af allergisk rhinit, fødevareallergi og eksem – sammen med den betydelige sygdomsbyrde i form af andre samtidige sygdomme, dårligere fysisk og mental sundhed samt hyppigere kontakt med almen praksis blandt borgere med disse sygdomme – understreger behovet for en styrket indsats i forhold til både forebyggelse og behandling af allergi og eksem. Sundhedsprofilen er en unik dataressource, som kan belyse en bred vifte af sygdomme og konsekvenserne heraf.

Altered bile acid and enterohepatic hormone signaling in autoimmune liver diseases

Jesper S. Kellemann[1,2], Anne-Sofie H. Jensen[1,2,3], Annelaura B. Nielsen[1,3], Mikkel P. Werge[2], Elias B. Rashu[2], Liv E. Hetland[2], Mira Thing[2], Puria Nabilou[2], Johan Burisch[2,4], Anders E. Junker[2], Lise Hobolth[2], Christian Mortensen[2], Flemming Tofteng[2], Flemming Bendtsen[2,4], Søren Møller[4,5], Mogens Vyberg[6,7], Reza R. Serizawa[6], Henriette Ytting[2,4], Lise Lotte Gluud[2,4], Nicolai J. Wewer Albrechtsen[1,3,4,8]†

[1]Department of Clinical Biochemistry, Copenhagen University Hospital - Bispebjerg & Frederiksberg, Copenhagen, Denmark;

[2]Gastro Unit, Copenhagen University Hospital – Amager and Hvidovre, Hvidovre, Denmark

[3]Novo Nordisk Foundation Center for Protein Research, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

[4]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

[5]Department of Clinical Physiology and Nuclear Medicine, Center for Functional and Diagnostic Imaging and Research, Copenhagen University Hospital - Amager and Hvidovre Hospital, Hvidovre, Denmark

[6]Department of Pathology, Copenhagen University Hospital – Amager and Hvidovre, Hvidovre, Denmark

[7]Center for RNA Medicine, Department of Clinical Medicine, Aalborg University, Copenhagen, Denmark

8 Copenhagen Center for Translational Research, Copenhagen University Hospital - Bispebjerg & Frederiksberg, Copenhagen, Denmark;

† correspondence to:

Professor, MD, Ph.D. Nicolai J. Wewer Albrechtsen, Department of Clinical Biochemistry, Bispebjerg and Frederiksberg Hospital, University of Copenhagen, Nielsine Nielsens Vej 5, 2400 Copenhagen, Denmark. E-mail: nicolai.albrechtsen@regionh.dk

Background

The liver and gut are closely connected through bile acid–mediated signaling. In autoimmune liver diseases (AIH, PBC, and PSC), chronic inflammation may disrupt gut–liver axis and alter bile acid homeostasis. FGF19 and CCK are key regulators of bile acid synthesis and secretion.
This study aimed to characterize alterations in bile acid composition and enterohepatic hormone signaling in autoimmune liver diseases compared with MASLD and healthy controls.

Methods

Seventeen patients with AIH, fifteen with PBC, and eight with PSC were included, controls were nineteen MASLD patients and fifteen healthy individuals. Blood samples were collected during a 120-min OGTT. Plasma bile acids were quantified by LC-MS/MS, FGF19 by ELISA, and CCK by radioimmunoassay.

Results
Total bile acid concentration* were elevated in autoimmune liver diseases (AIH 5.6 [4.6], PBC 5.4 [11.8], PSC 4.9 [14.1] μM) compared with healthy controls (0.72 [0.33] μM; $p < 0.001$). Conjugated bile acids were increased in PBC and AIH. FGF19 was highest in PBC and MASLD and lowest in PSC. During OGTT, FGF19 increased in MASLD and PBC but remained unchanged in PSC. Baseline CCK was lowest in PBC and highest in PSC, with pronounced postprandial CCK responses in PSC and MASLD.

Conclusion
Autoimmune liver diseases display distinct disturbances in the bile gut-liver axis. PBC showed elevated conjugated bile acids and FGF19, suggesting an activated but inefficient feedback loop, whereas PSC showed impaired FGF19 signaling and elevated CCK secretion. These results suggest that altered bile acid signaling may contribute to autoimmune liver disease pathogenesis.

*Values are presented as median [interquartile range].

