Percutaneous interventions for pulmonary artery obstructions in patients with HLHS after bidirectional Glenn operation.


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Introduction:
Pulmonary artery (PA) obstructions are one of the commonest sequelae after surgical treatment of hypoplastic left heart syndrome (HLHS). After Norwood operation, the small access to PAs through the systemic-to-pulmonary artery shunt limits treatment options. After the second stage of palliation, percutaneous interventions play a key role in management of stenotic PAs. We sought to evaluate our fifteen years of experience with interventions for PA stenosis in patients with HLHS after bidirectional Glenn (BDG) operation.

Methods:
We retrospectively reviewed our database to select patients with HLHS after BDG operation, which required interventions for PA obstructions. Immediate results of balloon dilation (BD) and/or stent implantation, complications including stent fractures and follow-up reinterventions were evaluated.

Results:
Between 09/2000 and 10/2014 one hundred two patients underwent interventions for PA obstructions at a median interval of 23.4 months (0.03-68.5months) after BDG operation. Patients’ median age and weight were 32.2 months (5.4-85.4months) and 12kg (4.1-23kg) respectively. Fifty-five patients presented with isolated left PA stenosis, 4 patients had right PA stenosis and 43 presented with bilateral obstruction. Thirty-six patients (35%) had systemic-to-pulmonary artery shunt patent at the time of the intervention. Isolated BD was performed in 21 patients, a further 18 patients had subsequent stent implantation, complications including stent fractures and follow-up reinterventions were evaluated.

Conclusions:
Percutaneous interventions resulted in improvement in PA diameters and pressures. Isolated BD produce satisfactory results only in selected patients, the majority requiring stent implantation. Apart from stent redilation, stent fractures were a frequent indication for reintervention.