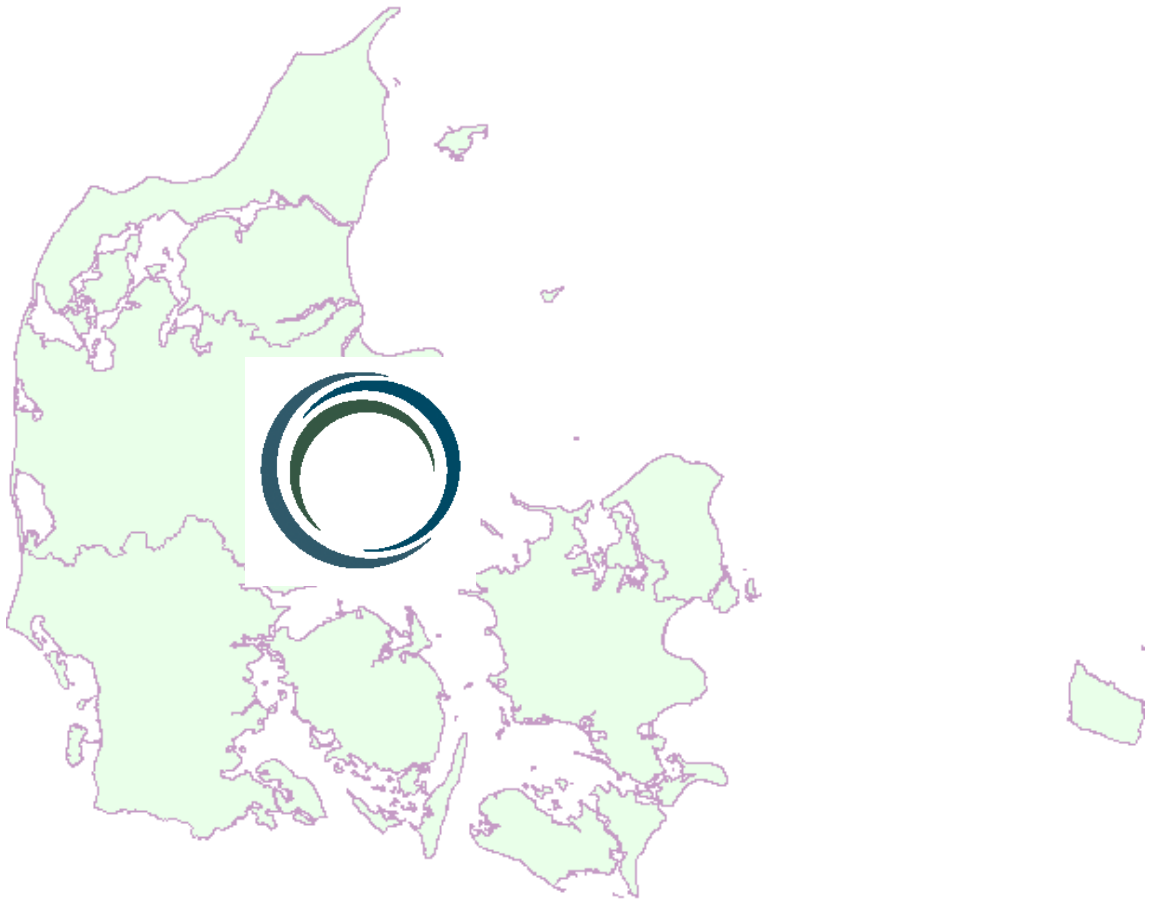
DSKE

DANSK SELSKAB for KLINISK ERNÆRING

28. årsmøde i klinisk ernæring

Helnan Marselis Hotel, Strandvejen 25, Aarhus

Fredag 10. maj 2019 kl. 8.30 – 16.00



Årsmøde i klinisk ernæring 2019

Velkommen til årsmøde i klinisk ernæring! Årsmødet afholdes for 28. gang i alt og for 14. gang i Aarhus. Det er tværfagligt og arrangeret primært for læger, sygeplejersker, kliniske diætister og cand. scient'er i klinisk ernæring.

Ved mødet anvendes elektronisk stemmeafgivelse. **Medbring derfor device** (pc, tablet, telefon mv.) med mulighed for opkobling på wifi.

Planlægningsgruppe

Mette Borre, klinisk diætist, Lever-, Mave- og Tarmsygdomme, Aarhus Universitetshospital.
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Anne-Sofie Kannerup, ledende overlæge, Kirurgisk Afdeling, Regionshospitalet Randers.
Email annekann@rm.dk

Tak til udstillere og sponsorer

Program

08.30 - 09.30	**Ankomst**, registrering og morgenmad
09.30 - 09.35	**Velkomst** *Henrik Højgaard Rasmussen,* Aalborg Universitetshospital
09.35 - 10.20	**Nutrition in patients with inflammatory bowel disease** *Miranda Lomer*, King's College, London, Storbritannien
10.20 – 10.30	**Discussion** (engelsk)
10.30 – 10.40	**Uddeling** af Nutricias forskningslegat i klinisk enteral ernæring
10.40 – 11.10	**Patientrejsen**: Præoperativ ernæring og ernæring til den kritisk syge *Dansk, tværfagligt ekspertpanel*
11.10 – 11.40	**Pause**
11.40 – 12.10	**Patientrejsen**: rehabilitering og ernæringsterapi hos den langtidssyge *Dansk, tværfagligt ekspertpanel*
12.10 - 13.00	**Frokost**
13.00 - 13.40	**A new definition of malnutrition: Implications for clinical practice** *Tommy Cederholm*, Uppsala Universitet, Sverige
13.40 – 13.50	**Diskussion** (engelsk/dansk/svensk)
13.50 – 14.20	**Kaffe** og fordeling til frie foredrag
14.20 – 15.40	**Frie foredrag**
15.40 – 16.00	**Uddeling** af pris for bedste abstract og af Jens Kondrup Prisen *Jens Rikardt Andersen,* formand for DSKE
16.00	**Tak for i dag**

Efter årsmødet afholdes:

16.30 – 17.30	**Generalforsamling**, Dansk Selskab for Klinisk Ernæring

Om foredragsholderne

Miranda Lomer
MBE, PhD, RD, senior consultant dietitian in gastroenterology, Guy's and St Thomas' NHS Foundation Trust, and reader in dietetics*. King's College London, Storbritannien.* miranda.lomer@kcl.ac.uk.
Klinisk diætist og PhD inden for klinisk ernæring. Særligt fagområde inden for diætbehandling af patienter med kronisk inflammatorisk tarmsygdom. Primus motor ved indførsel af *low FODMAP diet* i klinisk praksis i Storbritannien.
Link: https://kclpure.kcl.ac.uk/portal/miranda.lomer.html
Inspiration: Guts Charity UK, https://gutscharity.org.uk

Udvalgte referencer:

1. Sloan T et al. A low FODMAP diet is associated with changes in the microbiota and reduction in breath hydrogen but not colonic volume in healthy subjects PLoS One 2018; 13: e0201410.
2. Lomer MCE et al. A multicentre Study of Nutrition Risk Assessment in Adult Patients with Inflammatory Bowel Disease Attending Outpatient Clinics**.** Ann Nutr Metab 2019; 74: 18–23.
3. Whelan K et al. The low FODMAP diet in the management of irritable bowel syndrome: an evidence-based review of FODMAP restriction, reintroduction and personalisation in clinical practice. J Hum Nutr Diet 2018; 31: 239-255.