Barriers and Facilitators to the Use of Functioning Assessment Instruments in a Department of Social Medicine: A Qualitative Survey of Clinical Utility among Physicians

Anna Karnøe Knudsen (1), Eva Ejlersen Wæhrens (2,3), Morten Tange Kristensen (4,5), Jan Renneberg (1), Poul Frost (1)

1: Department of Social Medicine, Frederiksberg Hospital
2: The Parker Institute, Frederiksberg Hospital
3: Department of Public Health, University of Southern Denmark
4: Department of Physio- and Occupational Therapy, Bispebjerg and Frederiksberg Hospital
5: Department of Clinical Medicine, University of Copenhagen

Background

Most healthcare research aims to improve clinical practice, yet implementing findings remains challenging. As part of a larger study, instruments assessing functioning were introduced in a clinical setting. This study explores barriers and facilitators to their use by physicians.

Methods

Patients referred for an assessment of work-oriented rehabilitation needs were offered three physical function tests (PF; 30-sec chair-stand test, handgrip strength, CAS), an AMPS-test, and a questionnaire (ADL-Q). To evaluate clinical utility of the instruments, a questionnaire was developed in accordance with AMEE-Guide No.87 and sent to involved physicians. Four dimensions concerning clinical utility were assessed: appropriateness(relevance), accessibility (time-consumption, availability of results), practicability(functionality, training), and acceptability(ethical concerns). A dimension was defined positive if ≥66.6% responses were positive.

Results

The response rate was 97% (31/32 physicians). No opportunity to use PF, AMPS, or ADL-Q was reported by 4, 12, and 12 physicians, respectively. Among those with access, 4 did not use PF (not appropriate:n=3; not practicable:n=1), and 4 did not use ADL-Q (not appropriate:n=1; not practicable:n=1; no reason:n=2). All physicians used AMPS when available. Following shows proportions among physicians using the instrument.

	Appropriate	**Accessible**	**Practicable**	**Acceptable**
PF(n=23)	78%	78%	100%	91%
AMPS(n=19)	84%	53%	79%	95%
ADL-Q(n=15)	53%	87%	80%	93%

Conclusion

PF was generally considered utile in this clinical setting. Forty-seven percent found information in the AMPS-result difficult to access suggesting need for adjustment. ADL-Q was considered less appropriate in current setting. Findings can supplement other studies with a clinical perspective and direct a sustainable implementation of research findings.

Off-label brug på danske børneafdelinger – et landsdækkende studie baseret på nationale indkøbsdata fra sygehusapotekerne

Nali Barzenji[a,e], Armin Andersen[a], Jon Trærup Andersen[a,b], Ulrik Lausten-Thomsen[c], Constance E. Grandjean[d], Charlotte Vermehren[b,d], Christina Gade[a,b]

[a]Klinisk farmakologisk afdeling, Bispebjerg Hospital
[b]Klinisk farmakologisk afdeling, Frederiksberg Hospital
[c]Afdeling for intensiv behandling af nyfødte og mindre børn, Rigshospitalet
[d]Lægemiddelenheden Region Hovedstadens Apotek
[e]Institut for Farmaci, Københavns Universitet

Baggrund

Off-label brug af medicin, defineret som anvendelse af medicin uden for det af myndighederne godkendte fx terapiområde eller aldersinterval, kan medføre øgede risici for bivirkninger og suboptimal behandling. Problematikken er særligt udtalt i pædiatrien, hvor myndighedsgodkendelser ofte mangler. Klinisk praksis må derfor baseres på klinisk erfaring og akademisk forskning. Et nyligt studie har dokumenteret, at off-label forbruget på danske neonatalafdelinger (nyfødte ≤ 28 dage) udgør op mod 90 %. Der foreligger dog begrænset viden om omfanget på børneafdelinger for aldersgruppen 1 måned - 18 år. Formålet med dette studie er at kortlægge off-label medicinforbruget på danske børneafdelinger ved anvendelse af data fra det nationale sygehusapotekers indkøbsdatabase. Desuden vil studiet undersøge, hvordan dette fordeler sig geografisk, sammenhæng med afdelingernes specialiseringsniveau samt forekomsten af potentielt skadelige indholdsstoffer.

