[P21] WHAT MRI-INTERVALS FOR MONITORING THE RESOLUTION OF ACTIVE DIABETIC CHARCOT FOOT ? A RETROSPECTIVE CLINICAL STUDY

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Aim: MRI should be applied for establishing the diagnosis of active Charcot foot as soon as possible when an insensate foot in diabetes gets swollen (Petrova et al, 2015). Furthermore, MRI can be used for monitoring the response of the condition, in particular of bone marrow edema (BME), to offloading and immobilisation treatment. The speed of evolution/resolution of BME, which is largely unknown, was reviewed from MRI follow-up studies obtained in clinical routine.

Method: A total of 33 MRI follow-ups of various durations were retrieved from patients' charts of a single institution, comprising 15 cases of active Charcot foot grade 0 and 1 (Chantelau and Grutzner, 2014) in 13 patients. The initial MRI had been performed 3 (<0.25-5) months [median (range)] after the inciting trauma, which was identifiable in 14 cases.

Results/Discussion: The 1st follow-up studies after 2.25 (1.5-3.75) months showed – according to radiologists' semiquantitative comparisons- partial resolution of BME in all but 3 cases (whose BME had not fully developed <1 week after the trauma on the initial MRI and decreased only later). There were 5 more follow-up studies without BME reduction in which, however, insufficient offloading and immobilisation was deemed causative. In 6 cases, BME had disappeared after 9 (3-17.5) months of treatment, on the 2nd to 4th follow-up MRI. BME changes varied according to succession and interval of follow-up (Table):

Length of MRI follow-up intervals, months	1.5-2	>2-4	>4
MRI follow-up studies, n	8	16	9
Distribution of 1st/2nd/3rd/4th MRI follow-ups, n	6/2/0/0	9/6/1/0	0/4/4/1
MRI follow-up studies with BME reduction, n (%)	4 (50)	13 (81)	8 (89)

Conclusion: Short-term (< 2 months) MRI follow-ups seem useful early after onset of treatment of active Charcot foot, to track completion of the initial BME lesion, and/or to underpin patient compliance. For monitoring BME resolution in compliant patients, 3 months interval is sufficient. The data corroborate reports that BME evolution parallels the bone healing processes, which take several months of treatment to complete (Krüger et al. RÖFO 1999, Edmonds et al. Diabetologia 2006, Zampa et al. Skeletal Radiol 2011, Ruotolo et al. 2013). Further MRI study is required for assessing the chronology of BME changes more precisely.