Tommy Cederholm
Professor i klinisk nutrition ved Institutionen för folkhälso- och vårdvetenskap, Klinisk nutrition och metabolism, Uppsala Universitet, Sverige. tommy.cederholm@pubcare.uu.se
Professor i klinisk ernæring ved Uppsala Universitet og overlæge i geriatri ved Akademiska Sjukhuset. Leder af forskergruppen for klinisk ernæring og metabolisme; arbejder bredt med forebyggende folkesundhedstiltag og klinisk ernæring. Forskning især inden for interaktion mellem energiomsætning, fedt- og proteinindtag samt katabolisme, inflammation og ernæringsstatus hos ældre, kronisk syge og patienter med demens.
Link: http://katalog.uu.se/empinfo/?id=N5-874 og
http://uppsala.academia.edu/TommyCederholm

Udvalgte referencer:

1. Cederholm T et al. GLIM criteria for the diagnosis of malnutrition - A consensus report from the global clinical nutrition community. J Cachexia Sarcopenia Muscle 2019; 10: 207-217.
2. Landi F et al. Muscle loss: The new malnutrition challenge in clinical practice. Clin Nutr 2018; 30: 32554-8.
3. Dent E et al. International Clinical Practice Guidelines for Sarcopenia (ICFSR): Screening, Diagnosis and Management. J Nutr Health Aging 2018; 22: 1148-1161.
4. von Berens Å et al. Effect of exercise and nutritional supplementation on health-related quality of life and mood in older adults: the VIVE2 randomized controlled trial. BMC Geriatr 2018;21: 286.

Patientrejsen

Baggrund
Patientrejsen er et nyt initiativ til årsmødet. Oplægget tager udgangspunkt i en sygehistorie og er en interaktiv gennemgang af et konkret behandlingsforløb. I oplægget deltager patienten selv, en pårørende samt et panel af behandlere, hvoraf nogle har deltaget i det konkrete behandlingsforløb. Der vil være mulighed for diskussion og spørgsmål, og der indgår klinisk beslutningstagning, hvor mødets deltagere opfordres til at deltage.

Medbring derfor et *device* (computer, tablet, telefon etc), der kan opkobles til wifi.

Sygehistorie
Sygehistorien præsenteres på årsmødet. Den berører ernæringsrelaterede spørgsmål indenfor

- ambulant cancerudredning
- præoperativ vurdering af ernæringsmæssig risiko
- håndtering af postoperative komplikationer
- opstart af sondeernæring hos den postoperative patient med tarmparalyse
- kombineret sonde- og parenteral ernæring
- udskrivning fra intensiv afdeling til sengeafsnit
- udskrivning fra hospital til primærsektor
- genoptræning i primærsekoren

Panel
Panelet, som deltager ved diskussion af patientrejsen, er tværfagligt sammensat og består af:

- Kirstine Guld Frederiksen, klinisk diætist fra hospital (Hospitalsenheden Vest)
- Line Dam Bülow, klinisk diætist fra kommunen (Aarhus Kommune)
- Lars Vinter-Jensen, gastroenterolog (Aalborg Universitetshospital)
- Dorte Illum, intensivlæge (Aarhus Universitetshospital)
- Trine Lauridsen, kirurg (Aarhus Universitetshospital)
- Anja Chapell, sygeplejerske i sengeafsnit (Aarhus Universitetshospital)

Referencer
1. Arabi YM et al. The intensive care medicine research agenda in nutrition and metabolism. Intensive Care Med 2017; 43: 1239-1256.

Frie foredrag og postere

Foredrag i sal A

A01	14.20	Patient characteristics and clinical outcomes in a specialised intestinal failure unit: an observational cohort study. **Marcel Eriksen**
A02	14.30	Sensory acceptance of food developed for frail older adults. **Jonas Svendsen**
A03	14.40	The contributory role of protein intake on maintaining muscle mass in patients with non-small cell lung cancer. **Randi Tobberup**
A04	15.00	A cross-over trial of the effects of diet rich in vitamin K and vitamin K supplementation in tablets in patients with vitamin K deficiency in hemodialysis. The effect of boiling on the content of vitamin K in broccoli. **Signe Wikstrøm**
A05	15.10	Individuel ernæringsintervention til forebyggelse af genindlæggelser blandt geriatriske patienter – et randomiseret klinisk studie. **Mai Cramon**
A06	15.20	The effect of a perioperative multinutrient supplement on collagen synthesis during early hernia repair: A randomised clinical pilot study. **Marie Kjær**

Foredrag i sal B

B01	14.20	To feasibility studier blandt geriatriske patienter: (FS1) Fotodokumentation af kost- og væskeindtag til vurdering af energi- og proteinindtag samt (FS2) køleskabsindhold som prædiktor for genindlæggelse. **Ines Raben**
B02	14.30	Optimeret dysfagidiæt forbedrer tilfredsheden hos plejepersonalet. **Camilla Bech**
B03	14.40	Effekten af probiotika på intestinal permeabilitet hos patienter med gastrointestinal cancer i kemoterapi. **Mina Namini**
B04	15.00	Utilsigtet vægttab hos ambulante patienter. **Mette Holst**
B05	15.10	Equal efficacy of gastric and jejunal tube feeding in liver cirrhosis and/or alcoholic hepatitis - a randomised controlled trial. **Mette Borre**
B06	15.20	To eat is to practice – everyday challenges and rehabilitation needs of head and neck cancer survivors. **Marianne Kristensen**

Postere

P01 Clinical effects of current parenteral nutrition treatment in patients with advanced cancer, a systematic review. **Randi Tobberup**

P02 Effekter af nyoprettet diabetesskole med 12 ugers gruppebaseret uddannelsesprogram for laotiske patienter med type 2 diabetes mellitus. **Ulla Bahne**

P03 Et randomiseret kontrolleret klinisk studie af præ- og postoperativt tilskud med zink, C-vitamin, arginin og multivitamin hos patienter opereret for hoved-hals cancer. **Nadia Andersen**

P04 Fiskeolietilskud til patienter med cancer – kapsler eller juicebaseret ernæringsdrik? Kontrolleret undersøgelse af compliance. **Nina Schmidt**

P05 Underlying causes of vitamin K deficiency in patients treated with hemodialysis. **Signe Wikstrøm**

P06 The use of biologically-based complementary medicines in patients with neuroendocrine tumours. **Mette Borre**

P07 How to increase referrals in an RCT among frail old patients at nutritional risk. **Jonas Svendsen**

Abstracts

**Indsendt til ESPEN 2019*

A01*

Patient characteristics and clinical outcomes in a specialized intestinal failure unit: an observational cohort study

