Predictors of chronic osteomyelitis: comorbid conditions versus social determinants of health

Angella Chang, Charlotte Pearson, Renee Breaux, Thuc Truong
Jessica Rivera, MD, PhD.

LSUHSC School of Medicine, New Orleans LA
LSUHSC Department of Orthopaedics

Introduction

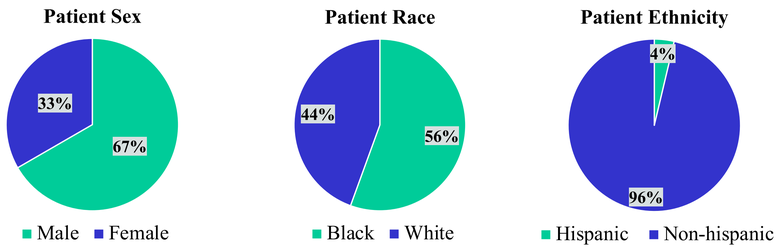
- Osteomyelitis often requires surgery and a long course of antibiotics to treat.
- Certain comorbidities such as coronary artery disease and chronic kidney disease are associated with recurrent infection[1].
- Social determinants of health (SDOH) are other risk factors important to consider for poor health outcomes, including recurrence of osteomyelitis.
- One study found that living in poverty-driven neighborhoods increases mortality from trauma-related injury[2].
- Moreover, recurrent osteomyelitis is a challenging diagnosis as it can lead to adverse events related to prolonged antibiotics[3].
- It is, therefore, imperative to understand the risk factors that contribute to persistent infection.

- This study aims to explore how well SDOH predict recurrent osteomyelitis compared to comorbidities.

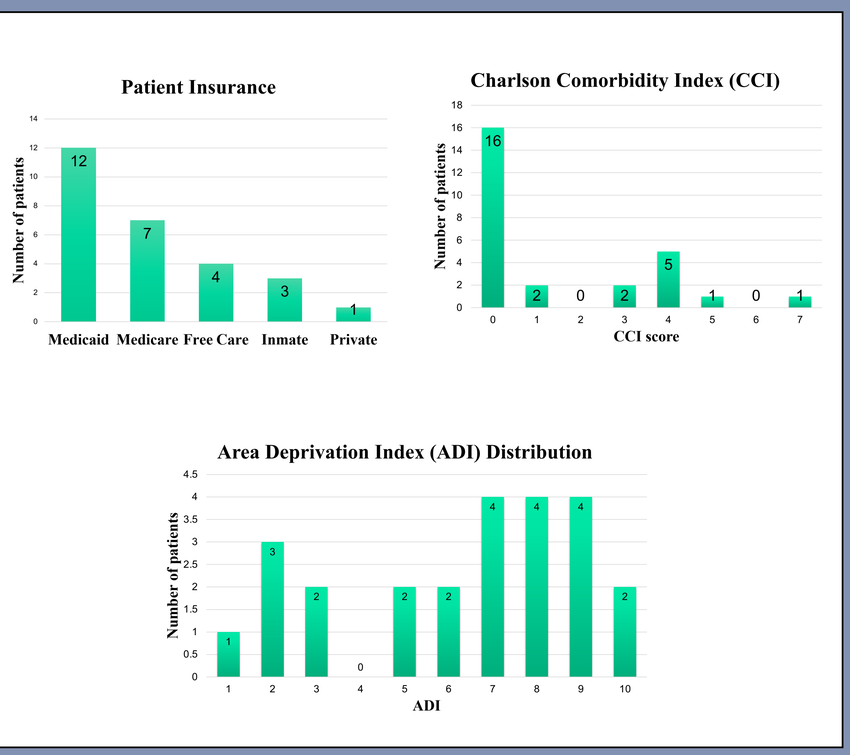
Methods

- This is a retrospective cohort study of adult patients diagnosed with lower extremity chronic osteomyelitis in New Orleans.
- 27 medical records were abstracted using the electronic medical record (Epic)
- Data abstracted included demographics and comorbidities to calculate the Charlson Comorbidity Index (CCI)
- Patient address was used to identify the Area Deprivation Index (ADI). (https://www.neighborhoodatlas.medicine.wisc.edu)
- Patients were determined to have recurrent osteomyelitis if they were found to still have infection despite a course of operative and/or antibiotic course
- Logistic regression analysis was used to test for associations between recurrence and CCI or SDOH.

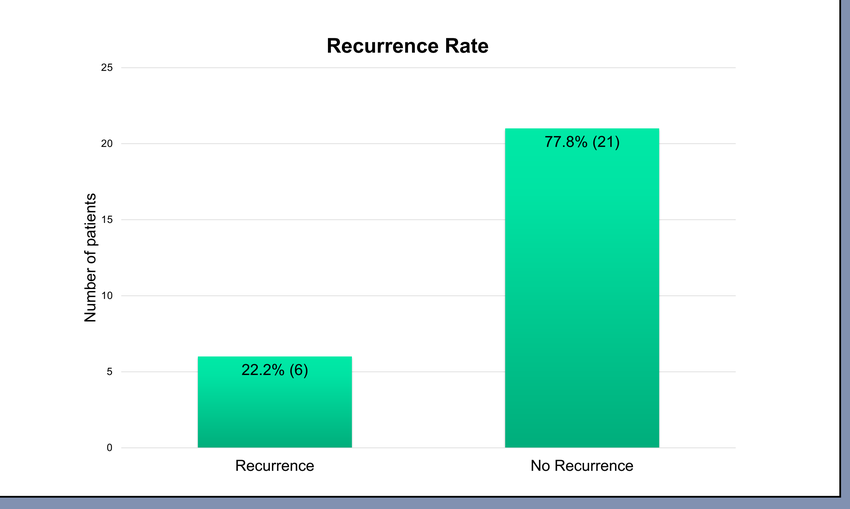
Demographics



Variables (SDOH, CCI)



Recurrence of Osteomyelitis



Results

- Of the 27 records, 33.3% were female and 66.7% were male, with an average age of 44.5
- Race demographics comprised of Black/African American (55.5%), White (44.4%), and majority non-Hispanic (96.3%)
- Medicaid (44.4%) was the most common insurance, followed by Medicare (25.9%), free care (14.8%), inmate (11.1%), and private (3.70%)
- The range of ADI was 1 (least disadvantaged) to 10 (most disadvantaged), with a mean of 6.29 and median of 7.00 (N=24)
- The range of CCI was 0 to 7, with a mean of 1.48 (mild grade) and a median of 0 (no comorbidity)
- Recurrence of osteomyelitis occurred in 6 (22.2%) patients, with a mean ADI of 6.50 (N=4) and a mean CCI of 0.833 (N=6).
- Three cases were excluded from the total average ADI and two were excluded from the recurrence average ADI due to incarceration status
- Regression analysis did not identify any significant associations between recurrence and CCI or SDOH, though a larger sample is needed for this analysis

Conclusion

- 22.2% of patients had recurrent osteomyelitis.
- These preliminary data indicate our population has a disadvantaged socioeconomic status (insurance status, ADI) with fewer comorbidities (CCI).
- Using ADI and CCI as indicators of socioeconomic status and comorbidity, the six patients with recurrent osteomyelitis may be more socioeconomically disadvantaged and have fewer comorbidities compared to our total population studied

References

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3. Napierala MA, et al. Risk of Obtaining Routine Cultures During Presumed Aseptic Orthopaedic Procedures. J Surg Orthop Adv. 2017 WINTER;26(4):239-245.