Current status in the treatment of congenital heart disease with severe heart failure

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Heart failure is not uncommon in congenital heart disease, but the etiologies are a little different from the adult group. The diverse age range, diagnosis, and practice variations continue to challenge the development evidence-based medicine and technologies. Heart transplantation nowadays is still standard care for children with end-stage heart failure. Despite of conventional anatomical correction surgery, mechanical support is the most reasonable option. Outcomes in the most recent era are excellent, especially with the more widespread use of ventricular assist devices (VADs). However, the durable VAD is available in adolescent, and for the neonatal group, ECMO is in only choice with several complications. Shortage of pediatric donor is always a big issue in this topic.

In spite of ventricular restoration concept had been discarded, evolving concept of pulmonary banding was developed recently for those at severe heart failure. The procedure does offer another hope to have chance to wait longer or postpone the transplantation. The long-term result should be very carefully monitored.

Single ventricular failure (Fontan failure) is a unique character in pediatric heart failure, including the cardiac dysfunction and the systemic circulation dysfunction. Transplantation is the only way to reverse the status but the risk is relatively high because the complex and multiple surgery.

In conclusion, preservation of myocardial function should be a major overarching goal throughout the life of patients with congenital heart disease. Pediatric heart transplantation continues to evolve in order to address the challenges of the diverse group of patients that reach end-stage heart failure during childhood.