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Tricalcium Phosphate in the Treatment of Juvenile Bone Cysts in Children

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Abstract

Juvenile bone cysts in children and adolescents are often discovered incidentally or in connection with a pathologic fracture. Although the diagnostic procedure in this type of lesion affecting the skeleton has become uniform, the treatment varies according to the principles established at different clinics. The aim of our study was to compare two methods applied in the treatment of juvenile bone cysts, i.e. the established method of a series of Methylprednisolone injections and a new mini-invasive method using a Tricalcium phosphate. In both groups of patients, we performed an evaluation of the number of required surgeries, general anaesthetics and subsequent hospitalizations (including the length of hospitalization), the treatment results and the interval between surgery and complete cyst healing using Neer's evaluation criteria. The group of patients treated with Methylprednisolone consisted of 24 patients and the group of patients treated with Tricalcium phosphate comprised 20 patients. The outcome of the statistical analysis proves that in patients treated with Tricalcium phosphate significantly better results were obtained compared to patients where Methylprednisolone was applied. A subsequent surgery (additional application) was necessary only in two Tricalcium phosphate patients (10%) compared to nineteen Methylprednisolone patients (79%). The average length of hospitalization was 4 days in Tricalcium phosphate patients and 3.5 days in Methylprednisolone patients. Excellent and good results according to the Neer classification were documented in eighteen Tricalcium phosphate patients (90%) and in twelve Methylprednisolone patients (50%). The treatment of juvenile bone cysts with a biocompatible resorbable synthetic filler Tricalcium phosphate helps reduce the number of surgeries necessary for complete cyst healing and produces better results in terms of Neer's evaluation criteria of bone cyst treatment results compared to the application of Methylprednisolone into the cyst. This work was supported by the Internal Grant Agency of the Ministry of Health of the Czech Republic (NS9860-3/2008).

