Is Radiation Therapy for Heterotopic Ossification Prophylaxis Associated With Infection or Reoperation After Acetabular Surgery?

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Purpose: Our objective was to determine whether radiation therapy (XRT) for heterotopic ossification (HO) prophylaxis is associated with increased rates of superficial or deep surgical site infection (SSI). Secondarily, we explored whether radiation therapy was associated with reoperation for any reason such as noninfectious wound healing problems or fracture nonunion.

Methods: This cohort study is a secondary analysis of the Pragmatic Randomized Trial Evaluating Pre- Operative Alcohol Skin Solutions in Fractured Extremities (PREPARE) trial. We included all patients who underwent fixation of an acetabular fracture via a posterior, combined anterior and posterior, or extensile surgical approach. The primary outcome was SSI, which included both superficial incisional SSIs within 30 days and deep SSIs within 90 days of surgery. A blinded adjudication committee reviewed all reported SSI events. Our secondary outcome was unplanned reoperation within 12 months for any reason. We reviewed case report forms to determine the type of HO prophylaxis administered and then performed logistic regression to assess the association between outcome measures and type of HO prophylaxis.

Results: 278 patients from 21 academic centers across North America were included in this study. A total of 100 patients received XRT for HO prophylaxis (36%). There was no difference in deep SSI (2% vs 1%; P = 0.56) or superficial SSI (both 0%) between patients who did and did not receive XRT. In the XRT group, 3 out of 100 patients (3%) experienced an unplanned fracture-related reoperation compared to 5 out of 178 patients (3%) in the group who did not receive XRT. There were 2 reoperations in each group for delayed infection presentation. There was 1 reoperation for nonunion in the XRT group compared to 3 in the no-XRT group (1% vs 2%; P = 0.14).

Conclusion: The use of XRT as HO prophylaxis after acetabular surgery is not associated with increased rates of SSI or reoperation for any reason within 1 year. These data contradict prior literature and may help guide surgeon and patient decision making when considering HO prophylaxis options.