Metode

Undersøgelsen bygger på kvantitativ analyse af farmaceutiske indkøbsdata, opgjort i DDD, fra danske børneafdelinger (2023-2024) med egne debitornumre. Lægemidlernes godkendelsesstatus vurderes ud fra tilhørende produktresuméer, og additiver analyseres i henhold til anbefalingerne fra det Europæiske Medicinagentur (EMA). Herudfra vurderes on-/off-label status for populationen inddelt i 1-23 måneder, 2-5 år, 6-11 år og 12-18 år.

Resultater

Det samlede forbrug er kortlagt og rangeret. Analysen omfatter de 100 mest anvendte lægemidler; foreløbigt præsenteres top 10 (DDD): methotrexat (295.013), salbutamol (139.370), somatropin (109.688), kombinationer* (66.202), prednisolon (64.615), tetracain (54.696), paracetamol (50.760), leuprorelin (45.000), infliximab (37.760) og lidocain (32679).

**Kombinationer af amider til lokalanæstetisk behandling. Emla (lidocain, prolicain).*

Konklusion

Fra den nuværende top 10 er paracetamol, infliximab og lidocain off-label i populationen 1-23 måneder, mens infliximab er off-label for børn mellem 1 måned – 5 år.

A pilot project on drink spiking – thematic analysis of factors influencing police reporting

Dorte Fris Palmqvist
Department of Anaesthesia and Intensive Care, Copenhagen University Hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark.

Background
In Denmark there has been a focus on drink spiking, the administration of alcohol or drugs into someone´s drink without their knowledge or permission, and The Danish Poison Information Centre has seen a 700 percent increase in inquiries regarding this phenomenon from 2015 to 2024. Drink spiking is a criminal act and should be reported to the police. This study aims to explore whether victims report the incident to the police or not.

Method
In this exploratory study, a qualitative approach was used to investigate victims' experiences of the phenomenon drink spiking in the context of reporting to the police. Five young women who contacted The Danish Poison Information Center regarding suspected drink spiking were interviewed through semi-structured interviews. Thematic analysis was applied to the data.

Results
The following eight themes were found regarding reporting drink spiking to the police: Lack of knowledge about drink spiking, physical symptoms, the fear of re-traumatization, lack of evidence, lack of trust to the police, social responsibility, perception of drink spiking as a criminal act and the desire of forensic toxicological testing.

Conclusion
The study found that the behavior after drink spiking is complex and that many factors- including the eight themes - influence whether victims report the incident to the police. The various factors are weighted differently by each individual. Further interviews are required to reach data saturation.

Title: A 3D histological atlas of Multiple System Atrophy neuropathology

Authors: Marie Frederikke Garnæs[1,2], Michel Rasmussen[1], Lisette Salvesen[3], Susana Aznar[1], Mikkel Vestergaard Olesen[1], Sanne Simone Kaalund[1,2]

1. Centre for Neuroscience and Stereology, Department of Neurology, Copenhagen University Hospital, Bispebjerg and Frederiksberg Hospital, Copenhagen, Denmark.
2. Department of Health Technology, Technical University of Denmark
3. Department of Neurology, Bispebjerg and Frederiksberg University Hospital, Copenhagen, Denmark.

Background

Multiple System Atrophy (MSA) is characterized by oligodendrocytic accumulation of α-synuclein (αSyn) in glial cytoplasmic inclusions (GCIs). The region-specific association between GCIs and neuronal loss suggests that mechanisms beyond protein aggregation drives disease progression. We hypothesize that neuroinflammation precedes GCI and neuronal inclusion formation and correlates with subsequent neurodegeneration. This study tests that theory using whole hemisphere digital histopathology sections and spatiotemporal pattern analysis.

Methods

Brain tissue from 11 MSA patients was sectioned sequentially at 40 um. Every 300th and 301st section was stained for αSyn and IBA1, respectively. Digital wholeslide scans (20x) were collected (SLIDEVIEW^{TM} VS200, Olympus) from the ~260 sections.

Our analysis pipeline clusters image-derived features to identify spatiotemporal patterns of neuroinflammation, protein aggregation, and cell death using automated detection, segmentation, and quantification of GCIs, activated microglia, and neurons across entire slides. These extracted features will be integrated into a three-dimensional atlas, and spatial analyses along the anterior–posterior axis will be applied to infer the temporal sequence of pathological events.

