A Qualitative Systematic Review of Risk Factors for Refeeding Syndrome

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Objectives: Refeeding syndrome (RFS) is characterized by potentially fatal electrolyte shifts after resumption of feeding following a period of prolonged starvation. The lack of a standardized definition has made the study of RFS difficult. Early identification of patients at risk of RFS may prevent life-threatening complications and improve outcomes. However, the sensitivity of reported risk factors depends on the definition used, and many have never been validated. This study was designed to identify risks for RFS that have been identified in prior studies. It is preparatory for a larger analysis to better identify sensitive and specific risk factors for RFS.

Methods: This is a qualitative systematic review of observational studies following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Studies reporting the incidence of RFS were included. Risk factors were extracted whether identified in review or as a measured exposure. Risk factors were considered distinct if they were not described similarly (e.g., BMI, admit BMI, nadir BMI, BMI < 16, BMI < 18.5 were each treated as distinct).

Results: Risk factors were reviewed or studied in 43 of 49 studies that met inclusion criteria. A total of 129 distinct risk factor definitions were extracted. Of these, only 29 used definitions similar enough to other studies to be considered the same by the reviewers (range 2 to 8 studies per risk factor; median 3 studies). NICE guidelines were mentioned in 3 studies. No other published guidelines were found.

Conclusions: Creating a risk profile for patients may help tailor interventions to prevent RFS. There was a large heterogeneous number of risk factors and numerous discrepancies in description of risk factors among the studies. The low incidence of inclusion of poor intake (i.e., less than 100%) in the identified studies was of interest. Next steps will include prospective validation of identified risks, as well as AI analyses to identify and validate other risk factors and biomarkers, with the goal to develop sensitive and specific risk assessments, and effective preventive and treatment protocols.