

Proximal or distal? That is the question!

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Nutritional support is an integral part of the therapeutic strategy in the treatment of the critically ill. For this, the enteral route is preferred over the parenteral route. The use of enteral route reduces catabolism, preserves protein metabolism, prevents loss of body mass, and it may down-regulate cytokine and acute phase response. The common problem is feed intolerance when gastric feeding is undertaken. The incidence of feed intolerance; commonly defined as large gastric residual volumes (generally nasogastric aspirate of >350–400 ml) along with gastrointestinal symptoms, or inability to tolerate nasogastric feeding; can be as high as 40% in Intensive Care Unit (ICU) patients.^[1] When feed intolerance occurs during gastric feeding the common solution resorted to is postpyloric feeding. Other reason it is often preferred over gastric feeding is that it is expected to improve the delivery of adequate nutrition, reduce the incidence of vomiting, other gastrointestinal complications, and pneumonia. One of the most common indications for postpyloric feeding in ICU is acute severe pancreatitis though even there the evidence about increased efficacy over gastric feeding is not clear. A recent meta-analysis^[2] comparing nasogastric feeding to nasojejunal feeding was unable to demonstrate any difference in efficacy. Almost 85% of the patients fed by nasogastric route could be given >75% of the target set for nutrition, this being no different with nasojejunal feeding. The other gastrointestinal complications were similar, and the need to change to parenteral nutrition was not higher with nasogastric tube feeding. They concluded that most patients (90%) with severe acute pancreatitis could be fed by the gastric route. Jiyong *et al.* meta-analysis published earlier found a staggering 40% reduction in incidence of pneumonia, without there being any difference in incidence of vomiting or risk of

aspiration when postpyloric route was used in critically ill patients. They suggested that all critically ill patients should be fed by postpyloric route.^[3] Similar findings were reported by another group after a meta-analysis of 19 studies.^[4]

In this issue of the journal, Friedman *et al.*^[5] report the findings of a prospective randomized trial comparing nasogastric to nasojejunal feeding in critically ill patients. The patient population was a quite a sick group (APACHE II > 22), were similar at baseline and none of them had any particular indication for postpyloric feeding. Development of pneumonia was the primary end point while 28-day ICU outcome, gastrointestinal complications were the secondary endpoints. They could not demonstrate a difference in any of the end points. The only limitation of this study was that they did not measure and report the gastric residual volume; but the incidence of vomiting was similar in both groups. Where does that leave us?

Meta-analysis can be useful when evidence is sparse, but the problem with the meta-analyses is the heterogeneity of the studies that are included. The studies may be observational or randomized controlled trials or a mix of both. They will have diverse patient population, different protocols, and all studies might not include every outcome of interest. Hence, if the meta-analysis has small number of patients or is poorly performed then, the result may not be reliable. At

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the most then, the meta-analyses might be useful to generate a hypothesis.^[6] The meta-analyses about which route to use for feeding having conflicting results, the current study assumes importance. It adds important information that it is certainly not necessary to feed all patients by the postpyloric route. This route can be reserved for the occasional patients, who are completely intolerant of the gastric route and cannot be fed that way at all, a situation, fortunately, rare in our ICUs.

The problem with postpyloric feeding is the difficulty in placement of the tube. As a solution, various types of tubes such as self-advancing Tiger 2™ (Cook Medical Bloomington, Indiana USA) nasojejunal tube, have been developed. The success rate of the feeding can of course be further improved by having a feeding protocol in place in the ICU with measures such as use of prokinetics at the initiation of feeding and tolerating higher gastric residual volumes.^[7]

Finally, where do we go in the future? If we continue to believe that delayed gastric emptying leads to microaspiration and pneumonia, then we should (1) decompress stomach (2) give postpyloric feeds. I believe this has not been tried in the critically ill patients. But if we use a triple lumen nasogastrojejunal tube that was recently described,^[8] it will be possible to simultaneously do both. At the present state of the

evidence, however, it seems that nasogastric feeding is as good as postpyloric feeding.

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