Marcel David Eriksen*[1], Simon Mark Dahl Jørgensen[1], Lars Lemming[2], Jens F. Dahlerup[1], Simon Lal[3], Christian L. Hvas[1]

[1]Department of Hepatology and Gastroenterology, [2]Department og Clinical Microbiology, Aarhus University Hospital, Aarhus N, Denmark; [3]Intestinal Failure Unit, Salford Royal NHS Foundation Trust, Salford M6 8HD, United Kingdom

Rationale: Intestinal failure (IF) is defined by a need for intravenous (IV) supplementation. Patients may present with multiple morbidities, and IV treatments carry a risk for catheter-related complications. Few studies described patient characteristics and clinical outcomes according to type of IF.
Methods: We consecutively included patients who were admitted to a newly established inpatient IF unit (IFU) from 2013 through 2017. We evaluated patient characteristics and clinical outcomes of all patients' first admission. Outcomes included IF classification, length of stay, central line-associated blood stream infection (CLABSI), and discharge on home parenteral support (HPS). Follow-up was conducted six months after discharge for mortality and the continued need for HPS.
Results: A total of 236 patients were evaluated, including 39 (17%) with type 1 IF, 123 (52%) with type 2 IF, and 74 (31%) with type 3 IF. Of 91 who had a central venous catheter (CVC) on admission, CLABSI was present in 11 (12%). The CLABSI occurrence during admission was 2 (1%) of 173 patients with a CVC. Mean length of stay declined from mean 33 days (95% confidence interval (CI): 26.2-42.5) in 2013 to 15 days (95% CI: 12.2-17.7) in 2017 ($p<0.0001$). Undiagnosed comorbidity was revealed in 165 patients (70%) with unchanged frequency during the study period ($p=0.8$). Sixty-seven (28%) patients were discharged with HPS.
Conclusions: Inpatients with IF present with multiple morbidities. CLABSI should be investigated on admission. A low inpatient CLABSI rate may be achieved through the implementation of a specialised IFU.

A02*

Sensory acceptance of food developed for frail older adults

Jonas Anias Svendsen[1], Anne Wilkens Knudsen[1], Dina Moxness Konglevoll[1], Anne Marie Beck[1,2], Tina Munk[1]

[1]Dietetic and Nutritional Research Unit, Herlev-Gentofte University Hospital, Herlev, Denmark; [2]University College Copenhagen, Institute of nutrition and nursing, Faculty of Science, Copenhagen, Denmark.

Rationale: Older frail adults are at high risk of undernutrition both in the hospital and in the municipality setting. The acceptance of the food served in these settings are therefore of high importance to counteract this risk. The aim of this study was to test the acceptance of sensory optimized, protein and energy-rich dishes specifically developed for older frail adults[1].
Methods: Participants were recruited from the main hall at Herlev Hospital and were served food samples from one of 25 dishes. Data were obtained using a sensory questionnaire consisting of 5 questions about current appetite as well as flavor, appearance, smell, and texture of the dish. A 5-point scale was used, from 1=dislike a lot to 5=like a lot. Further, data on age, gender, and if they were patients or visitors were collected.
Results: Each dish was on average tasted 23 times, in total 585 adults completed a taste session. 54% were patients and 46% visitors, 61% women. Mean age 69±13 years, 70% 65+ years. Appetite was not a confounder for acceptance of flavor. The dishes were overall ranked 4.3±0.8 for flavor. No difference in scores on flavor compared with appearance was found. However, a difference in scores on flavor compared with texture 4.2±0.8 ($p=0.03$), and smell 4.0±0.7 ($p<.0001$) was found. No difference was found in acceptance between age groups.
Conclusions: We found a high acceptance of all the dishes, but more studies are needed to investigate if a high acceptance equals a high consumption.

A03

The contributory role of protein intake on maintaining muscle mass in patients with non-small cell lung cancer

Randi Tobberup[a,b,c,*], Henrik H. Rasmussen[a,b], Mette Holst[a,b], Nikolaj A. Jensen[c], Ursula G. Falkmer[b,c], Andreas Carus[b,c]

[a]*Center for Nutrition and Bowel Disease, Department of Gastroenterology, Aalborg University Hospital, Mølleparkvej 4, 9000 Aalborg, Denmark;* [b]*Department of Clinical Medicine, Faculty of Medicine, Aalborg University, Sdr. Skovvej 15, 9000 Aalborg, Denmark;* [c]*Department of Oncology, Clinical Cancer Research Center, Aalborg University Hospital, Hobrovej 18-22, 9000 Aalborg, Denmark*

Rationale: Muscle wasting in cancer patients is prevalent and the role of protein intake in muscle maintenance remain unknown. The *aim* of the current study was to explore the role of protein intake in relation to muscle mass during anti-neoplastic treatment in patients with non-small cell lung cancer (NSCLC).
Methods: A longitudinal observation study was conducted in NSCLC patients during the first three cycles of anti-neoplastic treatment. Nutrient intake was assessed by a 24-hour recall at the 1st and 2nd cycle of treatment. Muscle mass was calculated as absolute change by routine CT scans (baseline and after 3 cycles of treatment) at landmark lumbar 3rd vertebra (VikingSlice software). Independent t-tests and chi-square test were conducted to assess differences in protein intake in muscle maintainers (±5.9 cm2) and muscle wasters (>6 cm2 loss). Univariate and multivariate linear regression analyses were performed to determine the role of protein intake on changes in muscle mass.
Results: Sixty-two patients were included in the study of which 52 had pre-post CT scans performed. Most patients had stage IV disease and received palliative antineoplastic treatment. Twenty-seven out of 52 patients maintained muscle mass and had a significantly higher total protein intake (1.2 vs. 1.0g protein/kg body weight/d, p=.023) as well as a higher protein intake per meal (1.1 vs 0.7g protein/kg body weight/meal, p=.038)
compared to muscle wasters (n=25). The protein intake explained 9.2% of the variation in muscle mass which increased to 14.4% when the inflammatory score was added in the model (p<.05). Muscle wasting was not detectable by weight measuring alone.
Conclusions: Total protein intake and meal quantity was higher in muscle maintainers compared to muscle wasters. Muscle wasting occur early in the treatment course and effective treatment therapies are warranted.

