Wound Infections in Children with Ventricular Assist Device Support

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Introduction: Children with end-stage heart failure often require circulatory support with a ventricular assist device (VAD). Wound infections may lead to significant morbidity and mortality. The incidence and outcome of wound infections is still unknown in children supported on VADs. We aimed to describe the predictors, incidence and outcomes of early and late wound infections in pediatric VAD recipients.

Methods: A retrospective review of all patients from 2005-2014 aged <18 years supported on VADs was completed. VAD-related infection was defined using INTERMACS definition and wound infection was further categorized using Center of Disease Control (CDC) classification as superficial or deep, and early (<30 days) or late (> 30 days post implant).

Results: 70 children (28 female) underwent implantation of VADs (58 Berlin Heart®, 12 HeartWare®) of which 12 had biventricular support. Diagnosis included cardiomyopathy/myocarditis (n=55) and congenital heart disease (CHD) (n=15). Wound infections occurred in 20 patients (28.6%); 3 deep infections and 17 superficial infections. Late infections occurred in 18 of 20 patients; with positive wound cultures identifiable in 16, and 5 of these patients with blood cultures matching wound culture.

Mortality in patients with wound infections was 25% (5 patients) and was not different to overall mortality of 27%. Type of device (intracorporeal or extracorporeal), BiVAD, LVAD and diagnosis were not predictors of late wound infections. Both patients with early wound infections had CHD and were supported with extracorporeal LVADs. These 2 children died within 2 weeks of the wound infection.

Conclusion: Wound infections occurred in 29% of children supported on VADs. Early wound infections are infrequent, but resulted in death of the children. Type of device, age, and diagnosis were not risk factors for the development of wound infections.