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- 13:43-13:56 The effect of protein and resistance training on muscle mass, muscle strength and functional ability in acutely ill old medical patients: A randomized controlled trail
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- 15:01-15:14 Low FODMAP diet reduces irritable bowel symptoms and improves quality of life in patients with inflammatory bowel disease in a randomized controlled trial
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- 15:14-15:27 The effect of omega 3 fatty acids with vitamin D3 on self-rated quality of life, ADL function and pain level in patients with chronic pain. A randomized trial.
Charlotte Tønnes Jensen, Henrik Nielsen, Michael Christiansen, Jens Rikardt Andersen
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Randomized, Controlled Trial Investigating the Effect of Preoperative Oral Immunonutrition on Complications and Length of Hospital Stay after Elective Surgery for Pancreatic Cancer

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Background & Aims: Major gastrointestinal surgery is associated with immune suppression and a high risk of postoperative complications. The aim of this randomized, controlled trial was to examine the effect of per oral immunonutrition (IN) given 7 days prior to surgery for pancreatic cancer (PC) on postoperative complications and length of hospital stay (LOS). Furthermore, the changes in functional capability (FC) and bodyweight (BW) along with the patients' satisfaction with the nutritional focus were examined.

Methods: The patients had an individually estimated dosage of IN to meet a goal of 1.5 g/Kg body weight protein daily. *Nutritional Risk Screening-2002 (NRS-2002)* was used to stratify for nutritional status. Complications and LOS were registered from the patients' medical charts. Questionnaires were used to register FC and patient satisfaction, while a simple scale was used to measure BW. These endpoints were assessed 10, 20 and 30 days after surgery.

Results: 35 patients were included in this study of which 19 were allocated to the treatment group. The doses of IN ranged from 250-1000 ml per day and the median compliance was 100 (0-100) %. Based on the principle of intention-to-treat, no significant effects were found. The rate of postoperative complications, however, showed a positive effect of IN, but only in post hoc analysis.

Conclusions: There was no significant effect of IN on primary or secondary endpoints. This could be due to low power or too low a dosage of IN. In post hoc analysis, however, positive effects were demonstrated.

Også indsendt til ESPEN

The effect of protein and resistance training on muscle mass, muscle strength and functional ability in acutely ill old medical patients: A randomized controlled trial

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Background: Old medical patients have low muscle mass reserve capacity due to aging and a high prevalence of chronic diseases. Observational studies show that old medical patients are subjected to accelerated loss of muscle mass during acute illness and that loss of muscle mass is associated with loss of muscle strength and functional ability. The etiology is complex, but important mechanisms include stress metabolism and the associated anorexia, insulin resistance and anabolic resistance. The Systemic Inflammatory Response Syndrome (SIRS) can be used to identify patients with stress metabolism. The anabolic agents, protein and Resistance Training (RT), have shown beneficial effects on muscle mass in other study populations, but have not been investigated in the old medical patients.

Aim: The aim was to investigate if a high-protein diet during admission in combination with protein and energy supplementation and RT 12 weeks after discharge was sufficient to reduce loss of muscle mass, muscle strength, functional ability and body weight in acutely ill old medical patients with SIRS.

Method: This is a single-blinded randomized controlled trial with two arms. Patients were recruited from April 2013 to March 2014. The intervention included a high-protein diet, 1.7 g/kg/day, during admission. After discharge patients received a daily Oral Nutritional Supplement (ONS) (18.8 g protein/day), and supervised home-based progressive RT (repetition maximum 8-12) of the lower extremities three times a week for 12 weeks. The control group received standard care. The primary outcome was change in whole body and regional muscle mass assessed by Dual X-ray Absorptiometry from baseline to 12 weeks after discharge. Secondary outcomes were changes in 30 seconds Chair Stand Test, Hand Grip Strength, de Morton Mobility Index, Functional Recovery Score, New Mobility Score and body weight. Power calculations showed that 12 patients in each arm were necessary with a power at 80%, significance level of 5% and a minimal clinical difference of 1.5 kg whole-body muscle mass. Non-parametric unpaired statistics was applied and results are presented as mean (Standard Deviation) or as percentage of maximal compliance.

Preliminary results: Nineteen patients were included from April to July 2013 (mean age 73 years, 74% were women). The preliminary results did not show significant differences in the change of whole body ($P=0.67$), lower extremity ($P=0.17$) and upper extremity ($P=0.40$) muscle mass between groups. Further, no significant differences in the change of the secondary outcomes between the groups were identified. The Intervention Group received 1.68 (0.17) g protein/kg/day during admission ranging 3-5 days. Compliance with the intervention after discharge was 73% with ONS and 49% with the RT.

