

O0696 **Late acute prosthetic joint infections: better outcome when the implant is removed**

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Background: At the moment, surgical debridement and implant retention (DAIR) is the first line surgical treatment modality for all acute prosthetic joint infections (PJI). However, recent studies indicate a very high failure rate in late acute PJIs treated with DAIR. The aim of our study was to evaluate treatment outcome in late acute PJIs treated with DAIR versus implant removal.

Materials/methods: In a large multicenter study, patients with late acute PJIs were retrospectively evaluated. Late acute PJI was defined as the development of acute symptoms and signs of PJI more than 3 months after the index surgery. Symptoms present for more than three weeks were excluded

from the analysis. Failure was defined as: i) the need for prosthesis removal because of persistent or recurrent signs of infection ii) the need for suppressive antibiotic therapy due to persistent signs of infection or iii) death due to the infection.

Results: A total of 445 patients were included, including 340 cases treated with DAIR and 105 cases treated with implant removal (one-stage revision in 20 cases (19.0%), two-stage revision in 78 cases (74.3%), and definitive implant removal in 7 cases (6.7%)). Overall treatment failure was 45.0% (153/340) in the implant retention group versus 24.8% (26/105) in the implant removal group ($p < 0.001$). The significantly higher failure rate in the implant retention group remained after applying 1:1 propensity matching. No difference in failure was observed between one- and two-stage revision (25.0% (5/20) versus 24.4% (19/78), respectively ($p = 0.95$)). The implant retention group had a substantial higher failure rate in relapse of infection (32.7% (50/153) versus 11.5% (3/26), $p = 0.03$) and in the need for antibiotic suppressive therapy (15.7% (24/153) versus 0% (0/26), $p = 0.03$) compared to the implant removal group.

Conclusions: Implant removal should be considered as the first line treatment modality in patients with late acute PJI who are at highest risk to fail DAIR.

