Proceedings of the Nutrition Society (2010), **69 (OCE2)**, E175 doi:10.1017/S0029665109993715

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

Nutritional status predicts hospital length of stay and mortality in patients with Clostridium difficile (C. diff) infection

S. S. Wong[1,2], J. O'Driscoll[3], M. Weldon[4] and C. Y. Yau[5]

[1]*Department of Nutrition and Dietetics, Stoke Mandeville Hospital, Aylesbury, Buckinghamshire, UK,* [2]*Centre of Gastroenterology and Clinical Nutrition, University College London, London, UK,* [3]*Department of Microbiology, Stoke Mandeville Hospital, Aylesbury, Buckinghamshire HP21 8AL, UK,* [4]*Department of Gastroenterology, Stoke Mandeville Hospital, Aylesbury, Buckinghamshire HP21 8AL, UK and* [5]*Medicine of Older People, Stoke Mandeville Hospital, Aylesbury, Buckinghamshire HP21 8AL, UK*

Malnutrition (undernutrition) is frequently reported in hospitalised adults and it is associated with significant adverse consequences regarding health outcomes and healthcare expenditures. Excess bed days in the hospital are a huge burden to the NHS. An average hospital bed costs £388.5 per day in England in 2006/2007[(1)]. A pilot study found the prevalence of malnutrition in patients with Clostridium difficile (C. diff) infection was high[(2)]. There is limited data reporting the association between nutritional status and hospital outcomes in patients with C. diff infection. The aim of the present study was to investigate the outcomes in patients with hospital acquired C. diff infection. One hundred and six patients were assessed by Malnutrition Universal Screening Tool (MUST)[(3)], and functional assessment of handgrip (HG)[(4)]. The impact of nutritional status on prevalence and hospital outcomes was analysed for these individuals. The outcomes measured were (1) length of hospital stay (LOS) and (2) mortality rate in 180 days. The present study found that the prevalence of undernutrition was 58.3% (MUST = 2) at the time of C. diff diagnosis, 74.5% of whom were aged greater than 65 years old. The average LOS was 68±85.3 days (range: 8–508 days) and 180 days mortality was 45.4%. Compared to patients at low risk of malnutrition (MUST = 0, HG >85%), those who were malnourished (MUST = 2, HG <85%) fared worse. LOS was longer (72 days versus 42 days, $P<0.047$, 77 days versus 40 days, $P<0.02$) and mortality at 180 days was significantly higher (32 (43%) versus 1 (1.4%), $P<0.0001$). This data underlines the importance of the relationship between malnutrition and poor outcomes in patients with C. diff infection. We would propose that simple screening methods can be used to identify those patients in whom nutrition support should be instituted urgently while attempting to effectively treat the C. diff infection. It is suggested that individuals with nosocomial clostridium difficile infection are associated with a significant clinical and financial burden to the health care system. The present study suggests both MUST score and HG may predict clinical outcomes in patients with C. diff infection. Clinicians should be aware of the need to identify and treat malnutrition in hospitalised patients to prevent the development of severe C. diff infection. This may reduce both length of stay and mortality in this vulnerable group of patients.

1. Elia M & Russell C (2008) Combating Malnutrition: Recommendations For Action, Report from the Advisory Group on Malnutrition, BAPEN.
2. Buchner AM & Sonnernberg A (2001) *Am J Gastroenterol* **96**, 766–772.
3. Elia M (2003) Screening for Malnutrition: A multidisciplinary Responsibility. Development and Use of the Malnutrition Universal Screening Tool (MUST) for Adults. BAPEN.
4. Klidjian AM, Forster KJ, Kammerling RM, *et al*. (1980) *BMJ* **281**, 889–901.