Conclusion: The preliminary results on the effect of a high protein-diet during admission combined with ONS and RT after discharge did not show significant changes in whole-body and regional muscle mass, or in any of the secondary outcomes in old medical patients with SIRS. Low compliance with the RT and the ONS may explain the lack of effect. The collection of data is continued beyond the preliminary results.

Nutrition impact symptoms (NIS) and handgrip strength in hospitalized patients with gastroenterological diseases

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Rationale

Malnutrition is common among patients with diseases of the liver and gastrointestinal tract. Nutritional intake could be reduced by nutrition impact symptoms (NIS). To improve targeted nutritional therapy, a systematic tool to identify NIS's among patients may be beneficial. Therefore, we aimed to assess; 1) To which extent NIS's are present in this patient group, 2) to determine the relationship between NIS's and nutritional status determined by handgrip strength (HGS).

Methods

A cross-sectional study was performed at two University Hospitals at departments of Medical gastroenterology among patients with liver disease, inflammatory bowel disease (IBD), cancer or pancreatitis. Body mass index (BMI) and HGS were measured within 5 days after admission and NIS's were assessed by the eating symptoms questionnaire (ESQ) and the disease related appetite questionnaire (DRAQ).

Results

In total 126 patients were included (w: 39%), mean age 52 ± 17 y, mean BMI 24 ± 5 kg/m². Of these 25% had liver disease, 34% had IBD, 10% had cancer, and 31% had pancreatitis. Low HGS (w: HGS<20kg, m: HGS<30kg) was found in 38%.

50% of the patients reported 4 or more NIS's in the ESQ and 5 or more NIS's in the DRAQ.

Dividing the patients into two groups low vs. normal HGS, patients with low HGS reported more frequently: poor appetite ($p=0.041$), food tasting bad ($p=0.021$), eating fewer times a day ($p=0.0075$), feeling full after having $\frac{1}{4}$ of the meal ($p=0.035$), feeling less cheerful ($p=0.014$), having difficulties chewing ($p=0.024$), and difficulties swallowing ($p=0.0093$).

Conclusions

NIS's are very frequent and specific NIS's are associated with low HGS in patients with diseases of the liver and gastrointestinal tract.

MUSCLE WEAKNESS, OSTEOPENIA AND DISTURBED METABOLIC ACTIVITY IN PATIENTS WITH CIRRHOSIS AND ASCITES

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Rationale

Patients with cirrhosis and ascites often suffer from metabolic disturbances and it is currently unclear how ascites affects the resting energy expenditure (REE).

Methods

In 19 patients with cirrhosis and ascites, measurements of REE with indirect calorimetry were performed before and after paracentesis. Handgrip strength (HGS) was measured as well as body composition by Dual X-ray Absorptiometry (DXA).

Results

Low HGS (M:<30 kg; F<20 kg) was evident in 68% of patients. T-scores revealed osteopenia and osteoporosis in 58% and 16% respectively. Reduced vitamin D levels (<50 nmol/l) were found in 68% suggesting a component of osteomalacia. Patients who had reduced REE in response to paracentesis had higher MAP (p=0.02), p-Sodium (p=0.02) and p-PTH (p=0.03). In this group MAP decreased from 107 ± 18 mmHg before paracentesis to 89 ± 12 mmHg after paracentesis, a mean difference of 19 mmHg (95% CI: 10 - 27)(p=0.001). Calculated and measured REE was different in 63%. By including the weight of ascites REE is overestimated by mean 126 ± 1344 kJ/day, and by subtracting the weight of ascites REE is underestimated by mean 934 ± 1835 kJ/day.

Conclusion

Tense ascites increases REE and an abnormal REE is related to circulatory disturbances. Calculating REE may lead to erroneous assessments of nutritional needs. More than 2/3 of patients with ascites suffer from muscle weakness and/or osteopenia.

A 4:1 ketogenic diet to acute stroke patients is safe and feasible - a randomized controlled trial

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Background and Purpose -- Ketone bodies can meet more than 60% of the brain's energy needs and controlled studies consistently show neuroprotective effects in ketotic rodents with induced ischemia. We studied the safety and feasibility of a ketogenic diet to acute stroke patients and investigated potential neuroprotective effects.

