primary studies - published RCT

Bone mineral density in Australian children, adolescents and adults with cystic fibrosis: a controlled cross sectional study.

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Study design (if review, criteria of inclusion for studies)

RCT

Participants

153 individuals with CF aged 5.3-55.8 years (84 males) and in 149 local controls aged 5.6-48.3 years (66 males)

Interventions

dual energy x ray absorptiometry

Outcome measures

Anthropometric variables, body cell mass, markers of disease severity, corticosteroid usage, measures of physical activity, dietary calcium and caloric intake and serum vitamin D were assessed and related to BMD

Main results

Compared with controls, mean BMD was not significantly different in children aged 5-10 years with CF. Adolescents (females 11-18 years, males 11-20 years) had reduced TB and R33% BMD when adjusted for age, sex, and height (difference in BMD (g/cm2) adjusted means between control and CF: TB=0.04 (95% CI 0.01 to 0.07); R33%=0.03 (95% CI 0.01 to 0.06)). BMD was reduced at all sites except R33% in adults (difference in BMD (g/cm2) adjusted means between control and CF: TB=0.05 (95% CI 0.02 to 0.09); LS=0.08 (95% CI 0.03 to 0.14); FN=0.09 (95% CI 0.03 to 0.15); RUD=0.03 (95% CI 0.01 to 0.05)). In children/adolescents BMD was weakly associated with nutritional status and disease severity.

Authors' conclusions

BMD was normal in a well nourished group of prepubertal children with CF. A BMD deficit appears to evolve during adolescence and becomes more marked in adults. Individuals with CF should optimise nutrition, partake in physical activity, and maximise lung health in order to optimise BMD. Further longitudinal studies are required to understand the evolution of reduced BMD in young people and adults with CF.

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See also

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Keywords

Adolescent; Adrenal Cortex Hormones; Adult; Bone Density Conservation Agents; Bone Diseases; Child; exercise; Hormones; non pharmacological intervention - diet; non pharmacological intervention - devices OR physiotherapy; pharmacological_intervention; Steroids; Supplementation;