[PO1] TREATMENT WITH RECOMBINANT HUMAN PARATHYROID HORMONE DOES NOT ENHANCE CLINICAL RESOLUTION AND FRACTURE HEALING OF CHARCOT OSTEOARTHROPATHY - DOUBLE BLIND RANDOMISED PLACEBO CONTROLLED CLINICAL TRIAL

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Aim: The main objective of this study was to investigate whether recombinant human parathyroid hormone (rh PTH 1-84) can enhance fracture healing and arrest bone and joint destruction in the acute diabetic Charcot foot.

Method: We carried out a double blind randomised placebo controlled trial in 48 patients with acute Charcot osteoarthropathy. We treated patients with daily subcutaneous injections of recombinant human parathyroid hormone (rh PTH 1-84) or placebo until clinical resolution of the osteoarthropathy or up to a period of 12 months. All patients received casting therapy and Calcium and Vitamin D3 supplementation. Time to clinical resolution was recorded in months. Semiquantitative bone marrow oedema (BMO) scores and fracture scores were calculated on non-contrast magnetic resonance imaging scans and the rate of change of these scores at presentation and on follow up (at clinical resolution or at 12 months) was compared between the groups.

Results/Discussion: Logistic regression analysis indicated that there was no statistical difference between the active and placebo in the percentage of patients with clinical resolution at 6 months (Odds ratio=0.94; 95% CI 0.30 to 3; P=0.92) and at 12 months (Odds ratio=2.3; 95% CI 0.68 to 7.7; P=0.18). There was no statistically significant difference between the survival (non-resolution) patterns between the active and placebo groups. The log-rank (Mantel-Cox) statistic was 0.11 yielding a p-value of 0.74 and the estimated hazard (for resolution) ratio was 1.1 (95% CI 0.57 to 2.1; P=0.78).

The total BMO score significantly decreased between presentation and follow up ($p<0.001$). However, the rate of change in the total BMO score was not significantly different between the active and placebo groups ($p=0.95$). Similarly, the total fracture score significantly decreased between presentation and follow up ($p=0.001$). However, the rate of change in the total fracture score was not significantly different between the active and placebo groups ($p=0.55$).

Conclusion: This study has shown that treatment with rh PTH does not enhance time to resolution and fracture healing of the acute Charcot foot. Casting therapy remains the mainstay of Charcot foot management.