Patients Undergoing Ankle and Hindfoot Arthrodesis for Charcot Neuropathy Experience Increase Risk of Complication and Amputation

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INTRODUCTION:

Charcot neuroarthropathy represents a challenging clinical problem, often leading to severe deformities, ulceration, and a high risk of amputation. For more severe deformities, surgical management can be indicated in the form of midfoot, hindfoot, or ankle arthrodesis. Despite its prevalence, the risk of post-surgical amputation remains high. This study aims to describe patients undergoing either midfoot or ankle/hindfoot arthrodesis for Charcot arthropathy, the rates of surgical complications within 6-months of surgery, and how these outcomes differ between patients undergoing midfoot and ankle/hindfoot arthrodesis.

METHODS:

This retrospective cohort study utilized the Nationwide Readmissions Database (NRD) to examine 8,218 patients diagnosed with Charcot neuroarthropathy who underwent either midfoot (N=5,187; 63.1%) or hindfoot/ankle (N=3,032; 36.9%) arthrodesis between 2015 and 2020. Patient demographics, comorbidities, postoperative complications, readmission, reoperation, and mortality rates were compared between fusion locations. RESULTS:

The study cohort was predominantly male (53.2%) with a mean age of 61.7 years. Patients undergoing hindfoot/ankle arthrodesis were associated with statistically significantly higher rates of numerous comorbidities as compared to midfoot arthrodesis, including deficiency anemias (p<.001), liver disease (p<.001), fluid electrolyte disorders (p=.031), obesity (p=.044), COPD (p<.001), coagulopathy (p=.006). Employing multivariate regression analysis to control for differences in demographics and comorbidities, patients undergoing hindfoot/ankle fusion were at statistically significantly increased risk of any complication (OR=1.235; p<.001), infection (OR=1.524; p<.001), any amputation (OR=1.253; p<.001), BKA (OR=1.375; p<.001), full ray/foot amputation (1.352; p=.028), partial ray amputation (OR=1.407; p=.010), and reoperation for incision and drainage (OR=1.195; p=.035).

DISCUSSION AND CONCLUSION:

Patients undergoing hindfoot/ankle arthrodesis for Charcot neuropathy face a significantly higher risk of complications, including infections and various types of amputations, compared to those undergoing midfoot arthrodesis. Physicians should prioritize the management of comorbid conditions and consider socioeconomic factors when planning foot or ankle arthrodesis for patients with CN.