Methods -- Patients were randomized to a ketogenic diet or a standard hospital diet for one week within 72 hours of symptom onset at three Danish hospitals. The ketogenic diet consisted of 4:1 ketogenic dishes and Ketocal®. Primary endpoints were function (NIHSS, Barthel 100, MRS), fasting b-glucose and p-C-peptide. Secondary endpoints included nutritional intake, gastrointestinal complications and blood markers for safety and ketosis.

Results -- 17 patients were randomised to intervention (n=6) and control (n=11). Differences were found for b-β-hydroxybutyrate (p=0.001), p-INR (0.05) and p-phosphate (0.009) (baseline to 7 days) and p-alkaline phosphatase (p=0.05) (baseline to 30 days). Three of six patients developed ketosis (>1.5mmol/l) at a median time of 2.5 days. Patients on the ketogenic diet had a higher energy intake (p=0.005), representing a median of 86% of estimated requirements compared to a median of 52% in the control group (p=0.018).

Conclusions – A 4:1 ketogenic diet is safe and tolerated by acute stroke patients. The diet may help meet patient energy needs, however, it may not induce ketosis fast enough to have potential neuroprotective effects. Additional research is warranted to determine therapeutic benefits of ketone metabolism in acute stroke patients, and to develop more efficient methods in inducing ketosis.

Også sendt til ESPEN.

Loss of Amino Acids during intradialytic nutritional therapy - Preliminary results

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Objectives: Protein Energy Wasting is a syndrome of negative changes related to nutrition and bodycomposition in the End-Stage-Renal-Disease population. The pathogenesis is among other factors associated with intradialytic amino acid loss to dialysate as well as a catabolic response to the dialysis treatment. The primary endpoint was to quantify the amino acid loss to the dialysate during fasting compared to intradialytic enteral and parenteral nutritional intervention.

Methods: A randomized, controlled, 3-armed clinical cross-over study of amino acid loss to dialysate and retention of amino acids in relation to intradialytic nutrition. Fasting is compared to iso-nitrogenous intradialytic enteral and parenteral intervention. The intervention equals to 28 g of amino acids. Dialysate was continuously collected at a constant rate throughout the dialysis treatment. The samples were analyzed for both free amino acids and hydrolyzed to determine total amino acids content. Blood samples were drawn before and after dialysis to determine the impact on free plasma amino acid concentrations. 6 out of 25 patients has been enrolled, all treated thrice weekly for 4 hours.

Results: Preliminary data suggest that the total amino acid loss to dialysate for fasting, enteral- and parenteral nutrition is approx 12, 16 and 21 gram respectively (n = 2), equaling a benefit of 24 g and 19 g amino acids for enteral and parenteral nutrition intervention respectively compared to fasting. These results are reflected in the plasma concentration of free amino acids. It seems that essential amino acids are retained in the body to a greater extent than non-essential.

Conclusions: The preliminary results indicate, that enteral nutrition favor amino acid retention.

The abstract has also been submitted to ESPEN 2014.

Gastroenheden, medicinsk sektion

Indsendt af: Sofie Halkjær

Ciprofloxacin and Probiotic *Escherichia coli* Nissle add-on treatment in active Ulcerative Colitis; a double-blind randomized placebo controlled clinical trial

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Background and aim: Ulcerative colitis (UC) is a chronic inflammatory bowel disease. Current available treatments will often induce and maintain remission, however, without removing a continuous risk of disease flares and in some cases need for surgery. As a possible remission sustaining treatment, manipulation of the bacterial flora has been studied using the probiotic bacterium *Escherichia coli* Nissle 1917 (EcN). It has been shown in UC patients that treatment with EcN is equally as efficient in maintaining remission as the standard treatment with mesalazine. Furthermore, treatment with antibiotics such as ciprofloxacin has documented some, but not long-lasting, effect in UC. Our aim was, therefore, to test the effect of ciprofloxacin and/or EcN as add-on to conventional therapies in patients with active UC.

Patients and methods: Our single center double-blinded randomized placebo controlled study included patients with active UC with a Colitis Activity Index (CAI) score of at least 6. Patients were randomized to one of four treatment arms: ciprofloxacin-EcN, ciprofloxacin-placebo, placebo-EcN or placebo-placebo. Ciprofloxacin/placebo was given for 1 week, followed by EcN/placebo for 7 weeks. All treatments were given as add-on treatments.

