

O1174 Does expanded Gram-negative antimicrobial prophylaxis reduce the risk for prosthetic joint infection after joint arthroplasty surgery?

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Background: Most studies analyzing risk factors for PJI have been retrospective. Given the increase in Gram-negative bacilli in PJI, EGNAP has been suggested as effective for reducing post-surgical PJIs. Our aim was to evaluate risk factors for PJI and the potential role of EGNAP.

Materials/methods: All patients undergoing elective primary total knee and hip replacement at 2 hospitals were prospectively included. Patients received cefazolin 2g or vancomycin 15mg/kg (penicillin-allergic patients) as conventional prophylaxis in one hospital, and cefazolin or vancomycin (same doses) + gentamicin 5mg/kg (Cef+Gen, Van+Gen) as EGNAP in the other. Risk factors for PJI were collected and patients followed for one year.

Results: 1007 patients with hip (393) and knee (614) replacement surgery were included. Twenty-three (2.3%) developed PJI, caused mostly by staphylococci (13 [56%]; 10 *Staphylococcus aureus*), followed by *Enterobacteriaceae* (6, 26%), 1 *Pseudomonas aeruginosa* and 1 *Streptococcus oralis*; two were culture-negative infections. An analysis of the main PJI-associated risk factors is shown in Table 1.

| | **Univariate analysis | **Multivariate analysis | | | |
|------------------------|------------------------------|--------------------------------|---------|---------------------|---------|
| Variable | PJI (n=23) | No PJI (n=984) | P-value | OR (95%CI) | P-value |
| Sex | | | | | |
| • Male | 14 (3.7) | 364 | .019 | | |
| • Female | 9 (1.4) | 620 | | | |
| Age, years (SD) | 68 (13.8) | 72 (10.3) | .202 | | |
| Weight, kg (SD) | 84.1 (16.8) | 77.4 (14.6) | .003 | 1.030 (1.004-1.056) | .021 |
| Charlson | | | | | |
| • ≥1 | 15 (3.8) | 390 | .014 | 3.434 (1.364-8.643) | .009 |
| • 0 | 8 (1.4) | 594 | | | |
| ASA, n (%) | | | | | |

| | 8 (3.3) **Univariate analysis | 236 **Multivariate analysis | | | |
|--|---|---|------|----------------------|------|
| • >2 | 15 (6.1) | 74 | | | |
| • ≤2 | | | .229 | | |
| Previous surgery | 6 (6.5) | 88 | | | |
| • Yes | 17 (1.9) | 896 | .016 | 4.238 (1.472-12.195) | .007 |
| • No | | | | | |
| Antimicrobial prophylaxis | 0 (0) | 35 | | | |
| • Van+G en | 8 (1.6) | 489 | | | |
| • Cef+G en | 1 (2.4) | 41 | .152 | | |
| • Vancomycin | 13 (3.1) | 412 | | | |
| • Cefazolin | 1 (12.5) | 7 | | | |
| • Other | | | | | |
| Antimicrobial prophylaxis regimen with gentamicin | 8 (1.5) | 526 | | | |
| • Yes | 15 (3.2) | 458 | .078 | 0.356 (0.136-0.933) | .036 |
| • No | | | | | |
| **Surgery duration, min (SD) | 100.1 (27.6) | 83.8 (26.2) | .002 | 1.018 (1.006-1.030) | .002 |

Number (%), unless stated otherwise.

Conclusions: Independent risk factors for PJI after hip and knee arthroplasty were: prior surgery on the joint, a higher Charlson index, patient body weight, and procedure duration. EGNAP with addition of gentamicin was a protective factor.