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A higher protein intake is not associated with 5-year change in mid-thigh muscle cross-sectional area by computed tomography in older adults

the health, aging, and body composition (Health ABC) study

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patients a CT scan was obtained and muscle index (SCT cutoff: female \leq or $>38.5 \text{ cm}^2/\text{m}^2$; male \leq or $>52.4 \text{ cm}^2/\text{m}^2$) was determined at L3 level using Slice-O-Matic. In 180/227 patients malnutrition screening (NRS-2002 ≥ 3 or <3), determination of PA ($<5^{\text{th}}$ or $\geq 5^{\text{th}}$ percentile) and calculation of 30-day mortality risk ($\text{PS} \geq 5\%$ or $<5\%$) were done within 6 days after the CT scan. **Results:** Muscle index (41.8 ± 8.0 vs $47.6 \pm 8.2 \text{ cm}^2/\text{m}^2$; $p < 0.001$) and PA (3.4 ± 1.1 vs 5.0 ± 1.2 ; $p < 0.001$) were lower in 70/180 patients with a mortality risk of $\geq 5\%$. SCT had a sensitivity of 68.8%, a specificity of 50.0%, a positive predictive value of 50.5% and a negative predictive value of 74.1% in the detection of increased mortality risk. PA $<5^{\text{th}}$ percentile had a sensitivity of 87.1%, a specificity of 50.0%, a positive predictive value of 52.6% and a negative predictive value of 85.9% in the detection of increased mortality risk. ROC characteristics showed an AUC of 0.780 for PA $<5^{\text{th}}$ percentile and 0.694 for SCT alone and 0.805 for the combination of PA $<5^{\text{th}}$ percentile with NRS ≥ 3 and 0.742 for the combination of SCT with NRS ≥ 3 . The combination of PA $<5^{\text{th}}$ percentile with SCT showed a prediction accuracy of $>95\%$.

Conclusion: Determination of phase angle $<5^{\text{th}}$ percentile is a convenient non-invasive bedside method with an acceptable sensitivity and negative predictive value to detect patients at risk of nutrition related mortality.

Disclosure of Interest: None declared.

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REDUCED INTESTINAL FADS1 GENE EXPRESSION AND PLASMA OMEGA-3 FATTY ACIDS AFTER ROUX-EN-Y GASTRIC BYPASS

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Rationale: Roux-en-Y gastric bypass (RYGB) is an effective method to treat severe obesity, enabling weight loss and reversing type 2 diabetes mellitus (T2DM). Anatomical changes induced by RYGB may alter the expression of gastrointestinal genes involved in the resolution of metabolic disorders. Aside from limiting food intake, the anatomical changes may reduce absorption of omega-3 which may lead to deficiency in the postoperative patient (1). Aim: To investigate the gastrointestinal expression of genes involved in lipid metabolism, plasma total lipids, and omega-3 in obese women with T2DM pre and post RYGB.

Methods: Gastrointestinal biopsies were collected through double-balloon endoscopy in 20 obese women (age, 46.9 ± 6.2 yr; BMI, $46.5 \pm 5.3 \text{ kg}/\text{m}^2$) before, 3 and 12 months after RYGB. Gastrointestinal gene microarray analysis was performed on all biopsy samples and validated by RT-qPCR and protein expression by mass spectrometry. Plasma samples were collected to assess fatty acids by gas chromatography.

Results: FADS1 gene expression, a component of the metabolic pathway that catalyzes biosynthesis of PUFAs, was significantly reduced in duodenum (-0.479 fold change, $p < 0.05$), jejunum (-0.116 fold change, $p < 0.05$) and ileum (-0.358 fold change, $p < 0.05$) in obese women who underwent T2DM resolution following RYGB. Plasma total lipids and omega-3 α -linolenic (ALA), eicosapentaenoic (EPA) were reduced 3 months and 1 year after RYGB ($p < 0.001$) compared with the pre-operative period.

Conclusion: The inhibited intestinal FADS1 gene expression after RYGB suggests a decrease in ability to synthesize bioactive omega-3. Our data suggest that supplementation of omega-3 may be required for obese patients undergoing RYGB.

References

1. Rhee NA, et al. Effect of Roux-en-Y gastric bypass on the distribution and hormone expression of small-intestinal enteroendocrine cells in obese patients with type 2 diabetes. *Diab.* 2015; 58 (10):2254-8.

Disclosure of Interest: None declared.

OR30

A HIGHER PROTEIN INTAKE IS NOT ASSOCIATED WITH 5-YEAR CHANGE IN MID-THIGH MUSCLE CROSS-SECTIONAL AREA BY COMPUTED TOMOGRAPHY IN OLDER ADULTS: THE HEALTH, AGING, AND BODY COMPOSITION (HEALTH ABC) STUDY

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Rationale: A higher protein intake is suggested to preserve muscle mass during aging, and may therefore reduce the risk for sarcopenia. We explored whether the amount, type (animal/vegetable) and essential amino acid (EAA) composition of protein intake were associated with 5-year change in mid-thigh muscle cross-sectional area (CSA) in older adults.

Methods: Protein intake was assessed at year 2 by a Block food-frequency questionnaire in 2,597 participants of the Health ABC study, aged 70-79 y. At year 1 and year 6 mid-thigh muscle CSA (cm^2) was measured by computed tomography. Multiple linear regression analysis was used to examine the association between energy adjusted protein residuals (total, animal and vegetable protein) and muscle CSA at year 6, adjusted for muscle CSA at year 1 and potential confounders including prevalent health conditions, physical activity and 5-year change in fat mass. EAA intake was expressed as percentage of total protein intake.

