

Adults with Prader-Willi syndrome have weaker bones: effect of treatment with GH and sex steroids.

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Obesity has been considered to have a protective effect against the risk of fractures in adults. However, a high frequency of fracture is described in obese adults with Prader-Willi syndrome. To evaluate bone geometry, density and strength in a group of adult obese patients with Prader-Willi syndrome (PWS) and to examine the modulating effect on bone of treatment with growth hormone (GH) and sex steroids. This was a cross-sectional study performed in 41 (17 males, 24 females) obese subjects with genetically confirmed PWS, aged 29.4 ± 8.6 years. Forty-six healthy subjects (22 males and 24 females) served as controls. Digitalized X-rays were evaluated at the level of the 2nd metacarpal bone to assess bone geometry, i.e. cross-sectional area (CSA), cortical area (CA), medullary area (MA), metacarpal index (MI) and bone strength evaluated as bending breaking resistance index (BBRI). DEXA was also used to evaluate body composition and bone mineral density (total body, lumbar spine and femoral neck). PWS subjects, after adjusting for height and bone size, had a reduced CSA, CA and BBRI, while bone density was not different. GH treatment had a positive effect and sex steroids a negative effect on bone size and strength. PWS subjects showed a reduced bone size at the metacarpus leading to a reduced strength, while bone density was appropriate for size. GH treatment improves bone geometry but not bone density. Bone strength was significantly reduced in PWS patients who did not receive GH and had been treated with sex steroids.

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