

Salt supplemented enteral feeding: is it a simple alternative in high output stomas?

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Post-surgical short and neo-short bowel due to intestinal resection, proximal stoma or entero-cutaneous fistula formation can lead to metabolic instability due to electrolyte and fluid losses, associated with inadequate dietary intake or absorption. Management may involve regular supplemental oral rehydration fluids that can be poorly tolerated or parenteral fluid support that can be associated with an increased complication rate. Administration of salt supplemented formula feed and fluids via nasogastric (NG), PEG/J, jejunostomy or mucous fistula (MF) routes may be a safe and inexpensive alternative, but has been inadequately assessed for efficacy and complications. We assessed practice in a busy district general hospital.

Between February 2007 and October 2008, post-operative patients on oral diet and with a high stomal/fistula with output >2.5 litres/d, sodium deficiency (<10 mmol/l urinary) and/or dehydration, were assessed for salt supplemented enteral formula feed (commonly overnight) via available enteral or NG access. Additional rehydration fluid (St Marks solution) were similarly administered enterally immediately before or after if required. Fresubin Original/Energy and Survimed OPD were modified to a sodium concentration of 100–110 mmol/l by the addition of 10–14 ml of 30% sodium chloride (depending on pre-existing sodium concentration) directly into the bags. Regimens were tailored to accommodate nutritional and volume requirements (commonly 1 litre/night of feed). The stability of feeds following salt supplementation was confirmed with the commercial providers. If appropriate, patients underwent home training and were discharged with outpatient support and biochemical monitoring. Oral dietary and fluid intake was allowed with respect to requirements and stomal output.

Fifteen patients were identified, with a proximal small bowel length from 10 to 150 cm (mean = 104 cm). Two patients declined and requested oral rehydration fluids and diet (both subsequently required readmission due to dehydration). The remaining patients (13) were managed using NG (4), MF (6), jejunostomy (1), NG and MF (2) access; 1 patient required additional intermittent parenteral fluids, 1 patient was withdrawn due to uncontrollable stomal losses (requiring TPN). In-patient and post-discharge management were for an average of 176 days (range 9–596). This was associated with normalised serum albumin and urinary sodium and renal function.

Some patients initially had difficulty with the administration of sodium to the feed; however, these issues were resolved with dedicated training by the nutrition nurses. There were no complications of feed administration, biochemical abnormality or fluid/sodium deficiency. The requirement for feed and sodium/fluid replacement commonly reduced gradually over time. No patients required readmission for electrolyte or fluid replacement.

Our findings suggest that patients presenting with short and neo-short bowel may be maintained through salt supplemented enteral feed with and without enteral rehydration fluids and with few complications. Formal investigation is warranted to identify appropriate patient groups and longer term response compared to parenteral management and other alternatives.