

Use of quantitative ultrasound to assess osteopenia in children with Crohn disease

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BACKGROUND AND AIMS

Children with Crohn disease are at increased risk for osteopenia and osteoporosis. Early development of osteopenia can increase the lifetime risk for fractures and may be amenable to early intervention. The gold standard for measuring bone mineral density (BMD) and fracture risk is dual x-ray absorptiometry (DXA), but this involves some radiation and specialized programs for measuring BMD in children. Bone density Z-scores were evaluated with quantitative ultrasound (QUS) using a novel portable device and were compared with DXA in children with Crohn disease.

METHODS

Thirty-five children with documented Crohn disease (mean age 14.3 +/- 2.3 years) had speed of sound measured at the left radius and left tibia. Normative values for QUS Z scores were calculated from a cohort of 1,110 healthy children. A subgroup of 26 children with Crohn disease underwent both QUS and DXA. Z scores were calculated and compared for both groups.

RESULTS

The mean Z score using lumbar spine DXA was -1.04 +/- 1.51 SD, compared with -0.15 +/- 1.49 SD, using the lowest Z score for QUS (<0.05). Using height adjusted DXA, 50% of children with Crohn disease had osteopenia, whereas QUS detected only 19.2% of these children (<0.05). Significantly fewer cases of osteopenia were detected using QUS at Z scores up to -2 SD.

CONCLUSIONS

Quantitative ultrasound performed on the radius and tibia may not be sensitive enough to pick up osteopenia in children with Crohn disease.