Inhaled Iloprost Treatment of Pulmonary Arterial Hypertension Before And After The Surgical Repair of Ventricular Septal Defect in Children

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INTRODUCTION
Pulmonary arterial hypertension (PAH) is an important factor for morbidity and mortality in children with ventricular septal defect. We evaluated the use of iloprost in children undergoing congenital heart surgery

METHODS
Fifteen children with VSD, 1 with VSD-ASD, 1 with PDA were included in this study. Children aged between 1-17 years (median, 4 years) with long-standing and severe PH were studied. Various hemodynamic parameters were measured before and after iloprost inhalation, and vascular resistance was determined. Responders to the iloprost test were defined as those with a decrease in both pulmonary vascular resistance (PVR) and pulmonary-to-systemic vascular resistance ratio (Rp/Rs) of > % 10
Before surgery all patients were treated by aerosolised iloprost for two weeks. After hospitalization all patients who were switched to IV iloprost.
First routine detailed echocardiography was performed at first month and two year.

RESULTS
Median age at surgery was 4 (1-17) years, 9 patients (%53) were male. At the catheterization laboratory, the baseline median mean PAP (MPAP), PVR, PVR/SVR was respectively 63 (45-72) mmHg, 8.3 (6.2-11.2) WU, 0.41 (0.35-0.7). After iloprost vasoreactivity testing median MPAP, PVR and PVR/SVR ratio significantly decreased, respectively 52 (41-71) mmHg, 6.4 (5.8-10.4) WU, 0.28 (0.18-0.48) (p < 0.001). Pulmonary artery systolic pressure fell below 75 % of systemic arterial pressure in all patients after surgery. All the patients were administered inhaled iloprost after catheterization until the surgery was performed. Prior to surgery the median SPAP was 71 (59-89) mmHg. Postoperative immediately after SPAP was detected as median 47 (35-58) mmhg.
Three patients suffered PHC in postoperative 3,4, 30th days. Two patients died.
Fifteen patients recovered well and discharged. Median follow up time was 17 (6-42) months.

DISCUSSION
In our study; aerosolized iloprost therapy significantly reduced the PAP in patients who suffering from PH before surgery of congenital heart defects. A significant reduction in PAP after cardiac surgery was observed in patients with positive response to inhaled iloprost especially PVR/SVR < 0.5. The prognosis for patients undergoing closure of large VSD with increased PVR is dependent on the age, degree of PVR and PVR/SVR.