

Introduction

The infected diabetic foot ulcer is a major factor in hospitalization and amputation. Among patients with DFUs treated in the outpatient setting, 60% develop infections, and 20% of those involve infection of the bone. (1-2)

Our aim was to compare outcomes and complications of soft tissue and bone infections in the foot in patients with diabetes

Methods

- This study was approved by the Human Subjects Protection Board at the University of Texas Southwestern Medical Center and Parkland Hospital.
- We included 294 patients with 12 months follow up information in this retrospective cohort study with moderate and severe diabetic foot infections that required hospitalization. Outcomes were collected from the patients' charts, up to 12 months after admission.
- The osteomyelitis (OM) diagnosis was confirmed by either positive bone culture or bone histopathology. Soft tissue infection (STI) was based on negative bone culture, MRI or WBC SPECT CT.

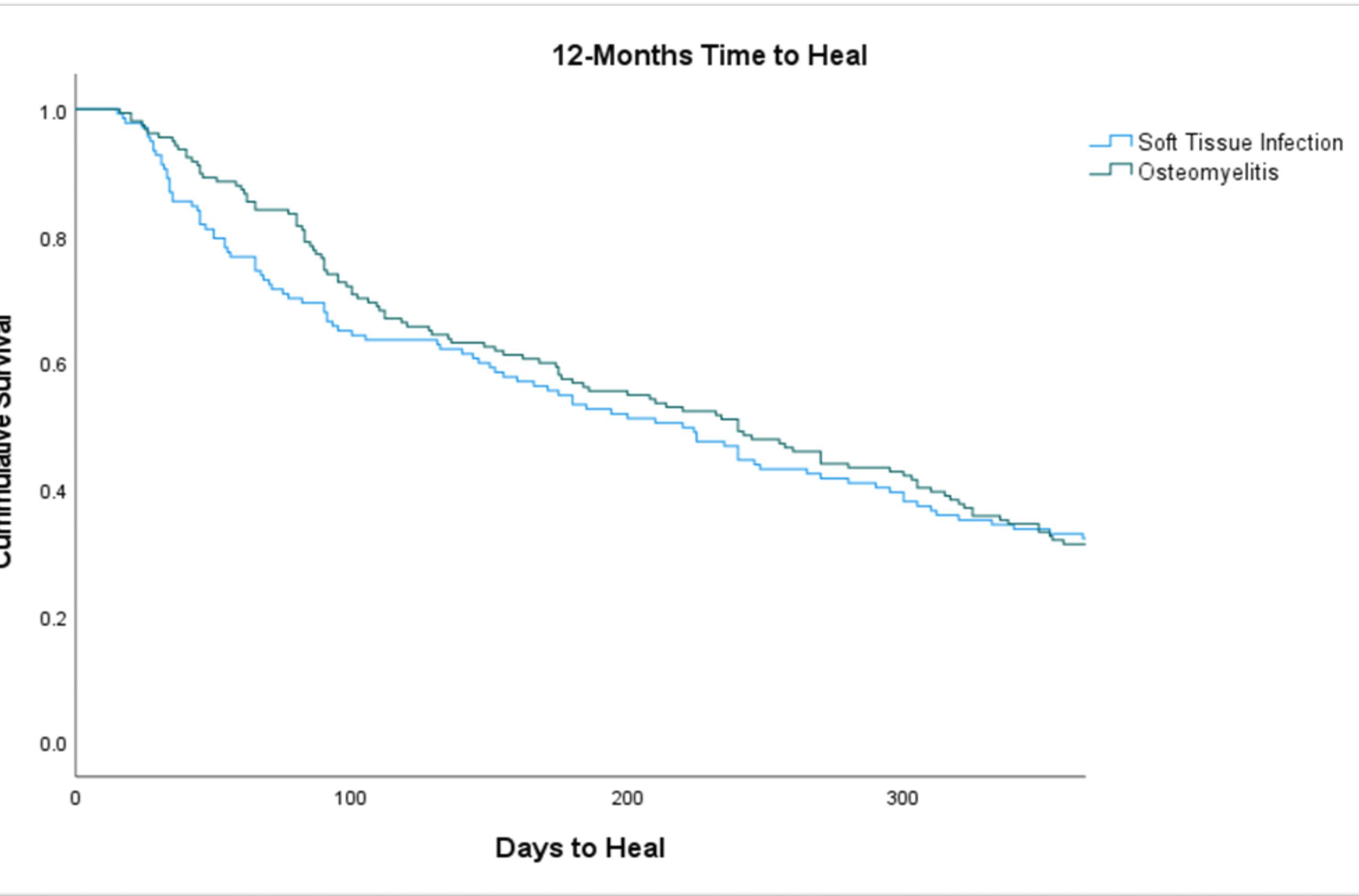


Figure 2. This graph shows the survival function for the number of days to heal comparing people with OM and STI.