Results: Mean protein intake was 0.90 (SD 0.36) g/kg/d and mean 5-year change in muscle CSA was -9.8 (17.0) cm^2 ($n = 1,561$). No association was observed between energy adjusted total ($\beta = -0.00 \text{ cm}^2$; SE = 0.03; $P = 0.98$), animal ($\beta = -0.00 \text{ cm}^2$; SE = 0.03; $P = 0.92$), and plant ($\beta = +0.07 \text{ cm}^2$; SE = 0.07; $P = 0.291$) protein intake and muscle CSA at year 6, adjusted for baseline mid-thigh muscle area and potential confounders. No associations were observed for the EAAs.

Conclusion: A higher total, animal or vegetable protein intake was not associated with 5 year change in mid-thigh cross-sectional area in older adults. This conclusion contradicts

some, but not all previous research, therefore optimal protein intake for older adults is currently not known.

Disclosure of Interest: None declared.

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SHORT AND LONG TERM EFFECT OF ENDOSCOPIC DUODENAL SLEEVE FOR THE TREATMENT OF DIABETES AND OBESITY

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Rationale: To evaluate the short and long term effect of EndoBarrier, an endoscopically-delivered sleeve anchored in the duodenum, for the treatment of diabetes and obesity in patients with uncontrolled diabetes.

Methods: Open-label, two phase trial, 1 year with the implanted sleeve and one year of follow up without it. Patients with BMI over 30 and HbA1C ≥ 8 were included. Clinical assessment and blood test were performed monthly. We report the final results after 104 weeks follow up

Results: 45 patients underwent sleeve implantation. Early sleeve retrieval was performed in 12 patients, out of them 8 were before 6 month follow up. Reasons for early retrieval were: abdominal pain (n=7), occlusion or migration (n=3), bleeding (n=1), Liver abscess (n=1). Thirty-three patients completed 1 year of follow up with the implanted sleeve and 22 completed the year after sleeve explant follow up. At 56 weeks, the average BMI decreased from 37.7(± 4.6) at baseline to 32.8 (Sd ± 5.07) the average EWL was 32.6% (± 2.9), the average weight loss was 13.04 Kg (± 1.1). The average HbA1C decreased from 9.4(± 1.2) at baseline to 6.8 gr/dl (± 1.04). Average Insulin units requirement dropped by 54% to 34.1 units (± 6.2) and average FPG decreased by 33.7% to 128.1 mg/dl (± 35.05) indicated improvement in glucose control. At 104 weeks (n=22), the average BMI, EWL and weight loss was 35.6 (± 4.6), 14.27% ($\pm 3.8\%$), 6.3 kg (± 1.6) respectively. Average HbA1C was 8.4 gr/dl (± 1.4) and average insulin units was 47 U (± 4.8) a 24.2% decrease compare to baseline. Average FPG was 157.8 (± 12.6), a 17.1% decrease compare to baseline.

Conclusion: Endobarrier is an effective short term treatment for weight loss and glucose control in obese patient with uncontrolled diabetes. The effect is still apparent 1 year post retrieval but wanes with time.

Disclosure of Interest: None declared.

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TAUROLIDINE LOCKING PREVENTS CATHETER-RELATED BLOODSTREAM INFECTIONS IN PATIENTS ON HOME PARENTERAL NUTRITION - A RANDOMIZED CONTROLLED TRIAL

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Rationale: Both taurolidine 2% and saline 0.9% solution are used as catheter lock solutions (CLS) to prevent catheter-related bloodstream infections (CRBSI) in patients on home parenteral nutrition (HPN). The optimal agent however, remains unclear. We hypothesized that taurolidine 2% locking, when compared with saline 0.9% locking, decreases the risk for CRBSI in HPN patients.

Methods: This multicenter, parallel-group, double blinded trial randomly assigned HPN patients to use either the CLS taurolidine 2% or saline 0.9% for one year. Primary outcome was the number of CRBSI/1,000 catheter days.

Results: Of 105 randomized patients, 102 were enrolled as modified intention-to-treat population. With taurolidine, 5 CRBSI occurred during 15,318 catheter days. In the saline arm 18 CRBSI occurred over 12,493 catheter days. CRBSI/1,000 catheter days were 0.33 and 1.44 in the taurolidine and saline groups, respectively (relative risk, 0.23; 95%CI, 0.07 to 0.63; P=0.002). The cumulative proportion of CRBSI-free patients after one year was 88% in the taurolidine group and 49% in the saline group (P=0.002). The number of catheter removals due to CRBSI was two (4%) in the taurolidine group and eight (16%) in the saline arm (P=0.049). The cumulative proportion of patients without a catheter removal due to CRBSI was higher in the taurolidine group (P=0.025). Exit-site infection and catheter occlusion rates were similar in both groups. Except for occurrence of CRBSI (P=0.002), there was no difference in (serious) adverse events between groups. Drug-related adverse events were rare and generally mild to moderate.

Conclusion: Taurolidine 2% decreased the risk for CRBSI by more than four times in HPN patients compared to saline 0.9%. Given its favorable safety profile and lack of evidence for altering microbial susceptibility, taurolidine locking therefore seems a key strategy to prevent CRBSI.

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