Postoperative oral nutritional supplementation improved nutritional status and quality of life in malnourished patients

Beattie AH, Prach AT, Baxter JP, et al. ***A randomised controlled trial evaluating the use of enteral nutritional supplements postoperatively in malnourished surgical patients.*** *Gut 2000 Jun;**46**:813–8.*

QUESTION: Does postoperative oral nutritional supplementation improve nutritional status, morbidity, and quality of life in malnourished patients?

Design
Randomised {allocation not concealed},* blinded {patients},* controlled trial with follow up for 10 weeks.

Setting
A university hospital in Scotland, UK.

Patients
109 patients who were admitted to hospital for elective gastrointestinal or vascular surgery and had malnutrition (defined as ≥1 of the following: a body mass index ≤20 kg/m², a triceps skinfold thickness (TSF) or mid arm muscle circumference (MAMC) ≤ the 15th centile, or a weight loss ≥5% between admission and resumption of oral intake by the eighth postoperative day). Patients were excluded if they required parenteral nutrition, were pregnant or lactating, or had terminal diseases, decompensated liver disease, or renal disease. 101 patients (93%) (mean age 58 y, 59% men) had complete follow up.

Intervention
Patients were allocated to treatment with an oral nutritional supplement (Ensure Plus) providing 0.00627 MJ and 0.06 g/ml protein (n = 55, treatment group) or routine nutritional management (n = 54, control group). Patients in the treatment group were encouraged to consume 400 ml of the supplement daily in small, frequent amounts between meals.

Main outcome measures
Markers of nutritional status including weight, TSF, MAMC, and grip strength; complications (wound infection, chest infection, and antibiotic use); and quality of life (measured by the United Kingdom Short Form 36 [UK SF 36] questionnaire).

Main results
At 10 weeks, patients in the control group compared with those in the treatment group lost more weight (5.86 *v* 1.53 kg, $p < 0.001$) and had greater reductions in TSF (0.82 *v* 0.16 mm, $p < 0.001$), MAMC (1.28 *v* 0.42 cm, $p < 0.001$), and grip strength (1.93 *v* 0.82 kg/m², $p < 0.001$). The number of wound and chest infections did not differ between groups. Fewer patients in the treatment group required ≥1 prescription for antibiotics than those in the control group (13% *v* 31%, $p < 0.05$). Patients in the treatment group had greater improvements in quality of life, as measured by the UK SF 36 component summary scores for physical health (7.3 *v* −13.9, $p < 0.001$) and mental health (20.8 *v* 7.2, $p < 0.001$) compared with those in the control group.

Conclusion
Postoperative oral nutritional supplementation improved nutritional status, reduced the use of antibiotic prescriptions, and increased quality of life in malnourished patients.

*Information provided by author.

COMMENTARY

Malnutrition increases the risk of postoperative complications and extends the length of hospital stay.[1] Still, nutrition receives less nursing attention than it deserves.[2] Weight loss is a correlate of protein energy malnutrition (PEM) and a loss of ≥10% is a sign of clinically significant PEM in many patients.[3] Beattie *et al* identified patients who were malnourished using body indices and a weight loss measure. Body indices are developed from actuarial data using healthy adults and may have limited application to patients in hospital.

The main outcomes are of interest, especially the lower weight loss associated with supplementation. However, the important result is that fewer patients in the treatment group lost ≥10% body weight during the study than those in the control group (21% *v* 49%). This reflects a relative risk reduction of 57% (95% CI 23% to 76%) and a number needed to treat (NNT) of 4 (CI 2 to 11). This NNT means that 4 patients would need to receive supplementation in order to prevent 1 additional patient from losing ≥10% body weight. The patients lost to follow up do not threaten this result. The size of the treatment effect could have been influenced by the unblinded outcome assessment, which has been linked to overestimation of treatment effects compared with blinded studies.[4] The treatment and control groups differed at baseline on 2 important factors that may also have influenced the effect size: fewer patients in the treatment group had moderate or severe malnutrition compared with the control group (17% *v* 37%) and the mean age of patients in the treatment group was 8 years younger than the control group.

Despite the methodological weaknesses, this study reinforces that screening for malnutrition and treatment of those at risk of PEM may prevent clinically significant weight loss and improve quality of life after surgery.

Andrew Jull, RN, MA
Clinical Nurse Consultant, Auckland Healthcare
Auckland, New Zealand

1 Windsor JA, Hill GL. *Ann Surg* 1988;**207**:290–6.
2 Kowanko I, Simon S, Wood J. *J Clin Nurs* 1999;**8**:217–24.
3 Hill GL. *Disorders of nutrition and metabolism in clinical surgery: understanding and management.* Edinburgh: Churchill Livingstone, 1992.
4 Schulz KF, Chalmers I, Hayes RJ, *et al. JAMA* 1995;**273**:408–12.

Source of funding: Abbott Laboratories.

For correspondence: Dr A H Beattie, Department of Digestive Diseases and Clinical Nutrition, Ninewells Hospital and Medical School, Tayside University Hospitals NHS Trust, Dundee DD1 9SY, UK.