

Malnutrition Matters, Joint BAPEN and Nutrition Society Meeting, 2nd and 3rd November 2010, Harrogate

Audit of energy provision by intensive care nasogastric feeding protocol compared with energy requirements at time of assessment

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Unless contra-indicated, enteral nutrition should be given to all ICU patients who are not expected to be taking a full oral diet within three days, commencing during the first 24 h using a standard feed⁽¹⁾. At Bolton, as is common practice on ICU, this is achieved by following a standard NG feeding protocol, until patients are assessed by the dietitian. The protocol commences at 22 ml/h of standard feed, increasing to 63 ml/h if tolerated, feeding continuously 24 h/d.

During the acute and initial phases of critical illness, an energy supply in excess of 83.68–104.6 kJ/kg BW/d (20–25 kcal/kg BW/d) (or to BMR) should be avoided⁽¹⁾. ‘Overfeeding’ is associated with a poorer clinical outcome⁽²⁾. Therefore, to test the suitability of Bolton’s ICU feeding protocol, target energy provisions for patients admitted to ICU (BMR, with deductions for propofol calories, obesity adjustment and estimated oedema or ascities⁽³⁾) were compared with potential energy provision from the NG feeding protocol at full rate.

Patients were identified retrospectively from 35 consecutive new admissions to be assessed by the dietitian. Six were excluded as they were not being enterally fed. The selected patients were a diverse group, including 11 men and 18 women, from 41 to 86 years of age and weighing from 48 to 134.5 kg.

Energy requirements of men (*n* 11) varied from 4991.512 to 8501.888 kJ/d (1193 to 2032 kcal/d). The feeding protocol at full rate would meet from 78% to 121% of these requirements, potentially ‘overfeeding’ two. Energy requirements of women (*n* 18) varied from 3907.856 to 6589.8 kJ/d (from 934 to 1575 kcal/d). The feeding protocol at full rate would meet from 100% to 169% of these requirements, potentially ‘overfeeding’ 16.

Because of risks of overfeeding, energy provision by the protocol at a lower feeding rate of 42 ml/h (4393.2 kJ/d (1050 kcal/d)) was compared with the energy requirements of women. This was found to more closely match the energy requirements, but at the expense of reduced nutrient provision.

Gender	Target energy from feed	% Target energy provided by NG protocol at 63 ml/h	% Target energy provided by NG protocol at 42 ml/h
Male (<i>n</i> 11)	6748.792 kJ (1613 kcal) (range: 5439.2–8501.888 kJ (1300–2032 kcal))	99 (range 78–121)	69 (range 52–81)
Female (<i>n</i> 18)	4983.144 kJ (1191 kcal) (range: 3907.856–6589.8 kJ (934–1575 kcal))	135 (range 100–169)	86 (range 67–112)

On the basis of data from this audit, the existing feeding protocol continued unchanged for men, feeding up to 63 ml/h over 24 h of standard feed (Jevity 1.0). The protocol was adapted for women, feeding up to a just 42 ml/h, and replacing standard feed with Jevity Promote, which is nutritionally complete in the volume provided over 24 h.

1. Kreymann KG *et al.* (2006) *Clin Nutr* 25, 210–223.
2. Jeejeebhoy KN (2004) *Nutr Clin Pract* 19(5), 477–480.
3. PENG (2007) *A Pocket Guide to Clinical Nutrition*, 3rd edn [V Todorovic and A Micklewright, editors].