**Summary**

This study was a randomized, controlled, cooperative multi-institutional clinical trial comparing the use of perioperative TPN in malnourished patients undergoing major surgery to reduce major complications and mortality of those patients. Patients were at least 21 years old and were scheduled for non-emergency laparotomies or thoracotomies. Patients were excluded if they were expected to die within 90 days from their primary disease, had already received TPN in the 15 days prior or had undergone another surgery in the previous 30 days. Patients’ level of malnutrition was ranked and patients that were not considered malnourished were assigned to a nonrandomized group for comparison. The malnourished patients were randomized to either TPN or no TPN. The patients receiving TPN got 1000kcal above BEE (550kcal was lipid and the rest dextrose, amino acids were provided at a ratio of 150kcal:1 g nitrogen). Patients received TPN for 7 to 15 days prior to surgery and 72 hours after. All major and minor complications, infectious complications and non infectious complications were examined.

**Major results reported by the authors**

459 patients were included in the study group, 1218 patients were included in the well-nourished group and 305 patients were non-randomized to a malnourished group. The authors reported no significant difference in the 90-day mortality rates, and major complication rates during the first 30 days post-operative and 90 days post-operative. However, the types of complications were different. The TPN group had a higher rate of infectious complications than the non-TPN group and slightly more non-infectious complications in the control group. Also, the severely malnourished TPN-treated patients had no increase in infections, but did show a decrease in noninfectious complications.

It was noted however that the patients in the TPN group that received the optimal course of TPN had fewer minor complications after 30 days than the group receiving a sub-optimal course. Also among the control group, the incidence of complications increased with the severity of malnutrition.

**Authors Conclusions**

The authors conclude that, “This study confirms the lack of benefit of TPN in borderline malnourished patients, provides strong evidence against clinically important efficacy in mildly or moderately malnourished patients, and suggest but does not confirm efficacy in severely malnourished patients” and “In the absences of severe malnutrition or other specific indications for preoperative TPN, most patients are probably best served by prompt surgery.”

**Evaluations**
There are several variables in this study that could have affected the results. First, oral intake not quantified for either group perioperatively and was not taken into account in the caloric intake of the patients. Therefore, the total caloric intake was not evaluated by the study. Second, the number of days of TPN perioperatively was not correlated to postoperative complications.

The study also lacked comparison between perioperative enteral and perenteral feeds in patients that are malnourished but may be able to tolerate an enteral feeding.

However, the study did have a relatively large sample size, and the results of this study are similar to other studies on perioperative TPN.

**Take Home Message**
Patients need to be evaluated for level of malnutrition prior to the initiation of TPN. Only severely malnourished patients appear to benefit from perioperative TPN. All other patients would probably benefit from prompt surgery instead.

**For Discussion**
Other studies on perioperative TPN have shown similar results based on a patients nutritional status. This suggests that perioperative TPN needs to be researched further in severely malnourished patients. Also of consideration would be enteral vs. perenteral feedings with malnourished patients that may be able to tolerate an enteral feeding (for instance via a J-tube, etc.).