Surgical Issues in Very Small Preterm With Complex Congenital Heart Disease

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With the frequent use of fetal echocardiography for prenatal diagnosis of congenital heart defect defects, pediatric cardiologists and cardiac surgeons have encountered more preterm babies with small body weight lately, who would not have survived without the prenatal awareness of the disease. Very small preterm babies tend to have multiple comorbidities, genetic abnormalities, and non-genetic extra-cardiac anomalies. Poor postoperative outcome is also attributed due, at least in part, to the prematurity of other organ system. Because a number of babies need palliative procedures, either for later univentricular repair or for biventricular repair, they tend to have long ICU and hospital stay. Application of conventional palliative procedures is sometimes limited due to the smallness of the patient. For instance, application of systemic-pulmonary shunt for very small babies (body weight < 2.0 kg) leads to pulmonary overcirculation even if the smallest vascular graft available is used. The incidence of systemic outflow obstruction with ductus dependent systemic circulation is not infrequently seen. Postoperative outcome of palliation for small preterm babies is consistently poor, and a certain number of patients suffer from capillary leak syndrome and massive pleural/peritoneal effusion postoperatively. The difficulties associated with the institution of cardiopulmonary bypass for very small babies will also be addressed.