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Failure to Regain Weight After Critical Illness: A Short Review

Authors

Vanessa Helliwell, *FRCA, EDICM*

Royal Devon & Exeter NHS

Foundation Trust, Exeter,

United Kingdom

vanessa.helliwell@doctors.org.uk

Sheena Hubble

Consultant ITU Medicine,Royal Devon and Exeter

Hospital

Exeter, United Kingdom

Robert Fraser

Mortality following intensive care (IC) is well reported, but morbidity information is much more meaningful for survivors. Several recent IC follow-up studies report that survivors suffer from multiple physical and psychosocial complaints (Hubble et al. 2002) and have poor health-related quality of life (QOL) (Cuthbertson et al. 2005). Gastrointestinal (GI) symptoms have a large influence on subsequent QOL following critical illness, and failure to regain weight is a poor prognostic indicator. However, gastrointestinal function has been poorly investigated post-intensive care.

Thirty percent of patients lose more than 10kg during an intensive therapy unit (ITU) admission (Kyale et al. 2003), mainly from protein stores, and 40% are still underweight at 12 months (Galanos et al. 1997). This equates to a loss of 1% lean body mass per day (Griffiths and Jones 2002). Inadequate protein input occurs for a variety of reasons, but even if input is adequate, critically ill patients fail to adequately utilize proteins. Gastrointestinal mechanical integrity is often disturbed, and there is evidence of hormonal dysregulation involving insulin, growth hormone, steroids and, more recently, peptide YY and ghrelin (Nematy et al. 2005). Extreme catabolism and immobility in critically ill patients also contribute to the loss of total body protein.

Patients fail to regain weight immediately after discharge from intensive care. Their desire to eat is often impaired by nausea or fatigue, and there may be persistent limb weakness, breathlessness, swallowing difficulty or various malabsorptive states combined with poor provision. A host of physical

and psychosocial factors influence the patient's ability to maintain their weight following critical illness (see figure 1).

IC patients may also fail to regain weight in the longer term. Forty percent of patients who spend more than four days in IC remain below their normal weight (Hubble et al. 2005). Causes can be divided into gastrointestinal and non-gastrointestinal factors. At three months, over two-thirds of patients reported more than one symptom of GI disturbance. Poor appetite is a common complaint and may be the principal factor associated with longer-term failure to regain weight. Causes of appetite disturbance after critical illness have not been investigated. Other gastrointestinal symptoms such as dysphagia, altered taste, indigestion or change in bowel habit appear to be less common and poorly associated with persistent weight loss.

Among non-gastrointestinal factors, advancing age is highly associated with failure to regain weight. It is important to note, however, that this may be because the elderly report more appetite disturbance than younger patients. Length of stay and illness severity score may have surprisingly little effect on failure to regain weight. Shortness of breath at rest, exercise tolerance and the presence of a tracheostomy are also not associated with long-term failure to regain weight.

Failure to regain weight after critical illness is common and is associated with poor survival. It is important to identify those patients particularly at risk and offer gastrointestinal investigation, as well as nutritional advice and encouragement. The causes of long-term weight loss following intensive care remain unclear, but poor appetite and advancing age are principally associated. There is no evidence to support specific dietary supplementation, but emphasis should be made on regaining muscle mass rather than increasing fat stores. Physical exercise as part of a rehabilitation program may aid this process. More research in needed to better understand the underlying causes and effective solutions for long-termweight loss.

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