A04*

A cross-over trial of the effects of diet rich in vitamin K and vitamin K supplementation in tablets in patients with vitamin K deficiency in hemodialysis. The effect of boiling on the content of vitamin K in broccoli

Signe Wikstrøm[1], Katrine Aagaard Lentz[1], Ditte Hansen[2,5], [3]Lars Melholt Rasmussen, [4]Jette Jakobsen, [2,5],Henrik Post Hansen, Jens Rikardt Andersen[1]

[1]*Department of Nutrition, Exercise and Sports, University of Copenhagen;* [2]*Department of Nephrology, Herlev-Gentofte Hospital, University of Copenhagen;* [3]*Department of Clinical Biochemistry and Pharmacology, Odense University Hospital;* [4]*National Food Institute, The Technical University of Denmark,* [5]*Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark*

Background: A low vitamin K status is common in patients in hemodialysis. Because of potassium and phosphate restrictions in their diet, the amount of vitamin K-rich foods are often limited to a minimum. The purpose was to investigate if a diet rich in vitamin K or a supplement with vitamin K could improve the vitamin K status in hemodialysis patients. It was also examined if boiling broccoli affected the potassium and phylloquinone ratio.
Method: 10 patients participated (9 completed both periods) in 15 week long crossover study consisting of two 6-week interventions interrupted by a three-week wash-out. The diet-intervention focused on a diet rich in menaquinones and phylloquinones and the tablet (MK-7)-intervention consisted of a daily supplement with 360µg MK-7. P-dp-ucMGP was measured before, after 3 weeks and after 6 weeks of intervention. Vitamin D (p-25-OH-Vitamin D) and coagulations factors (INR) were measured as well. Broccoli was boiled

for 2 and 8 minutes. Phylloquinone and potassium concentrations were measured before and after.
Results: P-dp-ucMGP differences in the diet-intervention were 26pmol/L (-1335-2205) (p=1) and -417pmol/L (-1257-44) (p=0.007) in the MK-7-intervention. P-25-OH-Vitamin D differences in the diet-intervention were -6nmol/L (-38-46) (p=0.37) and -16nmol/L (-61-154) (p=0.07) in the MK-7-intervention. INR differences were 0 (-0.1-0.0) (p=0.08) in the diet-intervention and 0 (-0.1-0.0) (p=1.0) in the MK-7-intervention. After 2 min of boiling, potassium was reduced by 24% (+/-1) and phylloquinone 8% (+/-8). After 8 min of boiling, potassium was reduced by 51% (+/-3) and phylloquinone 7% (+/-3).
Conclusion: MK-7-supplementation lowered p-dp-ucMGP significantly and more effectively than a menaquinone and phylloquinone focused diet (improved vitamin K status). However, compliance wasn't good during the diet-intervention. Vitamin D status was decreased in-significantly during MK-7-intervention and should be investigated further. Boiling broccoli decreases the potassium concentration and retains phylloquinone concentrations. Boiling of vegetables may be a favorable recommendation in hemodialytic patients.

A05*

Individuel ernæringsintervention til forebyggelse af genindlæggelser blandt geriatriske patienter – et randomiseret klinisk studie

Mai Østerø Cramon[1,2], Ines Raben[1,2], Anne Marie Beck[3], Jens Rikardt Andersen[1]
[1]Institut for Idræt og Ernæring, Københavns Universitet, [2]Sjællands Universitetshospital, Køge, [3]Institut for Sygepleje og Ernæring. Det Sundhedsfaglige Fakultet, Københavns Professionshøjskole

Baggrund: Geriatriske patienter er ofte underernærede efter hospitalsindlæggelse, hvilket nedsætter muskelmasse, funktionsevne og livskvalitet samt øger genindlæggelsesrisikoen. Det primære formål var at undersøge, om en individuel ernæringsintervention kunne reducere genindlæggelsesfrekvensen blandt geriatriske patienter ved 30 dage. Sekundært om ernærings-interventionen kunne forbedre ernæringsstatus (energibehov, proteinbehov og vægt), funktionsstatus (ADL), muskelstyrke (rejse-sætte-sig-test og håndgribestyrke) og livskvalitet ved 30/60 dage.
Metode: Fire ugers randomiseret klinisk forsøg udført på medicinsk afdeling, Sjællands Universitetshospital, Køge. Geriatriske patienter (≥65 år) randomiseret til hospitalets standardbehandling eller individuel ernæringsintervention bestående af diætvejledning og ernæringsplan ved udskrivelse samt to hjemmebesøg tre og 14-21 dage efter udskrivelse. Ernæringsfaguddannede udførte besøgene.
Resultater: 40 geriatriske patienter blev inkluderet og randomiseret til henholdsvis interventions- (n=21) eller kontrolgruppe (n=19). 100% compliance til den individuelle ernæringsintervention. Ingen forskel på gen-/indlæggelsesfrekvens efter 30/60 dage: interventionsgruppen (29%/29%) og kontrolgruppen (11%/25%). 93% i interventionsgruppen (n=15) fik dækket energibehovet ved 30 dage, hvilket var signifikant flere (p=0,014) end kontrolgruppen med 47% (n=15). Indenfor grupperne blev følgende signifikante forskelle fundet: Fra baseline til 30 dage steg andelen, der fik dækket ≥ 75% af energi- (53→93%, p=0,035) og proteinbehov (20→73%, p=0,009) hos interventionsgruppen. Fra baseline til 60 dage steg medianen for funktionsstatus (79→82, p=0,016) hos interventionsgruppen (n=9) og for kontrolgruppen (n=11) steg medianen for håndgribestyrke (19→22kg, p=0,049) og for selvvurderet helbred (60→75 i VAS score, p=0,032).
Konklusion: Fire ugers individuel ernæringsintervention ved udskrivelse kan ikke reducere gen-/indlæggelsesfrekvensen hos geriatriske patienter 30 efter udskrivelse. Den individuelle ernæringsintervention øger andelen af geriatriske patienter, der får dækket ≥75% af deres energibehov sammenlignet med kontrolgruppen.

A06*

The effect of a perioperative multinutrient supplement on collagen synthesis during early hernia repair: A randomised clinical pilot study

Marie Kjaer[1], Amalie Kruse Sigersted Frederiksen[1], Neel Ingemann Nissen[3], Nicholas Willumsen[3], Gerrit Van Hall[4], Lars Nannestad Jorgensen[1], Jens Rikardt Andersen[2] and Magnus S. Ågren[1,5]
[1]Digestive Disease Center, Bispebjerg Hospital, University of Copenhagen, Copenhagen, Denmark; [2]Department of Nutrition, Exercise, and Sports, University of Copenhagen, Copenhagen, Denmark; [3]Nordic Bioscience A/S, Herlev, Denmark; [4]Clinical Metabolomics Core Facility, Department of Clinical Biochemistry, Rigshospitalet, and Department of Biomedical Sciences, University of Copenhagen, Copenhagen, Denmark; [5]Copenhagen

Wound Healing Center, Bispebjerg Hospital, University of Copenhagen, Copenhagen, Denmark

