Proceedings of the Nutrition Society (2010), **69 (OCE2)**, E188 doi:10.1017/S0029665109993843

Malnutrition Matters, Joint BAPEN and Nutrition Society Meeting, 13–14 October 2009, Cardiff

An audit of using 400 ml gastric residual volumes as indicator of feed tolerance; in an adult critical care setting

M. Currie, O. Mclaughlin, N. J. Flint, M. R. Ferguson, C. Archdeacon and T. Lessells
University Hospitals of Leicester, Leicester LE15WW, UK

Many adult critical care units (ACCU) use a standard protocol to commence enteral nutrition (EN). This often involves measuring gastric residual volumes (GRV); if GRV is $\geq$ 200 ml the patient is considered to not be absorbing EN[1]. Recently this protocol has been disputed as higher GRV can be present in the stomach than is measured and does not correlate well with increased aspiration risk[2]. We audited our practice (unpublished results) and concluded that using a GRV cut-off point of 200 ml was hindering the delivery of EN, as a result our unit trialled a GRV of 400 ml.

After this change, a re-audit of GRV and EN delivery was carried out, between April and June 2008. GRV were recorded for up to 14 days of ACCU stay; other data collected included volume of EN delivered, volume prescribed, the use of prokinetics (metoclopramide $\pm$ erythromycin) and other symptoms consistent with intolerance of EN.

During this period, 233 patients were admitted to the ACCU; of these, 47 patients met the inclusion criteria (excluded if on ACCU for $<$48 h, fed via a percutaneous tube, Parenteral Nutrition (PN) or case notes unavailable). Of these 47 patients, 31 (10 surgical, 20 medical and 1 trauma) were fed via Nasogastric tube; of the remaining 16 patients, 12 were eating and drinking and 4 received no nutrition during this time.

Average time to commence EN was 41 h, with a range of 0–116 h, with 40% of patients exceeding the target time of 48 h.

EN was stopped in 75% of patients (on average 2.75 times per patient), accounting for an average loss of 20% of feeding hours. Feed intolerance was the reason for stoppages in 37% of patients, compared to 68% in the previous audit. A high proportion of patients had EN stopped for other reasons: unplanned removal of NG (10%), planned extubation (20%) procedures or surgery (12%) and for other unspecified reasons (36%); these figures were notably higher than the previous audit. Prokinetics were used in 40% of patients, 9% being on dual therapy. Abdominal distension or high abdominal pressures were present in 15% of patients. Unusual patterns of GRV (low or zero GRV followed by vomiting or large volumes were present in 56% of patients; one of these patients aspirated. Three patients were deemed to have failed EN and went on to receive PN (9%).

To conclude, using a 400 ml GRV may improve EN delivery; EN was stopped less often due to a high GRV. When feed was not interrupted due to other reasons a higher volume was delivered – 25% of patients received more feed than would be expected if using a 200 ml GRV – Prokinetic use was reduced.

There was no increase in aspiration.

Due to a high number of other stoppages overall results did not improve, clearly the reasons for these stoppages need to be addressed.

Other areas of our practice need to be reviewed: EN could have been commenced earlier in 21% – earlier decisions for PN or naso-jejunal tube placement in 12.5% and the use of a 24-h target volume instead of a target rate in 12% (to account for feed being off for procedures).

The high proportion of patients with unpredictable patterns of GRV and vomiting raise the question of whether we should measure GRV at all; as it does not appear to be linked with aspiration.

1. Raper S & Maynard N (1992) *Br J Nurs* **1**, 273–280.
2. McClave SA, Lukan JK, Stefater JA *et al*. (2005) *Crit Care Med* **33**, 324–330.