

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 PO (per os [oral]) and IV treatment of fracture-related infections. We hypothesized that higher compliance would be associated with lower reinfection and 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 the 3 following criteria: (1) 80% or more doses taken as prescribed for the 6 weeks, (2) 3 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 antibiotic regimen for 6 weeks. Secondary outcomes included the number of study injury-related surgical interventions within a year, reinfection, and/or rehospitalization as a function of patient compliance.

Results: This analysis included 220 patients randomized in PovIV trial: 117 in the PO group and 103 in the IV group. Most of the patients were male (77%), non-Hispanic (94%), and White (70%), and the mean age was 46 years (standard deviation, 13.9). No difference in antibiotic compliance was found among patients who took PO antibiotics compared to those who took IV (48% vs 54%, $P = 0.44$) and percentage compliance 98% vs 99%, $P = 0.95$). 36 (56%) of the patients who had reinfection were considered compliant, and 28 (44%) were not compliant with administered antibiotic regimen ($P = 0.28$). There were no appreciable differences between compliant status concerning reinfection, rehospitalization rate, and return to operating room.

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.