Background & Aims*:* The inguinal hernia disease is associated with an imbalanced collagen metabolism including attenuated type V collagen synthesis. The aim of the present study was to normalise this distorted collagen equilibrium by supplying a combination of nutrients necessary for collagen synthesis to patients undergoing inguinal hernia repair.
Methods*:* Twenty-one male patients scheduled for Lichtenstein inguinal hernia repair were randomized to an enriched nutritional supplementation (ENS-protein) group receiving 55 mg zinc, 1250 mg vitamin C, 14 g arginine and 14 g glutamine daily (n = 10) or to a control group (n = 11). Both groups received 1.5 g/kg of high-quality protein daily for 28 days. In addition, experimental epidermal wounds were created from raised suction blisters. Biomarkers of type I (CICP), type III (PRO-C3) and type V (PRO-C5) collagen synthesis were measured by enzyme-linked immunosorbent assays together with zinc and free amino acids in serum collected at baseline (day -14), day 0 before surgery and on postoperative day 1 (day 1). Wound fluids from surgical drain were analysed for CICP, PRO-C3 and PRO-C5 on postoperative days 1 and 2.
Results*:* Fourteen days of ENS-protein raised the serum zinc level ($p = 0.002$) but reduced ($p = 0.022$) total amino acid levels preoperatively. Postoperatively, serum PRO-C5 decreased ($p = 0.046$) in the protein group but not in the patients receiving ENS-protein, who also had higher ($p = 0.041$) PRO-C5 levels than the protein group on day 1. CICP wound fluid levels increased from day 1 to day 2 in both groups and were higher on day 2 in the ENS-protein group compared with the protein group ($P = 0.029$). PRO-C3 increased ($p = 0.028$) from day 1 to day 2 in the ENS-protein group, but not in the protein group. One patient in the ENS-protein group developed wound infection and subsequent hernia recurrence. In the protein group, two patients developed wound infections and hernia recurred in three other patients within the 1-year follow-up period. The epidermal wounds healed uneventfully in both groups.
Conclusion*:* Supplementation with zinc, vitamin C, arginine and glutamine maintained type V collagen synthesis systemically following inguinal hernia repair and increased type I collagen synthesis locally.

B01*

To feasibility studier blandt geriatriske patienter: (FS1) Fotodokumentation af kost- og væskeindtag til vurdering af energi- og proteinindtag samt (FS2) køleskabsindhold som prædiktor for genindlæggelse

Ines Raben[1,2], Mai Østerø Cramon[1,2], Anne Marie Beck[3], Jens Rikardt Andersen[1]
[1]Institut for Idræt og Ernæring, Københavns Universitet, [2]Medicinsk afdeling, Sjællands Universitetshospital, Køge, [3]Institut for Sygepleje og Ernæring. Det Sundhedsfaglige Fakultet, Københavns Professionshøjskole

Baggrund og formål: (FS1) Det kan være en udfordring for patienter at kost- og væskeregistrere. Geriatriske patienter er særligt udfordrede pga. et lavt funktionsniveau. Formålet var at undersøge om geriatriske patienter havde viljen og evnen til at tage fotos samt om fotodokumentation kunne anvendes til at vurdere energi- og proteinindtag. (FS2) Et ældre studie har vist, at et tomt køleskab øger risikoen for genindlæggelse. Formålet var vha. fotodokumentation at undersøge, om køleskabsindhold tre dage efter udskrivelse var prædiktiv for genindlæggelse.
Metode: (FS1) I et RCT-studie blev geriatriske patienter i interventionsgruppen (n=21) spurgt ved inklusion, om de ville tage før- og efterfotos af alt mad- og væskeindtag i 2x2 dage samt sende fotos via sms/mail dagen inden hjemmebesøg. Et 48-timers kostinterview blev gennemført på besøgsdagen. (FS2) Ved første hjemmebesøg blev interventionsgruppen spurgt, om forsøgsudførende måtte tage fotos af køleskabsindholdet. Køleskabsindholdet blev vurderet tilstrækkeligt med ≥3 letfordærvelige holdbare fødevarer.
Resultater: (FS1) 15(71%) af forsøgspersonerne havde en smartphone, hvoraf 11(73%) tog fotos. Heraf sendte 7(33%) fotos. Den procentvise middelværdi viste en tendens til underestimering ved fotometoden af energiindtag på 14%(-25%-6%) og proteinindtag på 13%(-31%-8%) sammenlignet med kostinterview. Primære årsag var manglende fotos af mellemmåltider og drikkevarer. (FS2) 17 fotos af køleskabsindhold, alle vurderet tilstrækkelige og ikke prædiktiv for genindlæggelse.
Konklusion: (FS1) De geriatriske patienter med smartphone synes at have viljen, men mangler i nogle tilfælde overskuddet eller teknologiske forståelse for at tage/sende fotos. Fotodokumentation synes at underestimere energi- og proteinindtaget sammenlignet med kostinterview. (FS2) Forsøgspersonernes køleskabsindhold tre dage efter udskrivelse er ikke prædiktiv for genindlæggelse.

B02

Optimeret dysfagidiæt forbedrer tilfredsheden hos plejepersonalet

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Rationale: Dysfagi har været årsag til en række utilsigtede hændelser på landets hospitaler, hvor en årsag har været, at den rette diæt ikke var serveret. Dette har resulteret i aspirationspneumonier, der forlænger indlæggelsestiden, samt øger mortaliteten. Dysfagidiæten opleves ofte som uappetitlig af patienter og plejepersonalet. Derfor ønskes at undersøge, om en optimering af dysfagidiæten på Herlev-Gentofte Hospital vil kunne forbedre plejepersonalets tilfredshed og fremadrettet understøtte, at måltider med den rette konsistens serveres.
Metode: Forbedringen af dysfagidiæten indbefattede, at færdigkøbte timbaler blev erstattet af hjemmelavede dysfagi-venlige retter med fokus på smag, æstetik, konsistens, genkendelighed og variation. Der udførtes smagstest på plejepersonalet på neurologisk og medicinsk afdeling før og efter diætoptimering. De besvarede et 5 points spørgeskema fra rigtig dårligt=1 til rigtig godt=5 omkring udseende, smag, duft og konsistens. Dertil er der kategorisk spurgt til genkendelighed og variation. En score på over 3,5 blev fastsat som grænseværdi for et acceptabelt niveau.
Resultater: Ved før-smagstest deltog 21, og efter-smagstest deltog 19. Ved første test lå alle målte variabler under en score på 3,5. Ved anden test lå alle variabler over 3,5. Der ses signifikant forbedring på smag fra gennemsnitligt 3,4±0,9 til 4,4±0,6 (p=0,0003), udseende fra 3,1±0,8 til 4,2±0,6 (p=<0,0001), duft fra 3,2±0,7 til 4,3±0,7 (p=<0,0001), konsistens fra 3,1±0,9 til 4,4±0,6 (p=<0,0001), genkendelighed fra 3,3±1,0 til 4,4±0,7 (p=0,0002) og variation 2,9±1,5 til 4,4±0,6 (p=0,0007).
Konklusion: Optimering af dysfagi-diæten på Herlev-Gentofte Hospital har medført en signifikant forbedring af plejepersonalets tilfredshed med diæten. Det må undersøges yderligere, om dette vil medføre servering af dysfagidiæten.

