Discharging home an eight years old child on intra-corporeal left ventricular assist device as a bridge to decision

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Introduction: Long-term mechanical circulatory support with ventricular assist device (VAD) has become a routine treatment option for heart failure in adults. The patients are discharged home on device to improve their quality of life. Pediatric VADs were mainly used as an inpatient treatment so far because of the relatively complexity and size of the equipments. Newer devices now offer the perspective of an ambulatory treatment also in children.

Case report: We report the case of an eight years old girl (body surface area 0.97m2) suffering from inotropic dependent rapid onset biventricular heart failure due to chemotherapy-induced acute toxic cardiomyopathy after treatment of a bone sarcoma. The child was provided with an intra-corporeal left-VAD (HVAD Heartware) as a bridge to candidacy. Apart from prolonged medical supportive right ventricular recovery postoperative course was uneventful. Ventilation time was 7 days, ICU stay 28 days. The girl was discharged home after three and a half months hospitalization on oral medications with diuretics, ACE-inhibitor and beta-blocker and a triple anticoagulation (phenprocoumon, acetylsalicylic-acid, dipyridamole). Prior to discharge an extensive training of the child, parents, family doctor, the whole school class including teaching staff and emergency services was provided. In a multipart concept institutional guidelines were created for emergency situations and provided for everyone. Training was offered at our institution including lectures (function of the systems, different alarms) followed by hands-on training with a simulation tool. A workshop for the emergency service was organized. Finally training was also done at the home village of the girl and in her school.

Follow up after nearly two months at home with daily school attendance and regular ambulatory visits was uneventful.

Discussion: Third generation implantable VADs like the Heartware HVAD are applicable as intra-corporeal devices in children with a body surface area ≥ 0.6m2. Discharge from hospital to habitual surrounding with improvement in the quality of life of the whole family is possible, if extensive training of the child, parents and the neighbourhoods including emergency services and school staff is ensured.