

Age impacts on outcomes of children on mechanical ventricular support

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The aims of this study are to report the first largest French experience with ventricular assist device (VAD) in children and assess the influence of age on outcomes.

Material and methods: From 2005 to 2010, 16 patients aged <18 years, needed pulsatile ventricular mechanical support at Lyon University Medical Center. Their clinical data, echocardiographic records and outcomes were reviewed.

Results: Seven females and 9 males, aged 0.3 to 16 years (med 2.3), were implanted with pulsatile VAD (£2years: 8 and >2years: 8): 6 with left ventricular support and 10 biventricular, for either cardiogenic shock with cardiac arrest in 4, or uncontrolled low cardiac output in 12. Underlying cardiac diseases included: 14 dilated cardiomyopathies, 1 acute myocarditis and 1 post-ischemic. Median hospital stay prior to implantation was 13days. Seven of 8 patients £2years (87.5%) and 50% of those >2years were on mechanical ventilation prior to assistance ($p= 0.10$). Duration of support was 6 to 125 days (med 37). Eleven patients were extubated while on support (68.7%). Five infants, all < 18 months of age, experienced stroke due to cerebral embolia (30%), 3 had an hemorrhagic complication. Four patients died on support (25%), at 8th, 23rd, 60th and 108th day, from sepsis, multivisceral embolia, hemorrhage and canula rupture respectively, from those 3 ranged in the youngest group. Two patients were successfully weaned off support at 19th and 37th day (12.5%), 10 underwent heart transplantation (62.5%).

Conclusion: Although the thrombo-embolic risk and mortality on support are significantly higher in patients less than 2years of age, our experience of pulsatile VAD in children shows overall survival rates of 75%.