B03

Effekten af probiotika pa intestinal permeabilitet hos patienter med gastrointestinal cancer i kemoterapi

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Baggrund: Cancerpatienter (CP) behandles ofte med stråle- og/eller kemoterapi (KT), hvilket kan medføre gastro-intestinale (GI) bivirkninger. Der kan være tale om mucositis, som kan være meget synligt i munden, men man kunne forestille sig, at der kunne være tilsvarende forandringer i tyndtarmen med påvirkning af tight junctions (TJ) og dermed øget intestinal permeabilitet (IP). Probiotika (PRO) har i andre patientgrupper vist at kunne have en gavnlig og reducerende effekt pa oget IP, men det er endnu ikke undersøgt blandt patienter med GI-cancer i KT.
Formål: Det primære formal var at undersoge om KT-induceret oget IP kunne reduceres ved intervention med PRO blandt patienter med GI-cancer. Sekundart undersogte vi energi- og proteinindtag samt forekomsten og svarhedsgraden af GI-gener for at undersoge om PRO influerede disse parametre.
Metode: Der blev inkluderet 5 deltagere i et randomiseret, kontrolleret crossover studie. Forsøget blev udført i to faser (fase 1 og fase 2) a tre uger, med en wash-out fase på to uger. Deltagerne blev randomiseret til enten at starte med PRO (intervention) eller maltose (placebo). IP blev målt ved lactulose-mannitol (LA-MA) bestemmelse i urin efter indtagelse af 5 g mannitol og 10 g lactulose. Dette blev gjort fire gange i forløbet, før og efter fase 1 og 2. Der blev anvendt spørgeskemaer og kostregistreringsskema til vurdering af energi- og proteinindtag samt forekomsten og sværhedsgraden af gastrointestinale gener.
Resultater: LA-MA-ratioen var næsten normal hos alle patienter. Der sås et fald i LA-MA-ratio (LMR) blandt 75 % (3/4) af patienterne efter indtag af PRO. Resten havde uændret LMR. Til sammenligning havde 40 % (2/5) et fald i LMR efter indtag af placebo, i kontrast til 60 % (3/5) hvor LMR steg. Der var ingen forskel i energi- og proteinindtag samt i forekomsten og sværhedsgraden af GI-gener i de to faser.
Konklusion: Probiotika kunne ikke påvises at have klinisk relevant effekt, især da der kun var få G-I-gener

og da permeabiliteten var praktisk taget normal. Forsøget burde gentages på patienter med G-I bivirkninger efter start af kemoterapi.

B04

Utilsigtet vægttab hos ambulante patienter

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Formål: Denne undersøgelse havde til formål at undersøge forekomsten af utilsigtet vægttab og dermed forbundne risikofaktorer hos ambulante patienter over fem forskellige specialer.
Metoder: I dette tværsnitstudie blev data for utilsigtet vægttab i de seneste tre måneder, "spist mindre" i den forløbne uge og tilhørende risikofaktorer, undersøgt gennem et enkeltspørgeskema over en uge i hvert af de fem ambulatorier på Aalborg Universitetshospitalet, Danmark. Deskriptiv statistik blev foretaget med Chi2-analyse og multipel logistisk regressionsanalyse.
Resultater: Af de 713 deltagere havde 26% et utilsigtet vægttab inden for de sidste tre måneder, og 21% havde spist mindre end normalt i løbet af den seneste uge. Patienter> 80 år [CI95%: 1.496; 4.358] og undervægtige patienter [CI95%: 1.766; 8.884] havde signifikant øget odds for "utilsigtet vægttab", mens kvinder [CI 95%: 1.216; 2.542], patienter fra afdelingen af medicinsk gastroenterologi [CI95%: 1.499, 4.205], afdeling for gastrointestinal kirurgi [CI95%: 1.289; 3.797] og afdeling for lungemedicin [CI95%: 1.353; 4.129] samt undervægtige patienter [CI95% 1,202; 4,742] viste øgede odds for 'spist mindre'.
Konklusion: På baggrund af den statistiske analyse er der stor risiko for utilsigtet vægttab i ambulante afsnit. Derfor er retningslinjer for håndtering af sygdomsrelateret underernæring i ambulantregi påkrævet.

B05*

Equal efficacy of gastric and jejunal tube feeding in liver cirrhosis and/or alcoholic hepatitis - A randomised controlled trial

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Rationale: Malnutrition is a frequent complication in decompensated liver cirrhosis and alcoholic hepatitis. Hospitalized patients who don't meet nutritional requirements are recommended to be enteral or parenteral fed. No guidelines recommend a specific type of tube. We hypothesized that jejunal tube feeding increases delivery of food in the intestine.
Methods: 40 inpatients with liver cirrhosis or alcoholic hepatitis and a daily energy intake < 75% of the calculated requirements were included consecutively and randomised 1:1 to: 1) Nasogastric (NG) feeding or 2) Nasojejunal (NJ) feeding. All received Peptamen AF® as enteral supplement to their oral intake. Participants were fed for 7 days, or followed until discharge or death. The total amount of calories and proteins delivered (tube feeding or eaten by the patient) was calculated. Patients with hepatic encephalopathy grade 3 or 4 were excluded. Descriptive statistics were used in the calculation.
Results: Of 146 patients screened, 40 were randomized (40% males, mean age 58 years, 70% cirrhosis, 10% alcoholic hepatitis, 20% both. 30% were Child-Pugh(CP)-B, 70% CP-C. A total of 33 patients fulfilled 7 days. Mean daily energy intake for 7 days were 6400kJ (NG) vs. 5900kJ (NJ) (p=0.53). CP-B & NG: 6100kJ; CP-B & NJ: 5415kJ; CP-C & NG: 5935kJ; CP-C & NJ: 5520kJ. Calculated caloric requirement was not acquired in either group. Tubes were accidently removed by the patients: once 36; twice 22; three times 10, no differences between NG and NJ.
Conclusions: NJ feeding was not superior to NG feeding in alcoholic hepatitis with or without cirrhosis. NG tube was more efficacious in both Child-Pugh B and C patients. Nutritional needs remained unmeet in both groups. The number of accidental tube displacements was not related to the type of tube. Based on this study, the use of the more difficult to install jejunal tube is not justified.

B06

To eat is to practice – everyday challenges and rehabilitation needs of head and neck cancer survivors

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Rationale: In head and neck cancer (HNC) survivors, nutrition impact symptoms may persist or occur years after completion of treatment with consequences for nutritional status and health related quality of life (QOL). The objectives of the study were to explore head and neck cancer survivors' experiences of everyday life with eating problems after treatment and to explore their experiences and developments in body weight and QOL when participating in a targeted residential rehabilitation program.
Methods: A parallel mixed-methods approach was used. Semi-structured focus group interviews were conducted with 40 Danish HNC survivors who participated in a five day residential rehabilitation program with follow-up after three months. Body weight and QOL (EORTC QLQ-C30 and EORTC QLQ-H&N35) were measured at baseline and follow-up.
Results: Physical nutrition impact symptoms and unmet needs for support were frequent. Participants experienced a feeling of loss due to impaired eating abilities. Eating had become an obligation or a training situation, and the eating problems challenged the relationship with their relatives and led to social withdrawal. The residential program was a safe environment to practice eating skills and participants benefited from meeting peers. At follow-up significant improvements were seen in body weight (p=0.021) and the QOL scales 'physical functioning (p=0.038), 'trouble with social eating' (p=0.010), swallowing (p=0.034), feeding tube (p=0.046), weight loss (p=0.014) and 'speech problems' (p=0.016).
Conclusions: Eating problems after treatment have substantial effects on the everyday life of HNC survivors. A targeted residential rehabilitation program may be beneficial to meet their rehabilitation needs.

