Treatment of right ventricle to pulmonary artery conduit stenosis in infants with hypoplastic left heart syndrome.

To determine the incidence of right ventricle-to-pulmonary artery (RV-PA) conduit stenosis after the Norwood I operation in patients with hypoplastic left heart syndrome (HLHS), and to determine whether the treatment strategy of RV-PA conduit stenosis has an influence on interstage and overall survival. Ninety-six patients had a Norwood operation with RV-PA conduit between 2002 and 2011. Details of reoperations/interventions due to conduit obstruction prior to bidirectional superior cavopulmonary anastomosis (BSCPA) were collected. Overall pre-BSCPA mortality was 17%, early mortality after Norwood, 6%. Early angiography was performed in 34 patients due to desaturation at a median of 8 days after the Norwood operation. Fifteen patients (16%) were diagnosed with RV-PA conduit stenosis that required treatment. The location of the conduit stenosis was significantly different in the patients with non-ringed (proximal) and the patients with ring-enforced conduit (distal), P = 0.004. In 6 patients, a surgical revision of the conduit was performed; 3 of them died prior to BSCPA. Another 6 patients had a stent implantation and 3 were treated with balloon dilatation followed by a BSCPA in the subsequent 2 weeks. All patients who were treated interventionally for RV-PA conduit obstruction had a successful BSCPA. Patients who received a surgical
RV-PA conduit revision had a significantly higher interstage (P = 0.044) and overall mortality (P = 0.011) than those who received a stent or balloon dilatation of the stenosis followed by an early BSCPA. RV-PA conduit obstruction after Norwood I procedure in patients with HLHS can be safely and effectively treated by stent implantation, balloon dilatation and early BSCPA. Surgical revision of the RV-PA conduit can be reserved for patients in whom an interventional approach fails, and an early BSCPA is not an option.