Predictors of treatment failure in prosthetic joint infections treated with debridement and antibacterial agents, with prosthesis retention


Objectives: Despite growing interest in the field, the treatment of prosthetic joint infections (PJI) remains poorly standardized. A significant proportion of patients are initially managed with debridement and prosthesis retention, with prolonged antibacterial treatment, but success rates of this ‘conservative‘ strategy is sub-optimal in most series. We aimed to identify factors predictive for success in a cohort of patients with PJI initially managed with debridement and prosthesis retention. Methods: Retrospective, observational study of all adult patients with PJI initially treated with debridement and prosthesis retention in the Rennes University Hospital. Cases were identified through a computerized database, and data were extracted from medical charts through a standardized questionnaire. Outcome was classified as ‘failure’ in case of: i) persistence of clinical signs of PJI during treatment, or relapses after treatment discontinuation, associated with > 1 pathogen isolated from osteo-articular samples, and/or ii) the need for additional surgery for sepsis control. Cases classified as failures were compared to successful cases using Wilcoxon tests for quantitative variables, and Chi2 tests for qualitative variables. Results: During the study period (2008-2011), 60 consecutive patients with PJI (34 hips, 26 knees), were initially treated with prosthesis retention. Median age was 74.5 years [interquartile range, 66-82], sex-ratio M/F was 34/26. PJI were mostly due to Staphylococcus aureus (n=25, including 6 meticillin-resistant), coagulase negative staphylococci (n=8), Escherichia coli (n=5), and Streptococcus agalactiae (n=5). Twenty cases (33%) were classified as failure, mostly due to S. aureus (n=10, including 3 meticillin-resistant). Failures were managed with additional surgery (n=17) or lifelong suppressive antibacterials (n=3). Median delay between antibacterials discontinuation and failure was 30 days [range, -22;+118]. Variables significantly associated with failure in univariate analysis were: previous surgery on the prosthetic joint (mean number, 1.0 vs. 0.5, P=0.03), Staphylococcus aureus PJI (60% vs. 30%, P=0.025), and duration of antibacterials (mean, 57 days +/- 32 vs. 101 +/- 55, P=0.015). Conclusion: Surgical treatment of PJI with debridement and prosthesis retention frequently fails (33% in this observational study), especially in case of previous interventions on prosthetic joint, S. aureus PJI, and short duration of antimicrobials.