Results

We developed a pilot image analysis pipeline to detect and segment tissue, αSyn and microglia using Qupath's supertile and pixel classifier plug-ins. Microglia branching was automatically quantified based on work by Guignet et al. (2023). Preliminary results support further pipeline development.

Conclusions

The pipeline will enable high-throughput, quantitative analysis of MSA histopathology at whole-brain scale. Our 3D MSA atlas will elucidate the sequence linking neuroinflammation, GCI formation, and neurodegeneration, and enable in vivo TSPO-PET imaging as a promising biomarker strategy for detection of early-stage MSA.

High-volume running results in reduced fat mass and muscular performance

Bjørk Wulff Helge [1,2], Kenneth Hudlebusch Mertz [1,2], Sara Dietz Pedersen [1,2] and Jesper Løvind Andersen [1,2] and Jakob Agergaard [1,2,]

1 Institute of Sports Medicine Copenhagen, Department of Orthopaedic Surgery, Copenhagen University Hospital - Bispebjerg and Frederiksberg, Copenhagen, Denmark.
2 Center for Healthy Aging, Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark.

Background

Training for ultra-marathon running entails performing high-volume running which can lead to non-functional overreaching and low energy availability (LEA) both of which have negative impacts on health and performance.

Aim

This prospective cohort study aimed to assess LEA-status and its effects on performance and health of ultra-runners performing high-volume training.

Methods

29 ultra-marathon runners (5f/24m) completed 3 trial days carried out at the initiation of their training cycle, three months into the training cycle and at their maximal running volume prior to their primary race of the season. Trial days consisted of blood sampling, DXA-scans, ultrasound imaging, counter movement jumps (CMJ), isokinetic strength testing, and tests of running economy and VO_2-max. Participants completed questionnaires for LEA at trial day 1 and 3.

Results

Fat mass decreased from visit 1 to 2 and 3 with no change in lean body mass. Peak torque (quadriceps at 60°/s and hamstrings at 240°/s) decreased from visit 1 to visit 2. VO_2-max decreased from visit 1 to 3. 6 and 9 runners tested positive for LEA-status at trial day 1 and 3, respectively.

Conclusion

Prolonged high-volume running seems to negatively affect muscular performance and maximal endurance capacity. Whether LEA-status influences this development is unclear.

Increased risk of long-term death or thromboembolism with hypokalemia at atrial fibrillation diagnosis

Rasmus Gregersen Mottlau[1,2], Mathias Lindquist Hansen[1], Hanne Nygaard[1], Frederikke Egeberg[1], Maria Helena Dominguez Vall-Lamora[3], Janne Petersen[2], Ahmad Sajadieh[3]

[1]Department of Emergency Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark
[2]Center for Clinical Research and Prevention, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark
[3]Department of Cardiology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

Aims

Hypokalemia is frequently observed in patients with atrial fibrillation (AF), yet its prognostic significance remains unclear—particularly in patients not receiving oral anticoagulants (OAC). We investigated the association between baseline hypokalemia and all-cause mortality or thromboembolism in a large cohort of patients with newly diagnosed AF.

Methods: In this registry-based cohort study, we included 26,209 patients diagnosed with AF between 2013-2021 in Denmark. A baseline potassium measurement <3.5 mmol/L was defined as hypokalemia. The population was stratified based on initiation of OAC therapy and CHA_2DS_2-VASc score. We employed incidence analyses and Cox regression (adjusted for confounders) with death or thromboembolic events as a composite outcome.

Results

At baseline, 10.8% of patients were hypokalemic and had higher event rates (181 vs. 123 events per 1,000 patient-years). Hypokalemic patients with a low CHA_2DS_2-VASc score (≤1) not initiated on OAC had significantly higher event rates (95 vs 44 per 1,000 patient-years) and adjusted hazard ratio (aHR) of 1.68 (95% CI: 1.26–2.24). Similarly, we observed a significantly increased risk for patients with high CHA_2DS_2-VASc score (≥2) both with and without OAC initiation at aHR 1.27 (1.14–1.41) and 1.24 (1.11–1.38), respectively. No association was observed for patients with low CHA_2DS_2-VASc score (≤1) initiated on OAC at aHR 1.07 (0.64–1.79).

