Infections in Children with Left Ventricular Assist Device (LVAD): The Experience of Ege University Hospital


1. Department of Pediatric Infectious Disease, Ege University Hospital, izmir, Turkey
2. Department of Pediatric Cardiology, Ege University Hospital, izmir, Turkey
3. Department of Cardiovascular Surgery, Ege University Hospital, izmir, Turkey

Introduction and Objectives: Despite improvements in treatment of heart diseases with ventricular assist devices (VAD), infections are still associated with significant morbidity. Infections in patients with VAD described in three groups: left ventricular assist device (LVAD) related, non-LVAD related and sepsis. LVAD related infections includes driveline, pump pocket infections and defined as those that required treatment with antimicrobial therapy, when there is clinical evidence of infection such as pain, fever, drainage, and or leukocytosis. We report our three years of experiences about infections in 12 pediatric cases with LVAD.

Methods: In these retrospective study, we evaluated our twelve children with LVAD, between 2009 and 2012. Outcomes of this study includes postimplantation infection, types of infection and microbiologic profile of microorganisms.

Results and Conclusion: Eight of the patients had Berlin-Heart Excore LVAD and three of the patients had Heart Ware LVAD. All patients had the diagnosis of dilated cardiomyopathy. The mean age of the patients was 8.33 years (range, 17 months to 15 years). Five of the nine patients (55.5%) with Berlin Heart Excere LVAD had at least one episode of infection; None of the patients with HeartWare LVAD had infection. Fever and drainage from the exit site were the most common symptoms. The most common type of LVAD related infection site was the exit of the drive line. The most common type of non-LVAD infections were urinary and upper respiratory tract infections. Most of the driveline infections remained superficial and were managed with local wound care and antibiotics until transplantation. Staphylococcus aureus was the most commonly detected microorganism in LVAD related infections. Patients who had LVAD-related infection had a significantly prolonged hospital stay than the other patients with non-LVAD related infection. Only two of twelve patients died before transplantation, one of the patients died because of sepsis; coagulase negative Staphylococcus and Candida pelliculosa were detected in the blood cultures. Other one died due to intracranial hemorrhagia.

Although LVAD support is associated with improved survival and quality of life, infectious complications remain a major limitation. Novel evidence-based approaches to infection prevention remain critical.