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### “Comorbid Modifiable Risk Factors Associated With Recurrent Chronic Osteomyelitis”

**Background:** The diagnosis of chronic osteomyelitis indicates persistent or recurrent bone infection after injury. The incidence of osteomyelitis is unknown, but in the United States it may be as high as 50,000 cases annually, and infection has been found to recur in 33% of treated cases. Risk factors associated with recurrent osteomyelitis include intraoperative blood transfusions, infection by *P. aeruginosa*, methicillin-resistant *Staphylococcus aureus* (MRSA) and co-morbid conditions such as coronary artery disease and chronic kidney disease. However, there is little research on comorbid risk factors associated with recurrent chronic osteomyelitis. Substance abuse problems are reported in approximately 15% of osteomyelitis patients, and low socioeconomic status is associated with poorer outcomes and higher mortality following trauma and surgery. The current study seeks to identify what comorbid modifiable risk factors are associated with recurrent chronic osteomyelitis.

**Methods:** This retrospective cohort study collected data from University Medical Center's Orthopedic Clinic in New Orleans, Louisiana. Chart abstraction was performed for medical records of 27 adult patients diagnosed with chronic osteomyelitis. The Charlson Comorbidity Index, American Society of Anesthesiologist Score, and Cierny Mader Classification System were used to evaluate patient comorbidities. Comorbidities of interest included alcohol abuse, diabetes, age >70, tobacco use, chronic lymphedema, extensive scars, peripheral vascular disease, chronic pulmonary disease, and diabetes with end organ injury. Logistic regression was performed test for associations between recurrent osteomyelitis infection and comorbidities.

**Results:** The demographics of the 27 patients indicated an average age of 44.5 with a standard deviation of 17.2. 66.7% of patients were male, 33.3% were female. Racial demographics were as follows: Black/African American (55.5%), White (44.4%), and non-Hispanic (96.3%). Recurrence of osteomyelitis occurred in 6 (22.2%) patients. The average Charlson Comorbidity Index score was 1.48 (mild). The most common comorbidities were tobacco use (55.5%), alcohol abuse (18.5%), extensive scars (18.5%), chronic pulmonary disease (18.5%), and peripheral vascular disease (14.8%). Regression analysis did not identify any significant associations between recurrence and comorbidities.

**Conclusions:** Among patients, the most common comorbidity was tobacco use. While no significant association was determined between osteomyelitis recurrence and the comorbidities of interest, this study is ongoing and will include more charts to increase power. Chronic osteomyelitis is a severe complication that affects many patients, and understanding the relationship between comorbidities and this pathology will improve both patient well-being and provider efficacy.