Conclusion

Baseline hypokalemia was associated with increased mortality or thromboembolism in patients with newly diagnosed atrial fibrillation, particularly among those low CHA_2DS_2-VASc score not initiated on OAC. Further testing is needed, but this could potentially be included in CHA_2DS_2-VASc scoring.

Blood pressure dynamics at acute hospital admission. Is acute therapy indicated?

Frederiksberg hospital, YFOR – kardiologisk forskingsenhed
Authors: Walid Warrad, Rakin Hadid, Emma Malm, Helena Dominguez, Philip Bonde, Steen Bendix Haugaard, Ahmad Sajadieh.

Background
Asymptomatic acutely elevated systolic blood pressure (SBP), at admission to the emergency room (ER), has been shown to be inversely associated with adverse outcomes. Although, the dynamics of BP during admission remains unclear, it should be addressed if asymptomatic acutely elevated SBP should be treated in the ER. We, therefore, studied elevated SBP dynamics at acute admission to the hospital.

Methods
An observational prospective study was conducted at Bispebjerg University Hospital (Zealand, Denmark) between years 2019-2023 including 951 patients admitted for medical reasons. Measurement of BP was conducted at admission and 6.1 hours later (mean, IQR 1.5, - 8.5), a continuous blood pressure measurement was conducted in supine position using Finapres. Admission BP was compared to mean-BP measured during 10 min of continuous BP measurement.

Results
Of the 951 patients (44% females) mean age was 64 (±17) years (Table 1) and 17% had a reduction of SBP > 20 mmHg, 9% > 30 mmHg and 4,4% > 40 mmHg reduction of SBP (Figure 1). Among patients with SBP > 160 mmHg, 49% experienced > 20 mmHg reduction, while 32% > 30 mmHg reduction and 20% > 40 mmHg reduction of SBP (Figure 2).

Conclusion
Significant spontaneous reduction of SBP shortly after admission can be expected in half of patients with SBP > 160 mmHg. Medicinal intervention for patients without signs of hypertensive crisis should await consecutive BP measurements.

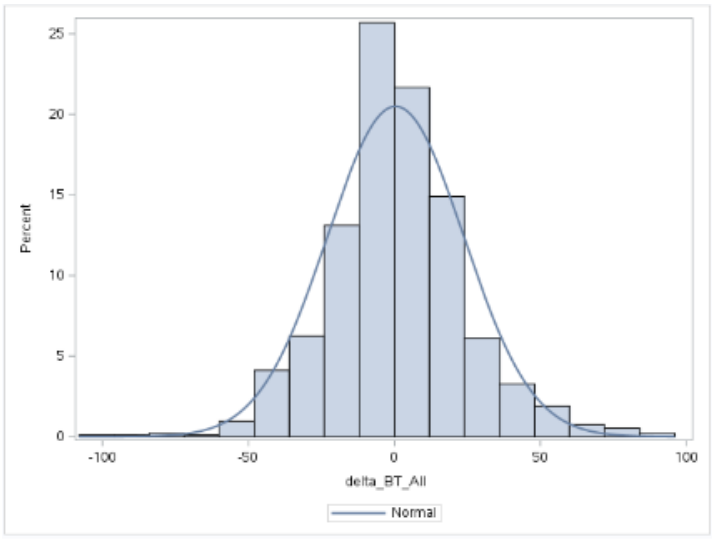


Figure 1 Blood pressure (BP) dynamics including all 951 patients. 17 % of patients had at least 20 mmHg reduction in systolic blood pressure (SBP) shortly after admission.

Table

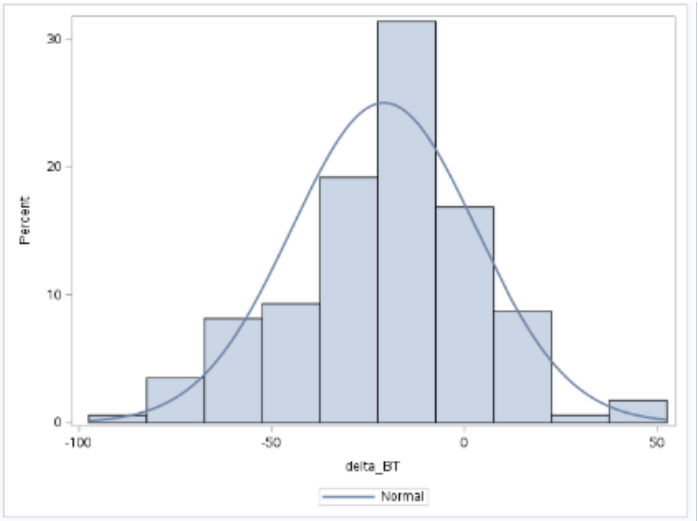


Figure 2 Blood pressure (BP) dynamics including patients with SBP > 160 mmHg. 49 % of patients had at least 20 mmHg reduction in systolic blood pressure (SBP) shortly after admission. There is a tendency towards a reduction in SBP after admission, when SBP is significantly elevated.

