Longitudinal Changes of Bone Mineral Content in Children with Cystic Fibrosis

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Aim: to examine factors that may determine longitudinal changes in bone mineralisation in children with Cystic Fibrosis (CF).

Methods: 100 children (50 females) had DXA performed - the data were expressed as expected bone mineral content for Bone Area SDS (BMC SDS). 
→ 49 children had a second DXA 
→ 24 had three DXA, during the 10-yr period.

Results:

Factors influencing bone mineral content change by ANOVA.

Table 1. Descriptive features of all children at T0, T1 and T2.

Table 2. Factors influencing bone mineral content change by ANOVA.

Median LS BMC SDS decreased from T0 to subsequent assessments (-0.3; -0.4; -0.5; p=0.053).

Factors decreased bone mineral content:
- longer time between DXA assessments
- lower FEV1%
- lower BMI SDS
- low Vitamin D associated with high PTH.

Conclusions: Bone mineralisation as assessed by DXA decreases with time in children with CF. Lower FEV1%, poorer nutritional status and low vitamin D with high PTH were factors found to be associated with worsening BMC SDS.