P01

Clinical effects of current parenteral nutrition treatment in patients with advanced cancer, a systematic review

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Rationale: The aim of this review was to evaluate the effects of current parenteral nutrition (PN) treatment on health-related quality of life (HRQoL), physical function, nutritional status, survival, tolerance to antineoplastic treatment and adverse events exclusively in patients with advanced cancer.
Methods: This review was conducted according to the PRIMSA guidelines (PROSPERO ID: 4201707915).
Results: Two underpowered randomized controlled trials and six observational studies were retrieved (n=894). HRQoL and physical function improved during anti-neoplastic treatment in patients unable to feed enterally (+4 to +24 score in overall QoL and +4 to +17 points in physical function, EORTC QLQ-C30, $p<0.05$); however, in patients able to feed per os PN was not superior to dietary counselling. Nutritional status improved in patients regardless of anti-neoplastic treatment and gastrointestinal function (Δ6.4 kg fat free mass, $p<0.05$; +1.5 to +4.6kg body weight, $p<0.05$). PN treatment was neither superior to fluid in terminal patients nor to dietary counselling in patients able to feed enterally in regards to survival. The total incidence of adverse events was low (3.6-9.0 %; 0.33 per 1000 catheter days); however, a lack of sys-

tematic reporting was observed.
Conclusion: Current PN treatment in patients with advanced cancer is understudied and the evidence of the existing studies is weak. Further RCTs with sufficient number of patients of clinically homogenous subgroups are urgently needed.

P02*

Effekter af nyoprettet diabetesskole med 12 ugers gruppebaseret uddannelsesprogram for laotiske patienter med type 2 diabetes mellitus

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Baggrund og formål: Antallet af diabetikere i den laotiske befolkning er kraftigt stigende. Derfor er der et øget behov for nytænkning og en effektiv behandling af diabetes. I Laos er der ikke tidligere udviklet og implementeret diabetesskoler, som led i behandlingen af diabetes. Formålet med studiet var at implementere en 12 ugers diabetesskole for voksne laoter med type 2 diabetes og undersøge effekten af undervisningen på det primære endepunkt, faste plasma glukose (FPG). Sekundært evalueres på ændring i vægt, body mass index (BMI), waist to hip ratio (WHR), blodtryk, lipid- profil, HbA1c, effekten på livskvalitet samt patienternes egen opfattelse af deres sygdom.
Metode: Et hundrede patienter med type 2 diabetes (≥18 år) randomiseredes til at indgå i studiet. 50 personer til interventionsgruppen med deltagelse i diabetesskolens 3 sessioner omhandlende hhv. ernæring, fysisk aktivitet, sygdomsforståelse og viden om og håndtering af diabetiske senkomplikationer. 50 personer til kontrolgruppen, som ikke skulle deltage i diabetesskolen (forløb som vanligt). Studiet var et ublindet, randomiseret kontrolleret forsøg (RCT). Livskvalitet og patienternes egen opfattelse af deres sygdom evalueres vha. hhv. spørgeskemaet EQ-5D og semistrukturerede interviews foretaget af personalet.
Resultat og konklusion: Tolv ugers diabetesskole reducerer FPG signifikant (intervention: -21.0 mg/dl +/- 88.8 mg/dl (SD), kontrol: +18.6 mg/dl +/- 48.8 mg/dl (SD), (P = 0.0204). Det sekundære endepunkt BMI var også signifikant reduceret i interventionsgruppen (intervention: -0.3681 kg/m^2 +/- 0.62 kg/m^2 (SD), kontrol: +0.1042 kg/m^2 +/- 0.90 kg/m^2 (SD), (P=0.05). Der, er ingen effekt af interventionen på HbA1c, blodtryk, WHR eller lipidprofilen. De to semistrukturerede fokusgruppe interview viste at mange af patienterne ikke forstår konsekvenserne af deres type 2 diabetes, hvorfor de ikke bekymrer sig om senkomplikationerne før, disse er en realitet. Diætbehandling og fysisk aktivitet er ikke en naturlig del af diabetesbehandlingen i Laos, hvorfor dette er ukendt både for patienterne samt for store dele af de sundhedsprofessionelle. Samlet må det konkluderes, at 12 ugers diabetesskole reducerer FPG og BMI. Sygdomsindsigten er generelt kompromitteret i den laotiske befolkning med type 2 diabetes, hvorfor et uddannelsestilbud som diabetesskolen må anses relevant for patienter såvel som sundhedsfagligt personale.

P03*

Et randomiseret kontrolleret klinisk studie af præ- og postoperativt tilskud med zink, C-vitamin, arginin og multivitamin hos patienter opereret for hoved-hals cancer

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Baggrund: Ernæringssupplement i form af kosttilskud kan potentielt have signifikant gavnlig effekt på sårheling. Evidensen for den kliniske effektivitet mangler. Formålet var, at undersøge effekten på sårheling af et kombineret præ- og postoperativt oralt kosttilskud, bestående af 14 g arginin, 63 mg zink, 1090 mg C-vitamin samt to multivitamintabletter dagligt til patienter opereret for hoved-hals-cancer.
Materiale og metode: 42 patienter indgik i forsøget. Alle var indstillet til operation for hoved-hals-cancer eller mistanke for cancer (exploration). Forsøgsdeltagere blev randomiseret til en interventionsgruppe (n=22) eller kontrolgruppe (n=20). Begge grupper fik udleveret supplerende proteindrikke med 20 g protein/stk ifølge individuel behovsberegning. Forsøgsdeltagerne blev inkluderet -7 til -1 dage præoperativt og afsluttede forsøget 28 dage postoperativt. Vurdering af såret/arret blev foretaget ud fra Patient and Observer Scar Assessment Scale (POSAS) på dag 14 og 28. Biokemiske og kliniske målinger blev foretaget ved baseline og 14 – og 28 dage postoperativt.

Resultater: Der blev fundet en signifikant lavere score hos interventionsgruppen for følgende spørgsmål i POSAS: 1, 2 og 7 (bedre resultat). Der blev fundet signifikant forskel imellem grupperne i p-kobalamin, p-albumin, p-kreatinin (baseline og 28 dage) og p-karbamid efter 14 og 28 dage, alt til fordel for interventionsgruppen.
Konklusioner: Der ses signifikant forbedring hos interventionsgruppen i forhold til smerte, kløe og overordnet vurdering af såret/arret i forsøgsperioden. Der blev ikke fundet signifikant forskel imellem grupperne ud fra observatørernes vurdering. Der blev fundet signifikant forskel ved flere biomarkører, men det er uvist, om dette har indflydelse på sårhelingen. Det kan ikke vurderes på dette grundlag, om kosttilskuddene har klinisk relevant positiv effekt.

P04*

Fiskeolietilskud til patienter med cancer – kapsler eller juicebaseret ernæringsdrik? Kontrolleret undersøgelse af compliance.

