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Vertebral Geometry Parameters Can Predict Fractures

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Abstract:

Background: The aim of this study was to investigate vertebral geometry changes and determine cutoff value of vertebral height to predict fractures. Methods: In a cross-sectional study, 280 postmenopausal women recruited .In all subjects bone mineral density and radiog¬raphy of the lumbar spine performed. Lateral radiographs were evaluated for identification of vertebral fractures, using a validated semiquantitative method. T-score of vertebral height was calculated based on data extracted from Iranian Multi¬center Osteoporosis Study. ROC curve used to determine cut off value of vertebral height T-score to predict fractures. Results: The mean of age and BMI were 55.34±8.7 years and 27.73±5 kg/m2, respectively. Among osteoporotic women, 59.8% had one or more vertebral fractures and 23.8% had at least 2 fractures. In fracture group the T-score of spine and femur BMD was lower than the others. The mean of vertebral height in women without fractures was 12.94±0.6 cm, and in the patient with 4 or more fractures was12.3, thus every fracture accompany with 1.2% decreases in the height of vertebrae. The prevalence of vertebral fracture in osteoporotic patients was 71.4% and in healthy cases 39.5%. Better estimation of vertebral height T score in ROC curve was less than -0.7.The sensitivity and specificity of the cut off value were 81.3% and 52.9%, respectively. Conclusion: Vertebral fractures are common fractures in postmenopausal women. There was a correlation between verte¬bral height and fractures. Vertebral geometric parameters especially height T score can be used for fracture screening.

Keywords:

Vertebral geometry

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