

## Role of Postoperative Hyperglycemia in Prediction of Outcome of Open Cardiac Surgery in Children

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**Introduction:** Hyperglycemia is common in critically ill children including post cardiac surgery patients, but its value in prediction of outcome is controversial.

**Methods:** 78 postoperative children were included in this study. Blood sugar (BS) levels were checked every 6 hours in the first 48 hours and values above 150 mg/dl considered hyperglycemia. Low cardiac output state (LCOS) defined as need for inotropes more than 10 mcg/kg/min of dopamine for maintaining hemodynamic stability. Then correlation of postoperative hyperglycemia with LCOS and death in these patients studied.

**Results:** Median age and weight were 15.5 months 8.8 kg respectively. 24 patients (30.8%) developed LCOS and 4 (5.1%) died. Mean BS in 1st and 2nd postoperative days were 161.98 and 119.95 mg% respectively. In the first 24 hours, 44 patients (56.4%) and in the second day 6 (7.7%) developed hyperglycemia. There was no significant correlation between postoperative hyperglycemia and sex, age, weight, type of defect, RACHS complexity score and duration of mechanical ventilation.

Hyperglycemia in day 1 was correlated with number of inotropes ( $p=0.005$ ) and in day 2 with bypass time ( $p=0.004$ ). In the first postoperative day, 40.9% of the patients with hyperglycemia developed LCOS compared with 17.6% in those without hyperglycemia ( $p=0.027$ ). Hyperglycemia in second day was a strong predictor of death ( $p=0.020$ ) but not for LCOS ( $p=0.069$ ). Mixing types of CHD ( $p=0.007$ ) and pump time ( $p=0.001$ ) were independent risk factors for LCOS and death. ROC curve analysis showed that  $BS > 134.8$  mg/dl in the first postoperative day and bypass time  $> 68.5$  min were cut off points for development of LCOS and death.

**Conclusion:** In this study hyperglycemia in the first postoperative day was common and a predictor of LCOS and in the second day, although not common, it was a predictor of death after open cardiac surgery in children.