Surgery for Paravalvular Abscess in Children

Objective: Paravalvular extension of infective endocarditis in children, including annular abscess, pseudoaneurysm and intracardiac fistula formation, is poorly described. We investigated the outcomes of surgery in children with paravalvular extension of infective endocarditis at our institution.

Methods: All patients who underwent surgery for infective endocarditis with paravalvular extension were included. Data were retrospectively obtained from medical records.

Results: Between 1989 and 2020, 30 patients underwent surgery for paravalvular abscess, of whom 16.7% (5/30) had an intracardiac fistula and 20.0% (6/30) had a pseudoaneurysm. Aortic annulus abscesses were most common, occurring in 76.7% (23/30). Aortic root replacement was performed in 60.0% (18/30), root reconstruction was performed in 13.3% (4/30), and reconstruction of the central fibrous body was required in 16.7% (5/30). Postoperatively, 23.3% (7/30) required extracorporeal membrane oxygenator (ECMO) support, and 3.33% (1/30) required permanent pacemaker insertion. There were 6 early deaths, 5 of whom required ECMO, and no late deaths, with survival being 79.7% (95%CI, 60.2-90.3) at 15 years (Figure 1A). Deaths occurred due to sudden cardiac arrest resulting in brain death in 3 patients, an inability to wean ECMO due to severe cardiac dysfunction in 2 patients, and cerebral mycotic aneurysm and hemorrhage in 1 patient. Freedom from reoperation was 40.0% (95%CI, 17.0-62.3) at 15 years (Figure 1B). Reoperation due to recurrence was rare, occurring in 6.7% (2/30). Freedom from reoperation due to recurrence was 91.1% (95%CI, 68.9-97.7) at 15 years (Figure 1C). Although Staphylococcus aureus was most commonly isolated (33.3%, 10/30), Streptococcus pneumoniae was associated with mortality (HR 9.2, 95%CI 1.6-51.7). Preoperative shock was also identified as a risk factor for mortality (HR 6.4, 95%CI, 1.3-32.0).

Conclusions: Although paravalvular abscess in children is associated with high early mortality, hospital survivors have good long-term survival. Reoperation is frequent but is rarely due to recurrence of endocarditis.

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