Delayed Fixation of Acetabular Fractures in Polytrauma Patients With and Without Concomitant Lower Extremity Fractures Significantly Increases the Odds of Complications

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Purpose: We sought to evaluate the effect of time to acetabular fracture fixation (AFF) in polytrauma patients with and without concomitant lower extremity fractures.

Methods: We identified adult polytrauma patients with acetabular fractures from the Trauma Quality Improvement Program database between 2010 and 2016. We propensity-score matched patients who underwent AFF within 2 to 3 days of admission to those who underwent AFF within 24 hours, 4 to 6 days, and 7 to 21 days. We used logistic regression to determine the influence of time to AFF on the odds of complications.

Results: We identified 11,992 polytrauma patients with acetabular fractures. Of these, 2046 (17%) received AFF within 24 hours, 4157 (35%) within 2 to 3 days, 3576 (30%) within 4 to 6 days, and 2213 (18%) within 7 to 21 days. Post-matching, we retained 4736 patients (1184 per group). In patients with isolated acetabular fractures, AFF within 24 hours was associated with a 0.72 (0.55-0.94) decreased odds of complications versus 2 to 3 days. In contrast, patients with isolated acetabular fractures who underwent AFF 4 to 6 days or 7 to 21 days from admission had a 1.17 (1.02-1.47) and 1.98 (1.57-2.49) increased odds of complications, respectively. In patients with concomitant femur, tibia, or ankle fractures, AFF within 24 hours or 4 to 6 days was associated with a similar odds of complications as fixation within 2 to 3 days, while AFF 7 to 21 days from admission was associated with an increased odds of complications (femur odds ratio [OR] 1.46 [1.08-1.96]), tibia OR 1.87 [1.31-2.67], and ankle OR 1.89 [1.16-3.09]) versu. 2 to 3 days.

Conclusion: Prompt fixation of isolated acetabular fractures in polytrauma patients appears to be associated with a lower odds of complications. In patients with concomitant lower extremity fractures, there appears to be a similar odds of complications for patients who receive AFF within 24 hours, 2 to 3 days, or 4 to 6 days from admission. In contrast, patients with concomitant lower extremity fractures who undergo AFF 7 to 21 days from admission appear to have an increased odds of complications compared to 2 to 3 days. This suggests that delayed AFF in polytrauma patients with lower extremity fractures beyond 1 week should be avoided to reduce the risk of deleterious outcomes.