

Refeeding Syndrome in Severe Malnutrition: A Case Study and Clinical Overview

Limbani CE¹, Sigauke H¹, Moses A¹

Partners in Hope Medical Centre, Malawi

Abstract

Background: Refeeding Syndrome (RFS) is a potentially fatal condition characterized by severe fluid and electrolyte shifts that occur during aggressive nutritional rehabilitation of malnourished patients.

Objectives: This abstract presents a comprehensive overview of RFS, including epidemiology, a case study, pathophysiology, clinical manifestations, and management strategies.

Epidemiology: Studies reveal the widespread occurrence of RFS across various patient populations. It has been reported in 48% of severely malnourished patients, 34% of ICU patients, 33% of anorexia nervosa patients, 25% of cancer inpatients, and 9.5% of patients with malnutrition due to gastrointestinal fistulae. A French paediatric study involving 1,261 children found an overall RFS incidence of 7.4%, with a striking 46.7% incidence among at-risk children. These figures underscore the importance of recognizing and addressing RFS in clinical practice.

Case report: We present a case of a 46-year-old Malawian man presenting with severe malnutrition and pellagra, characterized by weakness, dermatitis, diarrhea, and depression. Initial treatment for malnutrition and electrolyte imbalances showed some improvement. However, on day 8 of hospitalization, the patient developed refeeding syndrome, manifesting with confusion, hypoglycemia, and severe electrolyte disturbances including

hyponatremia, hypokalemia, hypophosphatemia, and hypocalcemia. This case highlights the complex interplay between chronic malnutrition and the acute metabolic derangements of RFS.

Clinical overview: The pathophysiology of RFS centers on the rapid shift from a catabolic to an anabolic state upon refeeding. This transition triggers insulin release, promoting cellular uptake of glucose, phosphate, potassium, and magnesium. The resulting electrolyte imbalances, particularly hypophosphatemia, can lead to widespread organ dysfunction. Clinical manifestations affect multiple organ systems, including cardiovascular, neurological, respiratory, and hematological complications. Management requires prevention through careful nutritional rehabilitation and close electrolyte monitoring. Treatment focuses on correcting electrolyte imbalances, with severe cases requiring intensive care.

Conclusion: This case study and literature review emphasize the critical importance of recognizing RFS in at-risk patients. Early identification, preventive strategies, and appropriate management are crucial in mitigating the potentially life-threatening complications of this syndrome. Further research is needed to establish standardized protocols for RFS prevention and treatment across diverse patient populations.

Key words: Refeeding syndrome, Malnutrition, Electrolyte imbalance, Hypophosphatemia.