Association of Obesity and Nonunion in Fractures of Upper and Lower Extremities

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Purpose
To determine if there is an association between nonunions (diagnosed by ICD-9 codes) and obesity (defined as a BMI ≥ 30) in extreme fractures.

Hypothesis
Obesity increases the development of nonunions after fracture in upper and lower extremities.

Methodology
This was a retrospective review of patients using diagnosis codes for fractures of the upper and lower extremities.

Inclusion Criteria:
• Ages 18-90
• Diagnosis code for fracture of upper or lower extremity from January 1, 2006 to January 1, 2012

Exclusion Criteria:
• Patients deceased prior to 18 months post fracture
• Obesity defined as a BMI ≥ 30

Analysis and Discussion
Association of obesity with patients in obese patients with a diagnosis of diabetes, renal disease, and diabetes with peripheral neuropathy. The current study also found no association of nonunions with a diagnosis of tuberculosis, malnutrition, or open fractures. In the survival analysis, upper extremity fractures demonstrated an increased rate of nonunion compared to lower extremities. Although the study had several limitations, the results suggest that obesity plays a role in fracture healing and that obesity should be considered in the treatment of fractures.