NERIDRONATE TREATMENT IN CHILDREN WITH OSTEOGENESIS IMPERFECTA (OI): THE EFFECTS ON BONE MINERAL DENSITY (BMD) AND VERTEBRAL DEFORMITIES

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To evaluate the effects of neridronate treatment on bone mass and vertebral deformities in children with OI.

In 21 children (8 M, 13 F; age 1-12 aa), with OI (types I, III e IV) in therapy with neridronate (2 mg/kg i.v. every 3 months), were evaluated lumbar bone mass (BMD e BMAD) and vertebral deformities by morphometric X-ray absorptiometry (MXA) using QDR4500A (Hologic). By MXA were calculated the wedging index [(1-ah/ph)x100%] and concavity index [(1-mh/ph)x100%].

A significant increase of BMD was observed after 12 months, from 0.08±0.01 to 0.09±0.01 (+17.1%; p<0.01); the indexes of vertebral deformity were reduced (wedging: -4.64% n.s.; biconcavity: -7.5% n.s.) and inversely correlated to the BMD (r=-0.372) and to the BMAD (r=-0.376).

The semiquantitative (SQ) assessment of the radiographs and the MXA revealed the same number and grade of vertebral fractures in 13/20 children.

Our data confirm the effectiveness of the therapy with neridronate increasing the bone density; the relationship between the morphometric indexes and the BMD suggest the possibility to use the MXA (low-dose method), in the follow-up for the children with IO for the identification of vertebral fractures.