

Outcome of Charcot's arthropathy of the midfoot treated by internal fixation as per PROMIS scoring system

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Introduction/Purpose: Charcot's neuropathy is a chronic and destructive condition primarily affecting the joints of foot and ankle which can lead to severe disability sometimes even requiring amputation. Midfoot charcot's can alter the normal biomechanics of the foot leading to point loading and ulcer formation. Different modalities with variable results have been proposed for this devastating condition. Patient reported outcome measurement information system (PROMIS) is a patient, fast and reliable validated tool with different clinical domains to assess the post-operative outcome measures in various aspects of foot and ankle surgery. The aim of the present study was to assess the Pre and post-operative PROMIS scoring of three parameters (Physical function, fatigue and social role) in diabetic patients with Charcot's neuropathy affecting the midfoot.

Methods: A prospective study was conducted at a tertiary care diabetic centre on 13 patients with Charcot's midfoot treated with internal fixation by a single surgeon. Out of 13 patients who met the inclusion criteria, 3 patients had ulcer over the plantar aspect of the foot which was initially treated with contact cast for 6 weeks following which 2 patients were operated using internal fixation and 1 was excluded. Pre and post-operative PROMIS scores were recorded and the final outcomes were measured. The midfoot was fixed with either locking plates or long cannulated screws.

Results: The mean age of the patients were 53.2 ± 9.6 years with a mean duration of diabetes since 7.3 years. The average hospital stay was 3.7 ± 1.5 days. Union was achieved in 13.4 ± 2.7 weeks. The mean RAW scores for physical function, fatigue and social role measured pre-operatively were 8.33 ± 2.53 , 16.83 ± 2.44 and 16.75 ± 2.80 which later improved post-operatively to 16.75 ± 2.63 , 6.91 ± 2.31 and 6.16 ± 1.58 respectively. There was an improvement between the pre and post-operative PROMIS scores which was statistically significant ($P < 0.001$). Two (16.66%) cases had deep infection which required screw removal 8 months from the index surgery. However, the final outcome was a stable and plantigrade foot. One (8.3%) case had superficial infection which responded well to antibiotics. No patient required amputation in the present study.

Conclusion: PROMIS scoring is a patient based scoring system which can assess the prognosis and apply the same clinically. Midfoot charcot's neuroarthropathy can be managed well by internal fixation (locking plates &/or screws) providing adequate stability and plantigrade foot

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