Neonatal cardiac surgery

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There has been significant improvement in the outcome of surgery for congenital heart diseases, especially in neonates. According to analysis of 14,843 procedures in neonates with congenital heart disease using the European Association for Cardiothoracic Surgery Congenital Database in 2008, the most common 5 surgical procedures were arterial switch operation, coarctoplasty, surgical closure of patent ductus arteriosus, Blalock-Taussig shunt, and Norwood procedure. The study also showed that significant risk of early death extends beyond 30 postoperative days and risk factors for hospital mortality are lower body weight, higher Aristotle basic score, longer cardiopulmonary bypass (CPB) time, longer aortic cross-clamp time, longer circulatory arrest time, and univentricular physiology.

El-Zein et al reviewed that several major advances in the field of neonatal cardiac surgery have improved the outcome of these severely ill patients. Among the preoperative advances are improvement in the management of patients with single ventricle equivalents, prenatal diagnosis, and interventional procedures. Intraoperative advances include better understanding of the inflammatory process caused by
CPB and ways to manage it, newer techniques for treating hypoplastic left heart syndrome and aortic valve disease, and primary repair of complex lesions. Postoperative refinements in managing pulmonary hypertension, low cardiac output state, and ventricular assist devices have decreased surgical mortality and morbidity.

The initial difficulty of early survival in complex congenital heart defects has been overcome but late survival and acceptable quality of life remain challenging.

In this presentation, I would like to present our experience of neonatal cardiac surgery and discuss the current practice for these patients.
