Effects of Oral Nutrition Supplements in Normally Nourished or Mildly Undernourished Geriatric Patients After Surgery for Hip Fracture: A Randomized Clinical Trial

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Summary
This study was a randomized, controlled, open, parallel, three-arm clinical trial comparing two types of protein supplementation and no intervention in patients undergoing surgery for hip fracture. Patients had to be 65 years old and were excluded if they were moderately or severely malnourished coming in for surgery. Patients were either given Vegenat-med Proteina protein powder (36g protein and 152 kcals), Resource energy and protein supplement (37.6g protein and 500 kcals), or no supplement at all, starting 48 hours after surgery. The primary outcome was the nutrition status of patients at discharge from hospital, evaluated by looking at serum albumin, prealbumin, and retinol-binding globulin. Changes in weight, BMI, midbrachial circumference and tricept fold were also considered. Secondary outcomes also included the following: tolerance to the prescribed ONS, length of hospital stay, postoperative complications, and time from surgery to start of mobilization.

Major results reported by the authors
85 patients completed the study. The authors reported that the type of intervention did not produce significant differences in the serum albumin or prealbumin levels from baseline to 48 hours post surgery, 1 week f/u and hospital discharge. There was also no difference in BMI, tricipital fold, or midbrachial circumference. Lastly, there was no difference in secondary outcomes. The only group that showed a positive effect was the group with longer hospital stays and postoperative complications – this effect was a positive one on serum albumin.

Authors Conclusions
The authors conclude that, “ONS in normally nourished or only mildly undernourished geriatric patients with hip fracture submitted to surgery who have a short hospital stay and no postoperative complications may not be universally needed. However, ONS may indeed have a positive impact on serum albumin levels in patients with longer hospital stay due to postoperative complications.”

Evaluation
There are several variables in this study that could have affected the results. First, patients were receiving in-hospital diets in addition to their supplementation. This created the need for estimation on protein intake from the hospital diet and possible variations in protein intake within groups. Also, the adherence in this study to protocol was poor. Only about one half of the prescribed amount of ONS was taken by the patients. This could have negatively affected the results of the study. Lastly, blood losses during surgery could have also directly affected serum protein levels.
We know that one major complication for hip fracture patients is their long-term health after surgery. Long-term effects were not assessed in this study, and could have proven the benefits to patients 6 months or one year post hospital stay.

Moreover, as stated by the authors, “nutrition status before surgery for the hip fracture may be a predictor of postsurgical recovery, even in normally nourished or mildly undernourished patients.” Because patients who were undernourished were excluded from the study, a clear benefit of ONS was difficult to demonstrate.

**Take Home Message**
Patients need to be individually evaluated to determine whether they are appropriate for nutrition supplementation during their hospital stay. The nutritional status of the patient prior to admission may be a better indicator of their need for supplementation rather than the reason for their hospital stay. This study does not support the use of ONS in the nourished or mildly undernourished patient, over 65 years old, post-surgery or trauma.

**For Discussion**
Prior research has shown that 5-year mortality rates for patients s/p hip fracture is 50%. Given the studies mentioned by Tidermark et al. and Tkatch et al. (pg.11), long term benefits of ONS for this group may be a worthwhile study in the future.