Clinical Experience With the MEDOS HIA-VAD System in Infants and Children: A Preliminary Report

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Background. The need of pediatric cardiac assist is growing because of the complexity of the congenital conditions operated on and the increasing number of pediatric transplantations. We evaluated the newly developed pediatric MEDOS HIA-VAD ventricular assist device.

Methods. The pneumatic paracorporeal ventricular assist device has three left ventricular sizes (10-, 25- and 60-mL maximum stroke volume) and three right ventricular sizes (9, 22.5, and 54 mL) and can be operated effectively with up to 180 cycles/min. We used this device in 6 consecutive pediatric patients. Intention of treatment was to bridge to transplantation in 3 patients and to aid in recovery from a cardiac operation in 3. Age ranged from 5 days to 8 years.

Results. Two children died during assist, 2 were weaned from the system and discharged home, and 2 had successful transplantation. During assist, laboratory variables indicative of impaired renal, hepatic, or pulmonary function normalized or showed a trend toward normalization. Both deaths were related to infection.

Conclusions. With the new MEDOS HIA-VAD ventricular assist device system, pediatric mechanical cardiac assist can be performed successfully. It requires timely implantation, careful monitoring, and adequate sizematched devices.

Ann Thorac Surg 1997;63:1138-44

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