Introduction & Aims

- Patients with Klinefelter syndrome (KS) are at increased risk for osteoporosis and fractures in adulthood (Bojesen et al., 2011).
- Data on bone mineralization during childhood and adolescence are limited, although it is a risk period for vitamin D deficiency, low calcium intake and evolving hypogonadism. (Akslaede et al., 2008).
- A positive influence of vitamin D, but not of testosterone replacement on bone mineralization has been observed in young adults (Ferlin et al., 2015; van den Bergh et al., 2001).
- We therefore studied bone mineralization at different sites in KS adolescents and its relationship with vitamin D and gonadal status. KS adolescents with lower calcium intake, lower vitamin D status and lower gonadal function were expected to be at risk for a deficient bone mineral accumulation.

Patients & Methods

- Retrospective bone mineral assessments data of 29 (25 pubertal) patients with non-mosaic KS, aged between 10 and 18 years, without vitamin D or testosterone supplementation were retrieved.
- Areal Spinal BMD was measured by DXA (Hologic QDR 4500A densitometer (Hologic Inc., Bedford, MA, USA) and radial volumetric BMD by pQCT ( XCT 2000, Stratec, Phorzheim, Germany).
- BMD results are expressed in z-scores using the manufacturer generated reference values.
- Calcium intake was calculated from a simplified food frequency questionnaire using the method of Nordblad M et al., 2016.
- Results of biochemical analysis within 6 months of BMD assessment were recorded.

Results

- Table 1: Clinical characteristics of the patients
- Table 2: Hormonal characteristics of the patients
- Table 3: Spinal and radial BMD results
- Table 4: Correlation analysis results

Conclusions

Spinal and radial bone mineralization is normal in KS during adolescence, irrespective of vitamin D status and gonadal status and calcium intake. Spinal BMD results in KS should be interpreted in relation to the height and pubertal status of the patients.

No conflict of interest