Antibiotic Treatment Compliance Among Patients With Fracture Related Infections: A Secondary Analysis of the POvIV trial

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Purpose: It is unknown how medication compliance varies between per os (PO) and intravenous (IV) treatment of fracture-related infections. We hypothesized that higher compliance would be associated with lower reinfection, rehospitalization rate, and the number of study–injury-related surgeries within 1 year.

Methods: This is a secondary analysis of the POvIV study, which randomized antibiotic treatment to PO or IV after fracture-related infections. Antibiotic compliance required all three of the following criteria: (1) 80% or more doses taken as prescribed for 6 weeks, (2) three or more of the weekly interviews properly completed, and
(3) the antibiotic course completed "as indicated" by the research and orthopaedic surgeon. The primary outcome was patient compliance with the antibiotic regimen for 6 weeks. Secondary outcomes included the number of study–injury-related surgical interventions within a year, reinfection, and rehospitalization as a function of patient compliance.

Results: This analysis included 233 patients randomized in the POvIV trial: 120 in the PO only group and 113 in the any-IV group. Most patients were male (77%), non-Hispanic (94%), and White (70%), and the mean age was 46 years (SD: 13.9). No difference in antibiotic compliance was found among patients who took PO only antibiotics compared to those who took any IV (48% vs 53%, p = 0.45) and percentage compliance (98% vs 99%, p = 0.95). Of the patients who had reinfection, 36 (33%) were considered compliant, and 28 (26%) were not compliant with the administered antibiotic regimen (p = 0.28). There were no appreciable differences between compliant status concerning reinfection, rehospitalization rate, and return to the OR.

Conclusion: Our results show no significant difference in compliance to antibiotics with PO treatment compared to IV treatment. Finally, no significant correlation was seen between secondary outcomes of reinfection, rehospitalization, or the number of secondary operations and compliant status.