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Refeeding Syndrome in a Malaysian Intensive Care Unit: An Assessment of Incidence, Risk Factors and Outcome

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Objective: Refeeding hypophosphataemia (RH) is characterised by acute electrolyte derangement following the start of nutrition. Complications associated with this syndrome include heart failure, respiratory failure, paraesthesia, seizure and death. We aim to assess its incidence, risk factors, and outcome in our local intensive care unit (ICU).

Methods: This is a preliminary analysis prospective observational study at the ICU of Hospital Tengku Ampuan Afzan Kuantan. The study was registered under the National Medical Research Register (NMRR-14-803-19813) and has received ethical approval. Inclusion criteria includes adult admission longer than 48 hours who were started on enteral feeding in the ICU. Chronic renal failure patients and those receiving dialysis were excluded. RH was considered if plasma phosphate was less than 0.65 mmol/l within 7 days of ICU admission.

Results: A total of 108 patients were recruited into the study. Of this, 51 (47.2%) had RH. Patients with RH had higher SOFA score compared to those without RH (7.1 ± 3.0 vs 5.7 ± 3.4 , $p=0.02$). There were no differences in the APACHE II score (16 ± 6 vs 15 ± 6 , $p=0.30$), and in the NUTRIC score (2.9 ± 1.7 versus 2.7 ± 1.7 , $p=0.63$) between patients with and without RH. Patients with RH had lower albumin concentration compared to those without RH (23 vs 25, $p=0.04$). There were lower trend of magnesium, calcium and potassium concentration, however these were not statistically significant. All four patients with hypomagnesaemia (less than 0.5 mmol/l) had RH ($p=0.04$). There were no differences in mortality, length of hospital or ICU stay and duration of mechanical ventilation.

Conclusion: Refeeding hypophosphataemia is common, occurring in almost half of ICU admission. Patients with RH had higher organ failure score, and lower albumin level. There were no differences in the NUTRIC score and in short-term outcomes. Further studies could evaluate the association between RH and long-term outcome.