	All subjects (n=951)
Patient Characteristics	
Age (mean [SD])	64.3 (17)
Gender (female [no. %])	418 (44)
BMI (mean [SD])	26.2 (5)
Current smoker (no. %)	200 (21)
Comorbidities	
Hypertension (no. %)	466 (49)
Diabetes (no. %)	157 (17)
Chronic obstructive lung disease (COPD) (no. %)	126 (13)
Ischemic heart disease (no. %)	178 (19)
Atrial fibrillation (no. %)	221 (23)
Congestive heart failure (no. %)	120 (13)
Chronic kidney disease (CKD) (no. %)	243 (29)
Medication	
ACEi/ARB (no. %)	329 (35)
Betablockers (no. %)	258 (27)
Diuretics (no. %)	305 (32)
NOAC (no. %)	170 (18)
Acetylsalicylic acid (no.%)	159 (17)
Cardiovascular measurements	
	Mean (SD)
Systolic Blood Pressure (mmHg) [mean (SD)]	137 (27)
Diastolic Blood Pressure (mmHg) [mean (SD)]	77 (15)
Total peripheral resistance (l/min/m^2) [mean (SD)]	1085 (578)
Cardiac index (l/min/m^2) [mean (SD)]	3.35 (1.04)
eGFR (ml/min/1.73m^2) [mean (SD)]	69.8 (22)

Spatial profiling of microglia autophagic signatures in people with Parkinson's and Multiple System Atrophy

Sofie Aarup Bach[1,2], Vladyslav Vadymovych Tkach[2], Mirolyuba Simeonova Ilieva[3], Sanne Simone Kaalund[1], Ausrine Areskeviciute[2], Eva Løbner Lund[2,4] and Susana Aznar[1]
[1]Centre for Neuroscience and Stereology, Copenhagen University Hospital Bispebjerg, Denmark
[2]Danish Reference Center for Prion Diseases, Department of Pathology, Rigshospitalet, Copenhagen University Hospital, Denmark
[3]The Bartholin Institute, Department of Pathology, Rigshospitalet, Copenhagen University Hospital, Denmark
[4]Department of Clinical Medicine, University of Copenhagen, Denmark

Background
Alpha-synuclein (a-syn) aggregation is a pathological hallmark of both Multiple System Atrophy (MSA) and Parkinson's disease (PD). MSA is a rare and rapidly progressing neurodegenerative disorder. Although it shares some clinical features with PD, treatments for PD are ineffective in MSA. The reasons for these differences are still unclear. Recent studies suggest that unique a-syn "strains" may exist in each disease, and these could explain the faster spread of toxic forms in MSA.

Objective
We hypothesize that microglial responses to different a-syn strains contribute to the distinct disease patterns in MSA and PD. Our goal is to study this using postmortem brain tissue.

Method
We analyzed microglial protein expression in relation to a-syn pathology using the GeoMx Digital Spatial Profiler (DSP). Protein panels included "Neural cell profiling," "Glial cell subtyping," and "Autophagy." Our cohort included eight PD and eight MSA patients. For each case, we examined three brain regions: the frontal cortex, putamen, and substantia nigra. Regions were categorized as having high, medium, or low a-syn loads. Using GeoMX-DSP, we obtained proteomic data from microglia and oligodendrocytes. In parallel, we used CellProfiler to assess microglial morphology and linked these findings with pathology and clinical data.

Results
Preliminary results show that MSA brains have more amoeboid-shaped microglia, indicating higher activation levels. Proteomic and oligodendrocyte analyses are ongoing. This study aims to clarify how microglia contribute to neurodegeneration and may reveal disease-specific microglial profiles that could guide new treatments for MSA and PD.