

ORAL PRESENTATION

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Relationship between bone density and bone metabolism in adolescent idiopathic scoliosis (AIS)

Yoichi Aota*, Ko Ishida, Nobuyuki Tanabe, Tomoyuki Saito

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Purpose

Although osteopenia is often associated with AIS, studies on bone metabolism in relation to AIS have not yielded clear results. To characterize bone metabolism in AIS patients, a cross sectional study assessing bone metabolism and bone density was performed.

Methods

Using dual-energy X ray absorptiometry and bone metabolism markers (bone formation marker; BAP, bone resorption marker; TRAP5b), the bone mineral density of lumbar and bilateral proximal femurs were studied in 41 AIS patients aged 10 to 20 years old, with a mean of 15.2±5.9 years old. Divided into two groups by levels of bone resorption marker (TRAP5b), BMD, BMI and age of menarche were compared statistically in each group.

Results

Among the AIS patients studied, osteopenia (-1 standard deviations to -2 standard deviations) was found in 34.1% of the patients and osteoporosis (below -2 standard deviations) was found in 24.4% of the patients. In 39 AIS patients (95.2%), BAP values were within normal range. On the other hand, TRAP5b values were significantly high in 65.9% of the patients. In high levels of the TRAP5b group, BMD values of the lumbar spine and right femoral neck were significantly lower than those of the TRAP5b group.

Conclusions and discussion

The bone resorption marker was high in 65.9% of the AIS patients, and high bone resorption in bone metabolism

was found to be a possible cause of low bone mineral density in patients with AIS.

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* Correspondence: yaota@yokohama-cu.ac.jp
Department of Orthopaedic Surgery, Yokohama City University, Yokohama, Japan