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Osteoprotegerin gene polymorphism in Charcot neuroosteoarthropathy

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Charcot neuroosteoarthopathy(CN) is a rare but devastating complication of diabetes. The etiology is not fully understood but it involves interaction of several factors including abnormalities in bone metabolism. Bone reapsorption is a frequent feature of Charcot foot . Inflammatory condition definitely contributes to the pathogenesis. It is however likely that the cytokines of RANK, RANKL and OPG pathway may contribute to the pathogenesis of osteolysis in Charcot foot. Recently we have suggested an association between two *OPG* polymorphisms (1181G>C and 245T>G) and diabetic Charcot neuroosteoarthopathy. We have now analysed the frequency of OPG gene polymorphisms in a larger cohort of patients with Charcot neuroosteoarthropathy, diabetic patients with neuropathy (N), diabetic patients without neuropathy(D) and healthy controls(C. **Material and methods:** A total of 237 subjects: 64 Charcot neuroosteoarthropathy patients, 44 diabetic patients with neuropathy, 34 diabetic patients without neuropathy and 95 healthy controls were genotyped for 5 different single nucleotide polymorphisms (SNP) within the OPG gene (T245G G1181C, T950C, C1217T and A6890C). Patients were genotyped for OPG SNPs by PCR/RFLP method. Serum OPG levels were detected by enzyme-linked immunosorbent assay. **Results:** Statistically significant differences between the group of subjects with neuropathy but no Charcot neuroarthropathy and the control group were found only for T245TG polymorphism. We did not confirm our previous observation of the association of Charcot neuroosteoarthropathy with C1217T polymorphism. With respect to serum OPG concentration statistically significant differences were found only between the patients with neuropathy (N) in which OPG levels were higher and the group with diabetes and no neuropathy (D). **Conclusion:** Genetic factors, particularly T245G *OPG* gene polymorphisms, may play a role in the development of diabetic Charcot neuroarthropathy.