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Nutritional support by the enteral route is now firmly established as the therapeutic option to be considered when oral nutritional intake is inadequate, but the intestinal tract is available (1). The current status of enteral nutrition, particularly in terms of indication for use, assessment of efficacy, types of feed and techniques of administration, have recently been comprehensively discussed in many reports (2,3,4).

Current studies also have shown that the incidence of clinical protein/calorie malnutrition amongst medical and, in particular, surgical patients may reach 20-50% (2,5). It is also disturbing that indices of malnutrition increase during hospitalisation and are common 1 week after surgery when the incidence of sepsis is high, these changes are often unrecognised and therefore not treated (6).

It is likely that all clinicians should address themselves to the question "does my patient require nutritional support"? For far too long there has been a tendency to believe that if a patient required nutritional support then the means of so doing was via parenteral nutrition. Though undoubtedly many advances have been made in the nutritional support of the critically ill patient as a result of parenteral feeding regimen, it is a fallacy to think this is the only way (7).

The decision on whether to use enteral or parenteral nutritional support depends upon several factors. If the gastrointestinal tract inaccessible and able to digest food and absorb nutrients adequately enteral nutrition should be used; if it is not, intravenous feeding is indicated. The digestive and absorptive function of the gut is generally required to be normal or near-normal to allow enteral feeding to be successful. However, enteral feeding is desirable and often successful even after intestinal resection the short bowel syndrome-although special enteral preparations requiring minimal digestion may be needed. Enteral

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feeding in such a circumstance has the added advantage of helping to promote intestinal adaptation (8). It is, therefore, necessary for specialists in gastroenterology (both physicians and surgeons) to have a good working knowledge of methods of nutritional assessment and to decide how best apply available resources to provide a clinically useful profile of nutritional status (9).

### PERCUTANEOUS GASTRO-JEJUNAL FEEDING

Although operative methods for achieving long-term gastrostomy or jejunostomy feeding have been available for some time, they are associated with a complication rate ranging from 3-35% (1p). There has therefore been considerable interest in percutaneous methods of achieving gastrojejunal feeding. Ponsky et al (11) summarized their extensive experience of 307 gastrostomies over 5 year period. Their technique involves percutaneous puncture of the stomach under endoscopic guidance, using local plus topical anaesthesia. They estimated their overall complication rate to be 5.9%, comprising wound infection, unnecessary laparotomy, gastrocolic fistula, peritoneal leakage and early extrusion of tube.

The above method cannot be used in patients with oesophageal obstruction and requires the skills of an experienced endoscopist. Non-endoscopic placement of percutaneous feeding gastrostomy tubes may be undertaken using a seldinger technique. Ho et al have summarized the use of this technique in establishing gastrojejunal feeding in 32 patients (12). No patient required surgical intervention for procedural complications. They conclude that this is a satisfactory method of achieving long-term enteral feeding.

An important feature of these various reports (11, 12,13) is the low incidence of aspiration pneumonia when jejunal or gastrojejunal feeding is used, even in patients with impaired cough reflexes. If the tube is placed beyond the pylorus significant duodenogastro reflux is uncommon.

### ENTERAL FEEDING IN THE IMMEDIATE POSTOPERATIVE PERIOD

Since small bowel function returns earlier in the postoperative period than gastric function, there has been considerable interest in early postoperative feeding, either using a fine needle catheter jejunostomy or a nasoenteric tube passed at operation (2). Needle catheter jejunostomy has been extensively used and good results are generally obtained, making this the method of choice for most patients where early feeding is desired.

In an uncontrolled study of 120 patients undergoing abdominal surgery, a feeding tube was passed nasoenterally at operation and enteral infusions commenced in the recovery room (14). There was an early return of bowel sounds usually audible on the day of operation and defecation at 4 days by which

time the patient was able to take food orally. Mild abdominal discomfort and diarrhoea occurred in 20-30% of patients. Even so the total intake of nutrients was significantly less than requirements in the postoperative period. Further studies of the amount of feed which can be safely and effectively infused are necessary.

### CONCLUSION

It is fair to say that the availability of new tubes, new techniques and new formulations have made safe, cheap and easy enteral nutrition available to many patients previously thought manageable only with TPN. Also it is probable that the nitrogen and body weight preservation provided by enteral nutrition equals or exceeds that demonstrated for TPN in malnourished patients.

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