



الملخص الانجليزي للبحث المقدم من  
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### البحث الخامس

عنوان البحث باللغة الانجليزية:

## Impaired Pancreatic b-Cell Function in Critically Ill Children

### Abstract:

**Background:** Critical illness hyperglycemia (CIH) is common in the pediatric intensive care unit (PICU). Increased glucose production, insulin resistance (IR), and pancreatic  $\beta$ -cell dysfunction are responsible mechanisms.

**Aim of the study :** We aimed to investigate  $\beta$ -cell function in the PICU and to uncover its relation to clinical and laboratory variables and ICU mortality.

**Methods:** We prospectively recruited 91 children. Pancreatic  $\beta$ -cell function was assessed by using a homeostasis model assessment (HOMA)-b.

**Results:** Patients with b-cell function  $<40.0\%$  had significantly higher Pediatric Risk of Mortality III (PRISM III) scores, higher rates of a positive C-reactive protein (CRP), lower IR, and a longer hospital stay. The patients with 40–80%  $\beta$ -cell function had the highest IR. Intermediate IR was found when the b-cell function was  $>80\%$ . ICU survivors had better b-cell function than ICU non-survivors. A multivariate logistic regression analysis revealed that higher PRISM III score and HOMA-b  $<80.0\%$  were significant predictors of mortality.

**Conclusion:**  $\beta$ -cell dysfunction is prevalent among PICU patients and influences patient morbidity and mortality.

**Keywords:**  $\beta$  cell dysfunction, PRISM III score, hyperglycemia, pediatric ICU, HOMA-b.