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Evaluating the relationship between regional obesity and bone density in post-menopausal women assessed via dual energy X-ray absorptiometry

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Introduction: Obesity is considered as a contributing factor in Osteoporosis. Recent studies have indicated that using regional fat distribution instead of body mass index (BMI) may lead to more accurate information about obesity. This study was performed to determine the relationship between regional fat mass and bone density using DXA in postmenopausal women.

Patients & Methods: In a cross sectional study, 76 postmenopausal women who were referred for a DXA scan were selected. Using standard T-score, patients were divided into three groups; normal, osteopenia and osteoporosis. All obesity-related quantitative characteristics, such as total body fat, total lean mass, trunk, limb, abdominal, pelvic fat mass were measured using DXA method.

Results & Discussions: The mean (±SD) fat mass and total lean mass were 35570.3 ±8858.1 grams and 36945 ± 6228.3 grams, respectively. The means of bone mineral density and T-score of lumbar region were 994.7 ± 152.2 g/cm2 and mean T-score was -1.158 ± 0/915, respectively. For the femoral neck the mean T-score were 0/77±0/12 and -1/86±1, respectively. According to Pearson correlation test, no relationship was seen between the spinal column bone density and total fat mass. Similarly, no relationship between the T-score and total fat mass was observed in this region. The correlation between femoral neck bone mineral density and total fat mass was 0.22 which was not significant. The correlation between femoral neck T-score and fat mass was 0.22 in this region which was not statistically significant.

Conclusion: According to the results of this study regional fat mass had no statistically significant protective effects on bone density. Therefore, due to limitations of this study, it is suggested that more comprehensive research with larger sample size is performed.

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