

Poster Presentation

Impact of Oral Whey Protein Nutritional Supplement, Rich in Main Minerals and Vitamins, on Perioperative Outcomes of Frail Geriatric Patients in Cardiac Surgery

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Abstract

Background/Problem: Malnutrition in older age is an important risk factor for sarcopenia, frailty, morbidity, and even mortality. Frail patients have higher surgical risk, especially in major surgical procedures, such as cardiac surgery.

Objectives: This study aimed to evaluate the impact of oral protein supplements given before elective cardiac surgery on the perioperative course in frail geriatric patients.

Methodology: Patients undergoing elective cardiac surgery at the Hospital of LSMU who were 65 years old and over, frail (>4 points on Edmonton's Frailty Scale), and malnourished (<12 points on the MNA-SF Scale) were involved in the study. Subjects were divided into two groups: intervention, those who took the supplement before surgery, and control, those who did not. Vitamin and mineral-rich oral whey protein supplement (created at LSMU together with commercial partner "Kelmės pieninė," project N. 01.2.1-LVPA-K-856-02-0037) was given to the patients before the surgery. The dosage was 2 g/kg of protein for the ideal body weight per day [g/kgiBW/d]. Changes in prealbumin level and homocysteine, before and after supplement consumption, and operative and postoperative data were collected. Approval of Lithuanian Bioethics Committee (N^oP1-BE-2-4/2020). ANOVA, Wilcoxon test, and Spearman correlation were used for statistical analysis.

Results: The sample consisted of 90 respondents: 58 (64.4%) of the control and 32 (35.6%) of the intervention group. The average age was 73.8 (5.7) years. 61.1% of patients were men. Within the interventional group, 25 were operated. For 7, the operation was not performed due to medical reasons. They were not included in the analysis of operative and postoperative data. The supplement was used for ~6.5 days until surgery. On average, the protein intake was 1.84 (0.25) gr/kgiBW/d.

50.6% received coronary artery bypass graft (CABG), 26.% valvular surgery, and 22.9% simultaneous operation. The groups did not differ by the type of operation. The change in CASUS scores did not differ significantly between groups (p=0.98). However, immediately after surgery (p<0.001) and on the following postoperative day (p=0.006), CASUS scores, were significantly higher in the control group. Homocysteine concentration in the intervention group decreased from 19.3 (6.7) to 18.8 (6.7) μmol/l (p=0.001). A higher concentration of homocysteine was associated with more frequent postoperative complications (p=0.011). Encephalopathy and delirium: control (18 (31.0%)) vs intervention (1 (4.0%)) (p=0.009) and renal disorders: control (11 (19.0)) vs intervention (1 (4.0)) (p=0.096; clinical relevance) were more frequent in the control group. **Conclusions:** When used ~6.5 days before elective cardiac surgery, oral whey protein supplements can reduce the risk of postoperative complications in frail geriatric patients.

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Keywords: frailty, malnutrition, cardiac surgery, nutritional optimization, whey protein, CASUS, homocysteine, postoperative complications.

Biography

Dr Ingrida Drigotienė is a Medical Doctor at Lithuanian University of Health Sciences, Lithuania.