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Baggrund og formål: N-3 PUFA formodes i høje doser at hæmme udviklingen af kakeksi blandt cancerpatienter. Resultater fra eksisterende litteratur er dog inkonsistente, hvilket kan skyldes varierende grad af compliance. Formålet med undersøgelsen var at undersøge acceptabilitet og compliance ved et 5 g n-3 PUFA tilskud fra en ernæringsdrik med fiskeolie til kakektiske patienter sammenlignet med en tilsvarende dosis i kapselform samt betydning af administrationsform af fiskeolie i forhold til ernæringsstatus og bivirkninger. Endelig om tilskud med n-3 PUFA påvirker leuko- og trombocyttal, markører for dosisbegrænsende toksicitet ved kemoterapi?
Metode: 41 patienter med metastaserende cancer (øsofagus- eller colo-rektal) blev konsekutivt inkluderet i undersøgelsen. Patienterne blev tilbudt 10 fiskeoliekapsler/dag eller 400 ml ernæringsdrik/dag. Compliance blev vurderet ud fra selvudfyldte registreringsskemaer og n-3 PUFA i fuldblod. Bivirkninger blev undersøgt med 10 cm visuel analog skalaer.
Resultater: Selvregistreret compliance og n-3 PUFA i fuldblod var hhv. 96,4 (94,1-99,3) % og 4,8 (4,7-4,9) g/dag i kapselgruppen og 80,8 (55,4-93,6) % og 4,0 (2,8-4,7) g/dag i ernæringsdrikgruppen, ($p \leq 0,02$). Der var ingen forskel mellem grupperne med hensyn til ændring i vægt, ernæringsstatus, bivirkninger eller acceptabilitet. I kapselgruppen korrelerede n-3 PUFA negativt med forværring af kvalme ($r_s = -0,39$, $p = 0,05$). Kvalme, nedsat appetit og løs afføring var bivirkninger med størst betydning for compliance. Der var ingen ændring i trombocyt- eller leukocyttal, men sidstnævnte korrelerede positivt med tilvæksten af n-3 PUFA ($r_s = 0,56$, $p < 0,01$).
Konklusion: Compliance ved et n-3 PUFA tilskud var højere når administreret som fiskeoliekapsler sammenlignet med en ernæringsdrik. Der er ingen indikation for, at det ene tilskud er mere hensigtsmæssigt end det andet hvad angår ernæringsstatus og bivirkninger. Det kunne ikke vurderes, om n-3 PUFA påvirkede leukocyt- og trombocyttal under kemoterapi.

P05*

Underlying causes of vitamin K deficiency in patients treated with hemodialysis

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Background*:* A low vitamin K status is common in patients in hemodialysis, and this is considered one of the reasons for the accelerated atherosclerosis in these patients. The vitamin is essential in activation of the protein MGP, and the inactive form, dp-ucMGP is used to measure vitamin K status. The reason for low vitamin K status in these patients is not known. The purpose of the study was to investigate possible underlying causes, which potentially can be low intake, washout during dialysis or inhibited absorption capacity.

Moreover, the aim was to asses if the biomarker dp-ucMGP is affected in these patients in plasma and dialysate.
Methods*:* Vitamin K intake was assessed by FFQ (n=16) and absorption capacity by D-xylose-test (n=7). P-dp-ucMGP was measured before and after dialysis, and phylloquinone and dp-ucMGP was measured in the dialysate (n=16). Differences in p-dp-ucMGP were measured after 14 days of protein supplementation.
Results*:* All patients had p-dp-ucMGP above 750pmol/L (deficiency). 63% of the women and 45% of the men met the recommended intake for vitamin K, with a median of 1856 pmol/L in plasma. Difference in p-dp-ucMGP before and after dialysis was -1022pmol/L (p <0,0001). Vitamin K (phylloquinone) was not present in the dialysate, but dp-ucMGP was measured in very high concentration. The difference in p-dp-ucMGP before and after protein supplementation was -165pmol/L (-1690-373) (p=0,06). D-xylose tests were normal.
Conclusions*:* P-dp-ucMGP was increased in all patients meaning vitamin K deficiency. The reason for the low vitamin K status is probably not due to removal of phylloquinone during dialysis or decreased absorption, but is probably due to low intake of vitamin K. The dp-ucMGP is washed out during dialysis and thereby markedly affected in an amount equivalent to the amount in plasma. The consequences of this is not known. The level of p-dp-ucMGP is not affected by protein intake.

P06*
The use of biologically-based complementary medicines in patients with neuroendocrine tumours
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Background and aims: Biologically-based complementary medicines (BB-CMs) are popular in patients with cancer. However, there are only limited data for BB-CMs in patients with neuroendocrine tumors (NET). We aimed to identify the prevalence and type of BB-CM use and the association to the nutritional risk score (NRS-2002) in NET patients.
Methods: We performed a cross-sectional questionnaire study in NET outpatients at the department of Hepatology and Gastroenterology at Aarhus University Hospital. The nutritional risk was determined by the NRS-2002.
Results: We included 186 patients (51% women, median age 66 years). Sixty-six percent were regular BB-CM users. Forty-two percent used at least two supplements. The most popular BB-CMs were vitamin and mineral supplements (47%), calcium and vitamin D (34%). One-third used non-vitamin non-mineral supplements like fish oil, herbs, Ginger, Q-10, garlic and probiotics. The use of BB-CMs was associated with female gender (48% vs 37%, $p<0.05$). Intake was significantly more frequent among patients with an NRS score $\geq$ 3, (60% vs 76%) and in patients with impaired level of function (58% vs 76%), ($p<0.05$, all). Patients reporting dietary changes used BB-CMs more frequently than patients without dietary changes (61% vs 77%), ($p<0.05$).
Conclusions: In our study, 66% percent of NET patients use BB-CM and 42% used two or more supplements. Vitamins with and without herbal ingredients, minerals, calcium, vitamin D and fish oil were the most popular supplements. The use of of BB-CMs was associated with an NRS score $\geq$3, change in food intake, female gender and impaired level of function.

P07*
How to increase referrals in an RCT among frail old patients at nutritional risk
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Rationale: Nurses play a significant role, in including patients in intervention studies. The aim of the present observation study was to evaluate the efficacy of different initiatives to increase inclusion rate in an ongoing RCT[1].
Methods: A three-step approach were used. 1) Prior initiation of the study, posters were developed, and introduction meetings were performed to inform nursing staff of their role in the recruitment process. 2) In

this period a reward cake arrangement was introduced, and the research dietitians attended staff meetings and identified possible participants. 3) In addition to initiative 2) systematic weekly nutritional screening was performed by the research dieticians, based on the nurse's identification of potential participants in one ward. The first period consisted of 15 weeks, the second period consisted of 21 weeks, and the third period consisted of 10 weeks.
Results: In the first period, the average of referrals was 1.7/week (n= 25). We found a 74% increase (p=0.03) in referrals to 2.9/week (n = 61) when comparing the first period with the second period. In the third period, an average of 3.1 referrals per week was seen (n = 28). This was a significant increase (p= 0.02) of 87 % compared with the first period. Specifically, the systematic screening at one ward increased referrals with 112 % (P=0.009).
Conclusion: It is possible to increase the inclusion of participants, by close cooperation between research dieticians and nurses.

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