Social Determinants of Health and their Effect on Orthopaedic Trauma Care

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INTRODUCTION:

The interplay of a patient's cultural background, medical history, socioeconomic status, and societal pressures are major factors affecting patient healthcare accessibility and outcomes. These factors, often called social determinants of health, are a topic of research and advocacy in many fields of medicine but have been limited in the field of orthopaedics. The purpose of this study was to look at the effects of social determinants of health in the orthopaedic trauma population, specifically what factors may affect loss to follow up and rehospitalization.

METHODS:

In this retrospective review, 477 patients with tibial (AO 42) and femoral shaft fractures (AO 32) treated with intramedullary nailing (IMN) were identified at a single level-one trauma center. Patient sex, gender, primary language, race, ethnicity, insurance, relationship status, smoking status, history of alcohol abuse, drug abuse, opioid maintenance therapy, and employment status were identified for all patients. Area deprivation index (ADI), a tool that scores neighborhoods based on socioeconomic disadvantage, was calculated for every patient based on home address with high scores representing more socioeconomic disadvantage.

RESULTS:

Of the 477 tibial and femur shafts fractures treated with IMN, 23 (4.8%) were lost to follow up. No single patient demographic identified was associated with a loss to follow up. The only factors associated with loss to follow up was high ADI ($p = 0.0003$) and polytrauma ($p = 0.003$).

A total of 137 patients (28.9%) were rehospitalized or represented to the emergency department within 3 months of discharge from their initial hospitalization. Current smoking, alcohol (ETOH) abuse, drug abuse, opioid maintenance therapy, and unemployment/disability/homelessness were all associated with significantly increased risk of rehospitalization ($p < 0.05$). A high ADI had the strongest association with rehospitalization, with an odds ratio of 3.1 ($p = 0.002$). The most common reasons for rehospitalization were pain control (24.1%), exacerbation of a known chronic medical issue (19.0%), infection (13.9%), and ETOH or drug overdose (8.0%).

DISCUSSION AND CONCLUSION:

Several factors predict loss to follow up and rehospitalization in a large cohort of orthopaedic trauma patients with long bone fractures. The factor that correlated the strongest with loss to follow up was high ADI. This suggests that ADI may be a potential tool to help identify patients at risk for healthcare disparity with the goal to improve outcomes in this vulnerable population.