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IMAGES IN PAEDIATRICS.....

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Radiological findings in cyclical administration of intravenous pamidronate in children with osteoporosis

A 5-year-old boy with moderately severe osteogenesis imperfecta and spontaneous fractures was treated with serial courses of intravenous pamidronate. Pamidronate is a second-generation bisphosphonate drug that binds strongly to bone mineral and interferes with bone remodelling by slowing osteoclastic bone resorption. It is used in a cyclic dosage of 1 mg/kg/day intravenously on 3 successive days at 4-monthly intervals. A radiograph of the knee after treatment showed a pattern of parallel dense metaphyseal lines (fig 1A).

A 16-year-old boy with camptodactyly coxavara arthropathy pericarditis syndrome (C-CAP syndrome) also had osteoporosis (Z score –4) with associated spontaneous fractures. After several courses of intravenous pamidronate a radiograph of his knee showed a pattern of parallel dense metaphyseal lines similar to those of the first child but much

more closely packed because of less bone growth between courses of the drug in this older patient (fig 1B).

The value of bisphosphonate administration in paediatric patients for the treatment of osteoporosis and osteogenesis imperfecta has been reported.^{1–3} We present the radiographic finding of parallel dense metaphyseal lines in two children treated with cyclical intravenous pamidronate. As reported by others, the number of lines corresponded to the number of treatments received and the separation of the lines was determined by the age of the child and the rate of growth of the bone imaged.⁴

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Figure 1 (A) A 5-year-old boy with osteogenesis imperfecta after cyclic treatment with bisphosphonates. AP radiograph of the knee shows dense parallel bands in distal femoral and proximal tibial and fibular metaphyses. (B) A 16-year-old boy with camptodactyly coxavara arthropathy pericarditis syndrome (C-CAP syndrome) and osteoporosis who had cyclic treatment with bisphosphonates. AP radiograph of the knee shows dense parallel bands in distal femoral and proximal tibial and fibular metaphyses. Lines are closer to each other than seen in the younger boy.