

Δ Delayed Fixation of Distal Radius Fractures Past 3 Weeks After Initial Failed Closed Reduction Increases the Odds of Reoperation

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Purpose: We aimed to compare reoperation rates following distal radius fractures (DRFs) managed with initial surgical fixation versus delayed fixation following initial closed reduction.

Methods: We identified all DRF patients aged 18 years and older between 2003 and 2016 in Ontario, Canada from administrative databases. We used procedural and fee codes within 30 days of the fracture to determine which patients underwent primary outpatient surgical fixation (within 7 days of the fracture), or underwent an initial closed reduction followed by secondary definitive fixation. We grouped patients who underwent secondary fixation by their time to definitive fixation (7-14 days, 15-21 days, and 22-30 days). We used intervention and diagnostic codes to identify reoperations within 2 years of fixation. We used multivariable logistic regression to compare the association between primary versus secondary fixation and reoperation while adjusting for other relevant covariables. We performed an age-stratified analysis to determine if the association between primary versus secondary fixation and reoperation differed by patient age.

Results: We identified 14,959 DRF patients managed with outpatient fixation within 30 days of the fracture. Of these, 8339 (55.7%) underwent primary surgical fixation (mean time to fixation 2.9 ± 1.8 days), while 4042 (27.0%) underwent secondary fixation between 8 and 14 days (mean time to fixation 10.2 ± 2.2 days), 1892 (12.7%) between 14 and 21 days (mean time to fixation 17.5 ± 1.9 days), and 687 (4.6%) more than 21 days (mean time to fixation 24.8 ± 2.4 days) following initial closed reduction. The secondary fixation groups had higher proportions of female and older patients compared to the primary group. The unadjusted proportion of reoperations was significantly higher in the group who waited more than 21 days for fixation (8.4%), compared to the primary fixation group (5.9%) and the secondary groups who waited between 7 and 14 days (5.2%), or between 15 and 21 days (5.4%) for fixation. Following covariable adjustment, patients who underwent secondary fixation more than 21 days from closed reduction had a significantly higher odds of reoperation (odds ratio [OR] 1.40 [1.05-1.86]) compared to the primary group. This association appeared to worsen for patients older than 60 (OR 1.92 [1.19-3.09]). We found no significant difference in the odds of reoperation for patients who underwent secondary fixation within 7 to 14, or 15 to 21 days following initial closed reduction compared to primary fixation within 7 days.

Conclusion: Patients with DRFs who wait longer than 3 weeks for surgical fixation following failed closed reduction appear to have a significantly higher odds of reoperation compared to those who undergo early primary fixation. These data suggest that patients with DRFs that are not amenable to closed reduction should be managed within 3 weeks to avoid detrimental outcomes. Prospective clinical studies are required to confirm these findings.

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See the meeting app for complete listing of authors' disclosure information. Schedule and presenters subject to change.