

How relevant is refeeding syndrome?

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Refeeding syndrome refers to biochemical and clinical symptoms as well as metabolic abnormalities among malnourished patients undergoing refeeding, irrespective of whether these consequences are induced by oral, enteral or parenteral feeding.¹ Typically, low serum concentrations of predominately intracellular ions such as phosphate, magnesium and potassium are encountered; however, frequently also abnormalities in the glucose metabolism, including thiamine deficiency and levels of sodium and water balance have been described. Refeeding syndrome has been shown to be associated with considerable morbidity and mortality.²

In the current issue of the journal, Kraaijenbrink and co-workers describe the incidence of refeeding syndrome among 178 patients acutely admitted to an internal medicine department of a teaching hospital in the Netherlands.³ Surprisingly, they observed that half of the patients were at risk for refeeding according to the NICE guideline definitions and actually 1 out of 12 patients developed refeeding syndrome defined as a positive refeeding risk score combined with new-onset hypophosphataemia during follow-up.

The incidence of refeeding syndrome has been rarely reported or varies markedly, most probably due to lack of a universally accepted definition.² Among anorexia nervosa patients on the ICU, refeeding syndrome was encountered in 10%,⁴ a similar incidence as compared with the internal medicine population studied by Kraaijenbrink. This may be due to the fact that any patient with negligible food intake for more than five days or poor nutritional status is at risk of developing refeeding-associated problems. Internal medicine patients with oncological diagnoses are at enhanced risk for refeeding syndrome, possibly due to cancer cachexia, poor intake or other unknown associations. Unfortunately, nutritional risk assessment instruments such as the SNAQ score were proven not useful to predict the syndrome. No major differences in clinical outcome, such as mortality and handgrip strength, were observed comparing those patients with and without

refeeding syndrome. The sharpest decline in phosphate levels was observed on days 2 and 3, with the nadir in patients with refeeding on day 5.³

In my opinion, this should not lead to the assumption that diagnosing refeeding syndrome is not relevant for the following reasons: First, in this observational study, data on actual treatment of refeeding syndrome patients are lacking as this was not the objective of the study. Second, until recently recommendations that feeding should be commenced at maximally 50% of energy demands were only expert based.⁵ In contrast, some physicians believed that a strategy to prescribe full feeding while aggressively correcting electrolytes should be considered safe. Such a strategy may be possible in internal medicine departments, but may be more feasible in the setting of an ICU where patients have arterial lines and drawing blood and correcting electrolyte abnormalities and fluid status is routine. To shed light on these contradicting approaches, the first randomised controlled trial studying caloric restriction in adults was recently published.⁶ Doig and co-workers compared normal caloric intake during the management of refeeding syndrome with restricted intake up to a maximum of 480 kilocalories per day for two days among 339 adult mechanically ventilated ICU patients.⁶ The inclusion criteria were pragmatically designed focussing on ICU patients with new-onset hypophosphataemia (a drop in serum phosphate > 0.16 mmol/l from a previous reading to below 0.65 mmol/l) within 72 hours after nutritional support commencement, similar to the criteria used by Kraaijenbrink and co-workers. Hypophosphataemia may have been caused by other reasons, however hypophosphataemia on admission was an exclusion criterion similar to the Kraaijenbrink study. The full caloric strategy induced higher mortality rates at hospital discharge (+9.2% (95% CI 0.7-17.7; $p = 0.017$)), and at 60 days (+12.3% (95% CI 3.9-20.7; $p = 0.002$)), and 90 days (+8.7% (95% CI 0.04-17.0; $p = 0.041$)). Furthermore, more major infections and airway or lung infections were encountered during full feeding.⁶

Therefore, in my opinion it can be recommended to follow-up acutely admitted patients at risk for the development of refeeding syndrome-associated hypophosphataemia after the commencement of nutritional support in the hospital setting and to reduce caloric intake for 48 hours (caloric restriction) while aggressively correcting electrolytes, monitoring the fluid balance and administering thiamine. Subsequently caloric intake may be gradually increased to full nutritional support.

As refeeding syndrome may be frequently encountered in internal medicine wards, plasma phosphate monitoring on day 2-3 after resuming nutrition seems essential. Diagnosing the refeeding syndrome is very relevant, as it may be encountered frequently among acutely admitted medical and critically ill hospitalised patients and not optimally handling its consequences, including caloric restriction, may potentially confer worse outcomes.

DISCLOSURES

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