Results: One hundred subjects with active ulcerative colitis were recruited for the study. Overall, in the two groups receiving EcN (cipro/EcN and placebo/EcN) fewer patients reached remission than in both groups receiving placebo instead of EcN (cipro/placebo and placebo/placebo), this difference was found to be statistically significant in an intention-to-treat analysis, $p < 0.02$. In the per-protocol analysis we, surprisingly, found that it was only the group receiving placebo/EcN that did significantly worse compared to the group receiving placebo/placebo, $p < 0.05$. Furthermore, the group receiving placebo/EcN had the largest number of withdrawals, 11 of 25 (44 %), compared to 15 of 75 (20 %) in any of the other groups, $p < 0.05$.

Conclusions: Our data suggest that there is no benefit in the use of *E. coli* Nissle as an add-on treatment to conventional therapies for active ulcerative colitis, and that treatment with *E. coli* Nissle without a previous antibiotic cure may even worsen the outcome in these patients.

Low FODMAP diet reduces irritable bowel symptoms and improves quality of life in patients with inflammatory bowel disease in a randomized controlled trial

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Objective: Low FODMAP (Fermentable Oligo-, Di-, Mono- saccharides and Polyols) diet (LFD) has been shown to be efficient in irritable bowel syndrome (IBS). The objective of this study was to investigate the impact of a LFD on IBS-like symptoms, disease activity and quality of life in inflammatory bowel disease (IBD) (SIBDQ).

Design: Randomised, non-blinded controlled six weeks trial of IBD patients in remission or mild to moderate disease activity and IBS-like symptoms (Rome III criteria) were allocated to either LFD or normal (Danish/Western) diet (ND). Patients had to fill out the IBS symptom severity scale (IBS-SSS) and quality of life (IBS-QOL) at week 0 and 6 on a web-based program and IBD activity symptom scores: SCCAI for ulcerative colitis (UC), HBI for Crohn's disease (CD) and quality of life (SIBDQ) on paper.

Results: A total of 89 patients: 61(69%) UC and 28 (21%) CD, 67 (75%) females, median age 40 years (20-70) were randomized: 44 to LFD and 45 as ND. Significant reduction in IBS-SSS at week 6 in LFD compared to ND (114 vs. 68), $p=0.02$ was observed. In UC a significant reduction of SCCAI (0.7 vs. 0.1), $p=0.02$ but not in CD was observed in LFD patients compared to ND. Patients on LFD improved their SIBDQ significantly compared to ND (9.1 vs. 0.9), $p<0.001$.

Conclusion: LFD is effective in IBD patients in remission or mild-to moderate activity which tends to reduce IBS-like symptoms and disease activity in UC. Furthermore the LFD improved their disease related QOL significantly.

Også sendt til ESPEN

The effect of omega 3 fatty acids with vitamin D3 on self-rated quality of life, ADL function and pain level in patients with chronic pain. A randomized trial.

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Aim: The aim was to elucidate the effect of N-3 fatty acids from krill in combination with vitamin D3 for three months in patients referred for chronic pain; as such an effect has been suggested based on the anti-inflammatory effects. Nociceptive pain in particular.

Method: In a randomized controlled double-blinded design the intervention group (n=29) was given four capsules daily with N3 fatty acids from krill and vitamin D3 (600 mg N-3 fatty acids, 480 mg EPA + DHA and 72 microg vitamin D3 daily). The placebo group (n=26) was given four capsules daily soyabean oil and sunflower oil with beta-carotene containing 7% N-3 fatty acids, and no vitamin-D. 25 patients in the intervention group and 21 controls completed the trial – 3 months. Quality of life and pain was measured by the Dolo Test, which is eight VAS-scores validated for muscular-skeletal pain, ADL was scored using the Patient Specific Functional Scale (PSFS), body-composition by anthropometry, inflammation by highly sensitive CRP. Compliance was judged by self-reports.

Results: The clinical trial found a significant difference in ADL function from baseline to follow-up in both the intervention group and the placebo group, but no significant change in quality of life and level of pain. The study did not show a significant difference in ADL function, quality of life or level of pain between the two groups. The compliance was > 90 % in both groups. Due to the supplementation there was a significant rise in plasma 25-OH-D3 status from baseline to follow-up in the intervention group, but not in the control group. No changes in hsCRP or anthropometrical measurements neither between, nor within groups. hsCRP was very low at baseline, so a reduction would be impossible.

Conclusion: A relevant dosage of N3 fatty acids combined with vitamin D3 for three months did not have any clinical relevant effect on chronic pain when given in addition to other treatments.

The investigation was sponsored by products and placebo from DeepSeaPharma.