CONTRASTING EFFECTS OF PREEXISTING HYPERGLYCAEMIA AND INCREASED BODY SIZE ON HOSPITAL MORTALITY IN CRITICALLY ILL PATIENTS: A PROSPECTIVE STUDY

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Background: Glycemic control and body size may influence survival in patients. Aims: Analyze the role of glycemic control and body size in the survival of patients admitted to an intensive care unit (ICU). Methods: A prospective cohort study (n=199, ≥18 years) of patients admitted to ICU. History, antropometrics, HbA1c, plasma C-reactive protein and lactate levels were collected on admission at ICU. The APACHE II score was determined. Patients were followed through hospital discharge (16 [8-28] days; median [P25-75]). Cox regression models incorporating cubic spline with four knots were used as exploratory data analysis for visual assessment of the functional relationship between BMI, HbA1c and mortality while adjusting for APACHE II. Results: The overall hospital mortality was 43.2% (n=86). BMI was higher in survivors than in non survivors (27.2±7.3 vs 24.7±5 kg/m2 P=0.031). The risk of hospital mortality increased in normal/low BMI and decreased in those with obesity. There was no difference between median HbA1c of survivors and non survivors (5.7% [5.3%-6.3%] vs 5.8% [5.2-6.5]; P=0.729). The risk of hospital mortality significantly increases with HbA1c higher than 9.3% compared to those with lower levels (HR=1.74; 95% CI 1.49-2.80). By Cox's proportional hazard model adjusted by APACHE II and HBA1c levels, the risk of hospital mortality progressively decreased with increasing BMI levels (BMI<20 vs 20-23.9, P= 0.032; BMI <20 vs 24-34.9, P=0.010; BMI <20 vs ≥35 kg/m2, P=0.032). Conclusions: Patients with increased BMI have an advantageous effect against mortality in critical illness and only those with significant hyperglycemia before admission at ICU have an increased risk for hospital mortality.