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MALNUTRITION IS A MARKER OF MORTALITY IN CRITICALLY ILL CHILDREN WITH HYPERGLYCEMIA

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Objective: To determine whether hyperglycemia is associated with poor outcome of children hospitalized in the ICU while taking into account the clinical severity and nutritional status.

Methods: A prospective cohort study was conducted on 221 children admitted to the ICU. Independent variables in the outcome analyses included hyperglycemia (blood glucose > 110 mg/dl), severe hyperglycemia (blood glucose > 180 mg/dl) during the first 72 hours after admission, age, gender, nutritional status, Pediatric Index of Mortality 2 and Pediatric Logistic Organ Dysfunction scores. The dependent variables were mortality, length of stay, and time on mechanical ventilation.

Results: 47.1% of patients were malnourished. Hyperglycemic peaks in the first 24, 48, and 72 hours were 123±28.7 mg/dl, 121±24.5 mg/dl, and 119±21.8 mg/dl, respectively. Severe hyperglycemia in the first 24 hours after admission was independently associated with organ dysfunction (OR 4.08, CI 95% 1.87-8.88; p = 0.001) and with mortality (OR= 4.35, CI 95% 1.28-14.71, p=0.018). In the multiple logistic regression model, adjusting for the severity of organ dysfunction, severe hyperglycemia in the first 24 hours of admission increased the mortality risk (OR 4.35 CI 95% 1.29-14.71, p=0.018). Adjusting for the same variable in the malnourished subgroup of patients, severe hyperglycemia in the first 24 hours was associated with an increased mortality (OR 5.41, CI 95% 1.34-21.92, p=0.018), where this was not observed in the well-nourished subgroup.

Conclusions: Malnourished patients with severe hyperglycemia in the first 24 hours are at a greater risk of mortality, independent of clinical severity.