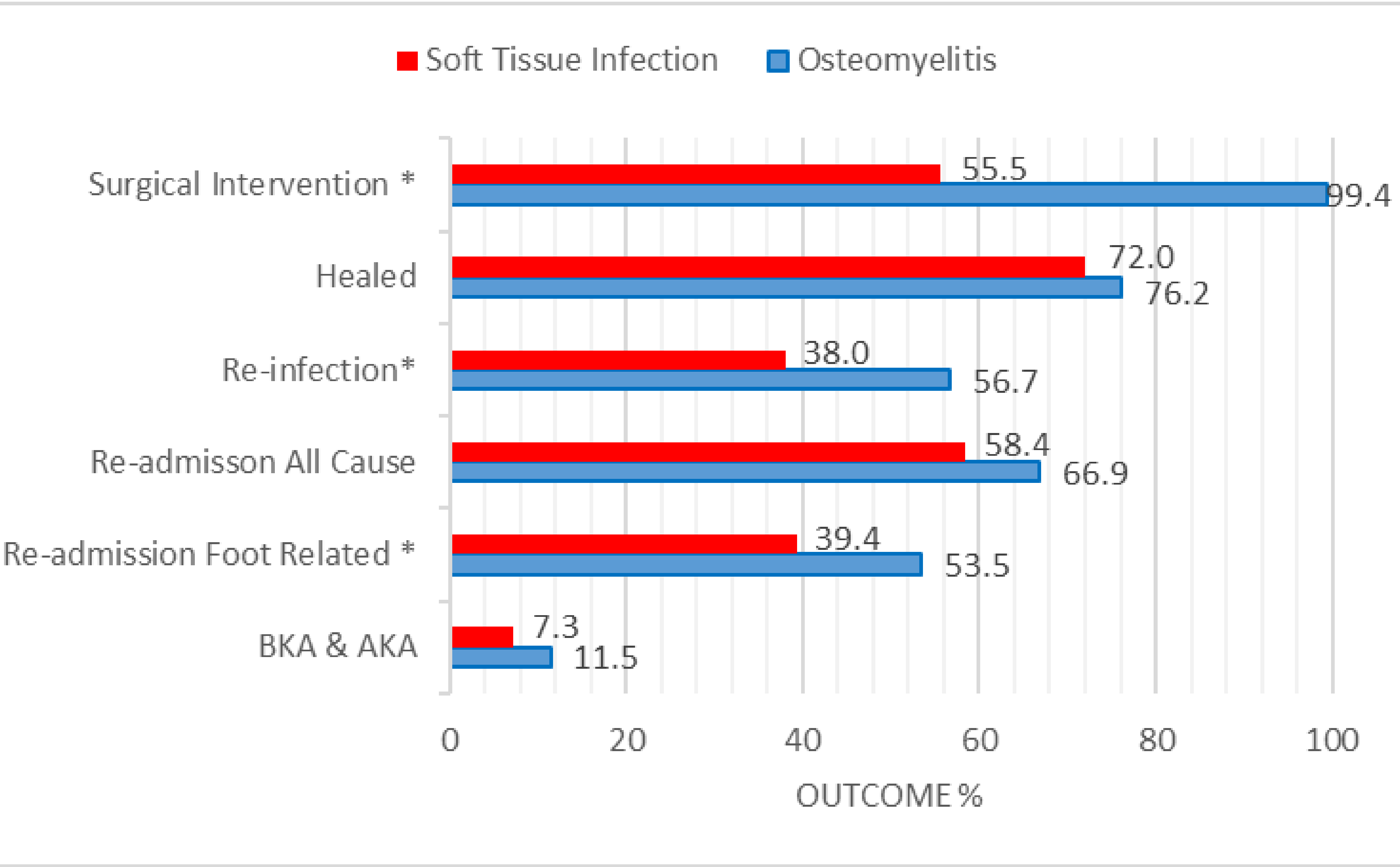


Figure 1. This graph shows the comparison in the 12-month outcomes between the people with OM and STI.

*There is a significant difference.

Results

- OM patients had surgery more often (99.4% vs. 55.5%, $p<0.01$), more surgeries (3.3 ± 2.3 vs. 1.1 ± 1.4 , $p<0.01$), had more amputations (83.4% vs. 26.3%, $p<0.01$) (Figure 1).
- But there was no difference in large amputations like BKA and AKA (11.5% vs. 7.3%)
- OM patients had longer hospital stays (22.6 ± 19.0 vs. 14.5 ± 14.9 days, $p<0.01$)
- OM patients required a longer antibiotic treatment (50.5 ± 46.9 vs. 24.9 ± 32.9 days, $p<0.01$).
- OM patients took longer to heal (165.3 ± 112.3 vs. 135.1 ± 102.3 days, $p=0.03$)(Figure 2), but the healing rate was the same (76.2% vs 72.0%, $p=0.37$).
- OM patients had a higher rate of re-infection (56.7% vs.38.0%, $p<0.01$),
- OM patients had a higher rate of foot related re-admissions (53.5% vs. 39.4%, $p=0.02$) than STI patients.

Discussion

- The outcomes of OM are worse than STI. However the differences in this might have been underestimated by the way we included patients.
- Others reported similar findings, Wukich(3) reported that OM patients had longer hospitalization, more amputations, more re-admissions than patients with soft tissue infections.
- Mutluoglu reported that in 73 patients diabetic foot infections; 50% had OM and they had longer hospitalization, longer time to wound healing, more surgeries, more minor amputations, and longer antibiotic use. (4)
- The operational definitions that were used to identify patients with osteomyelitis used the “gold standard” of bone culture or histology,
- STIs were diagnosed with clinica and negative MRI, SPECT CT or bone culture and histology. This is a more stringent definition of soft tissue infection because we wanted to have confidence that osteomyelitis was not missed or misclassified.
- The study population may not be generalizable, because Parkland is a safety net hospital.
- Selection bias may that we have systematically removed patients with the best results from the study, they were not likely to have 12 months follow up.

Conclusion

The results of this study showed that OM compared to STI in the feet of people with diabetes was associated with longer hospitalizations, longer antibiotics treatment, more surgeries and amputation.

After discharge patients with OM had a more complicated course with: more recurrent infections and re-admissions for foot related causes. While there was no difference in healing rates, OM patients took longer to heal compared to STI.

References

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