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EDITORIAL

Surgical treatment of periprosthetic joint infection: Two stage or one stage?

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Periprosthetic joint infection (PJI) occurs both in hip and knee arthroplasties.[1,2] With increased total hip and knee arthroplasties in recent years, the number of PJI is likely to increase. Despite the investment in stratified preventative measurements, PJI remains the most frequent cause of early total joint arthroplasty failure, and the second most frequent cause of revision is PJI following aseptic loosening. Unfortunately, it still remains one of the most devastating and difficult-to-treat modes of failure after hip and knee arthroplasties.

Periprosthetic joint infection is a challenging socioeconomic problem.[3] Curative treatment is usually a one- or two-stage revision surgery, but neither of these options has yet emerged as the most optimal treatment of choice. A single-center, retrospective study including 92 patients with deep infections after implantation of primary total hip arthroplasty who underwent either one-stage or two-stage revision surgery showed superiority of two-stage revision surgery in case of serious infections.

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Currently, two-stage revision arthroplasty is the gold-standard treatment for serious PJI. The first stage involves removal of all components, cement, and compromised soft tissues with placement of an antibiotic-impregnated spacer. Spacer options include both mobile and static spacers. Mobile spacers offer maintenance of ambulation and joint range of motion between staged procedures and have shown to be as effective in eradicating infection as static spacers.[4]

Reimplantation may be a suitable option for patients who are on continuous therapy without local symptoms, and with C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) within the normal range, with low synovial fluid leukocytes (<952/mL) and a low relative neutrophil percentage (<52%) and D-dimer below 1,100 μg/mL. A numerical score derived from analyzing these three parameters can serve as a valuable tool in determining the feasibility of reimplantation in these patients.[5]

A two-stage revision approach for infected joint has been the standard for surgical management; however, there is growing interest in one-stage revision surgery due to fewer procedures, reduced inpatient hospital stay and reduced costs to healthcare systems.[6] A one-stage exchange is indicated, if there is no sign of systemic sepsis and in cases where a microorganism has been isolated. It involves removal of the old prosthesis, debridement of all infected tissue, a copious washout and re-draping, and finally, re-implantation of a new prosthesis.

In conclusion, patients with a PJI should be managed by a multidisciplinary team. It is recommended that these patients are managed in specialist arthroplasty centers by high-volume revision arthroplasty specialists. However, plenty of questions are yet to be answered regarding both

methods, including the superior type of spacer, interim period duration, and single-stage revision inclusion criteria.[7]

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