Does the New Fracture-Related Infection Diagnosis Differ from the Traditional CDC Criteria?

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Purpose: Infection is a devastating problem for orthopaedic trauma patients, yet standardized guidelines to define infection in this population are lacking. The Centers for Disease Control and Prevention (CDC) infection guidelines have been used across all surgical specialties in research for decades. Recently a fracture-specific definition of infection has been proposed, the FRI (fracture-related infection). The goal of this study was to evaluate the agreement between the CDC and FRI infection criteria in diagnosing infection. We hypothesized there is a high concordance between these 2 classification systems if the element of time is removed from the CDC criteria.

Methods: This retrospective cohort study performed at a single academic trauma center included a study group of 436 patients who developed infections that were treated with surgical debridement within 1 year of initial fracture fixation. The primary outcome was agreement between classification systems. Three classification systems (CDC 1999, CDC 2016, and FRI) were evaluated. We then compared the systems after removing the element of time from the CDC criteria as this component is commonly dropped in many research studies.

Results: We observed only a 72% agreement between FRI confirmatory criteria and CDC 2016 deep and organ infection criteria. There was also only 75% agreement between CDC 1999 deep and organ infection criteria and CDC 2016. However, when the CDC 2016 criteria were extended to include an infection time of 1 year post initial surgical fixation, agreement with FRI confirmatory was 95% and with CDC 1999 was 98%.

Conclusion: This study indicates that there are important differences in the CDC and FRI criteria if the time limitations of the CDC criteria are applied. However, if the time limitations are removed as is often done in research studies, there appears to be very high agreement between the 2 systems. This should reassure researchers that patients who had infections by CDC criteria in prior studies also likely would have had infections by the more recent FRI criteria.

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