The Effect of Time to Irrigation on the Rate of Reoperation in Open Fractures: A Propensity Score-Based Analysis of the Fluid Lavage of Open Wounds (FLOW) Study

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Purpose: This study was conducted to determine if a relationship exists between timing of wound irrigation and debridement (I+D) and subsequent reoperation rate for infection or healing complications within 1 year for patients with open extremity fractures requiring surgical treatment.

Methods: This was a secondary analysis of a randomized controlled trial. Propensity-adjusted regression allowed for a matched cohort and adjusted analysis within the study population to determine if time to I+D put patients independently at risk for reoperation, while controlling for injury, patient, and treatment-related confounding factors.

Results: For the unadjusted analysis, the proportion of patients requiring reoperation did not differ between early and late I+D groups. Prior to matching, the patients managed with early I+D had a higher proportion requiring reoperation for infection or healing complications (17.0% vs 12.8%; odds ratio [OR] 0.72, 95% confidence interval [CI] 0.54 to 0.94, P = 0.02). Similarly, when analyzed as a continuous variable each hour of delay was associated with a decrease in unplanned reoperation for infection or wound healing complication (OR 0.97, 95% CI 0.95 to 0.99, P = 0.004). However this does not account for selection bias of more severe injuries preferentially being treated earlier. In the propensity-matched cohort (n = 764), reoperation rates did not differ between early and late groups (16.1% vs 16.6%; OR 0.71, 95% CI 0.47 to 1.07, P = 0.10). When analyzing time as a continuous variable, there was still no association between time and unplanned reoperation (OR 0.99; 95% CI 0.97 to 1.02, P = 0.71).

Conclusion: When accounting for patient, injury, and treatment-related factors, delayed I+D for open fractures does not independently increase the risk of unplanned reoperation for infection or wound-related complications.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.