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[O18] MULTIDRUG RESISTANT BACTERIA: AN INDEPENDENT PREDICTOR OF FAILURE IN PERIPROSTHETIC JOINT INFECTION

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Aim: Compare clinical outcomes following staged revision arthroplasty for periprosthetic joint infection (PJI) secondary to either multidrug resistant (MDR) bacteria or non-MDR (NMDR) bacteria.

Method: Retrospective analysis of a prospectively collected bone infection database. Adult patients diagnosed and treated for hip or knee PJI, between January 2011 and December 2014, with minimum one-year follow-up, were included in the study. Patients were divided into two groups:

1. MDR group (defined as resistance to 3 or more classes)
2. N-MDR group (defined as acquired resistance to two classes of antibiotic or less).

The Charlson Comorbidity Index was used to stratify patients into low, medium and high risk.

The diagnosis of PJI, and any recurrence following treatment, was made in accordance with the Musculoskeletal Infection Society criteria. Failure was defined as recurrence of infection necessitating implant removal, excision arthroplasty, arthrodesis or amputation.

Results: The study population comprised 240 patients. 74 (31%) had an MDR infection. 14 patients were deceased at the time of data capture. All infections were treated by staged revision with interval antibiotic space and targeted systemic antibiotics under the supervision of a multidisciplinary team. Total number of failures in both groups was 39 (16%), 15 hips (12%) and 24 knees (21%). There were significantly more failures in the MDR group (n=24, 32%) than the non-MDR group (n=15, 9%) ($p < 0.0001$).

Using the Charlson Comorbidity Index within the N-MDR group there was no significant difference in outcomes between the low and medium groups ($p = 0.352$), the low and high risk groups ($p = 1.000$) and the high and medium risk groups ($p = 1.000$). There was no statistically significant association discerned within the MDR group based on co-morbidity also. (p values = 0.1702, 0.665 and 0.1096 respectively).

When comparing all cases, there was a statistically significantly higher rate of failure in patients with polymicrobial infection versus single organism infection ($P < 0.0001$).

When stratifying by the presence of an MDR organism versus an N-MDR organism, both polymicrobial sub groups showed a greater rate of failure than their single organism counterparts, however this was only significant in the MDR group and not the N-MDR group ($p = 0.0007$ vs $p = 0.123$). Furthermore the polymicrobial MDR group showed a statistically significant higher rate of failure versus the polymicrobial N-MDR group ($p = 0.002$).

Conclusions: The study suggests that the presence of an MDR organism may be a predictor of failure, independent of patient co-morbidity, in staged revision hip and knee arthroplasty for PJI.