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Heterotopic ossification after the use of rhBMP-7

This study explores: 1) The incidence of heterotopic ossification as a complication following the use of recombinant human Bone Morphogenetic Protein-7 (rhBMP-7) for the treatment of long bone nonunions and 2) The factors (related to the patient, the nonunion and the surgical procedure) correlated with the development of this complication.

The study involved a series of 84 patients (60 male – 24 female) treated for nonunions of the long bones with the use of rhBMP-7 combined with bone grafts. All patients were evaluated radiographically for the development of heterotopic ossification during the standard assessment for the nonunion healing and in all patients with radiographic signs of heterotopic ossification, a CT scan was also performed.

The authors recorded factors related to the patient (age, gender), the nonunion (location, size, chronicity, number of previous procedures, infection, surrounding tissues condition) and the surgical procedure (graft and fixation type, amount of rhBMP-7) and correlated these factors with the development of heterotopic ossification. Statistical analysis with Pearsons Chi-Square test was performed.

Heterotopic bone formation occurred in 15 of 84 patients (17.8%) and it was apparent in the routine radiological evaluation of the nonunion site. In 4 patients a palpable mass was present and only in one patient, with a para-

articular knee nonunion treated with rhBMP-7, the size of heterotopic ossification affected the knee range of motion.

In this study, heterotopic ossification was a relatively common complication of the use of rhBMP-7, with higher rates than the ones reported in literature. In addition, a significant correlation between patient's gender and the development of this complication was found.

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