Hybrid palliation for hypoplastic left heart syndrome and variants:  
a single center 5-year experience

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Background.  
Hybrid palliation is an alternative to Norwood stage I for the initial management of hypoplastic left  
heart syndrome (HLHS). We aimed to report our experience with hybrid strategy in HLHS over 5 years  
in a tertiary care Institution.

Methods and Results.  
Forty-eight consecutive patients with HLHS or variants underwent hybrid palliation at a mean age of  
2.7 days and mean weight of 3.08 Kg. Balloon atrioseptostomy was required in 5 patients and surgical  
septectomy in 2 cases. In-hospital death was 11% (5 patients, including 2 preterms and 1 congenital  
atrioventricular block). Three high-risk patients were diverted to rescue Norwood operation between  
37 and 60 days, with 2 early deaths. Interstage mortality was 11% (5 patients, including 1 preterm and  
2 intracranial hemorrhage). Fifteen patients required interventional procedures during interstage  
(mean age 3 months), such as atrial septal dilatation (3 cases) or stenting (7 cases), ductal stent  
dilatation (9 cases) or restenting (2 cases). Three patients underwent stage II operation in other  
Institutions. At a mean age of 6 months, 17 patients had comprehensive Norwood stage I-II, whereas  
15 received biventricular repair. Survival after surgical stage II was 79% and 93%, respectively. All 11  
patients after comprehensive I-II and 4/13 after biventricular repair required interventional procedures  
for pulmonary branches stenosis, either balloon dilatation (16 procedures) or stenting (7 procedures).  
Six patients underwent Fontan operation and 4 are currently awaiting. Overall survival is 59%.

Conclusions.  
In our experience hybrid palliation has been the treatment of choice for HLHS and variants, unless  
contraindicated by the presence of aortic reverse coarctation or excessive ductal diameter.  
Despite the tendency described by the Society of Thoracic Surgeons Congenital Heart Surgery 2015  
Database, that institutions with higher hybrid use are expected to have low annual HLHS case volume  
(<5/year), our average case volume is almost double (9/year). Besides, our in-hospital mortality lies  
below that reported by STS database. Moreover, hybrid approach resulted in a successful bridge to  
biventricular repair in as much as 7 patients with hypoplastic mitral and aortic valves, who would have  
not been eligible for biventricular repair at birth.