

Outcomes in acute Charcot neuroarthropathy - a single centre experience over 5 years.

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Background: Charcot neuroarthropathy (CN) is an infrequent yet potentially devastating end stage complication of diabetes related peripheral neuropathy. It occurs in approximately 0.5% of people with diabetes. There are few data describing the natural history of CN treated with the gold standard total contact plaster cast (TCC). The aim of this project was to look at time taken to achieve clinical resolution & to see if there was a correlation with location within the foot & overall outcomes. **Methods:** A retrospective analysis of patients presenting to our tertiary foot clinic with a diagnosis of newly presenting acute CN between 2007 & 2012. Clinic records were examined to determine the site of the CN; total time treated in a TCC or other removable offloading devices. We also assessed the presence of co-morbidities. **Results:** 50 confirmed case of CN presented during this time. The mean age at diagnosis was 62.5 ± 11.7 (SD) years. 11 patients had type 1 diabetes mellitus (T1DM). The mean duration of diabetes was 29.7 ± 12.9 years for those with T1DM, & 14.4 ± 10.7 years for those with type 2 diabetes. All patients had palpable foot pulses & peripheral neuropathy at diagnosis. 82% had retinopathy; 34% had CKD stage 3-4; no patients had CKD stage 5. 42 patients went into remission with temperature differences $< 2^{\circ}\text{C}$. Of these, 11.9% were forefoot; 64.3% mid-foot; & 19.1% hind-foot. 4.8% were of multiple sites. 36 patients were treated with TCC & other removable offloading devices, whilst 6 were treated with one modality only. 14 of the 36 (38.9%) required re-casting due to clinical deterioration in the removable device. For the 42 patients who completed treatment, the mean duration was 53.9 ± 28.0 weeks, of which a mean of 30.2 ± 25.0 weeks was spent in a TCC. 23.7 ± 16.2 weeks were spent in other offloading devices. Mean duration of treatment for forefoot, mid-foot & hind-foot was 47.2 ± 22.6 , 55.9 ± 30.6 & 51.8 ± 23.1 weeks respectively. 8 patients did not complete treatment: 4 underwent below knee amputation, 3 for hind-foot CN. 2 died & 2 were still undergoing treatment. **Discussion:** We have shown that the mean length of treatment is dependent on the position of the CN, & that the mean time to resolution is just over 1 year. However, a high percentage (38.9%) deteriorated after coming out of a TCC. This study highlights the need to develop more precise measures to help manage acute CN.