

## INCREASED BONE TURNOVER IN OBESE POSTMENOPAUSAL FEMALES

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Bone loss occurs at an accelerated rate in women, around the time of the menopause. After the menopause, bone resorption increases by 90%, as assessed by markers of bone resorption ( $\beta$ -CrossLaps, Urine NTx), whereas bone formation also increases, but only by 45% as assessed by markers of bone formation (osteocalcin, alkaline phosphatase, N-terminal propeptide of type 1 collagen) (1). The most dramatic endocrine alteration during the menopause involves relative increase in the androgen/estrogen ratio (2). Postmenopausal women manifest this with a shift to abdominal fat distribution (android type of obesity) (3). Furthermore, adipose tissue in postmenopausal women is a source of estrogen and therefore could exert protective effects against bone loss in aging women (4). It has been observed that heavier women after menopause conserve bone mass better than those with lower body weight. Therefore, the protective effect of obesity on bone mass would be ascribed to a high body fat content. The aim of study was to estimate the effect of obesity on bone mass.

**Materials and Methods:** The total of 161 postmenopausal female patients were divided into three groups based on body mass index (BMI) values. Normal weight group with BMI < 25 kg/m<sup>2</sup> (57 patients). Overweight group with BMI from 25 kg/m<sup>2</sup> to 29.99 kg/m<sup>2</sup> (62 patients) and obese group with BMI > 29.99 kg/m<sup>2</sup> (62 patients). Patients were also divided into two groups based of percentage of fat mass (%FM), with a cut of value %FM=30. Group 1 with %FM < 30 counted 76 patients, while group 2 with %FM  $\geq$  30 counted 68 patients. Waist circumference (WC) and calculated body mass index (BMI) and waist-hip-ratio (W/R) were measured for all patients. Central abdominal obesity was defined as WC > 88 cm. Ultrasonography was used to estimate visceral (VAF) and subcutaneous abdominal fat (SAF), total fat mass (TFM) and total lean mass (TLM). Serum levels of osteocalcin, total P1NP,  $\beta$ -CrossLaps, were determined using electrochemiluminescence immunoassay. Urine NTx level were determined by chemiluminescent method.

**Results.** Normal weight group of patients had significantly higher P1NP values (43.95 (33.075, 60.925) mcg/L) when compared to obese group of patients (38.20 (27.05, 52.15) mcg/L) ( $p=0.004$ ). Osteocalcin levels were significantly higher in normal weight group (26.0 (20.207, 30.375) ng/mL) compared to obese group of patients (20.0 (16.5, 26.8) ng/mL) ( $p=0.001$ ). Group with normal weight had significantly higher B-CrossLaps values (0.435 (0.360, 0.568) g/L) compared to obese group (0.37 (0.245, 0.545) g/L) ( $p=0.004$ ). When compared in whole sample of patients, regardless of their BMI, some bone remodeling markers showed correlation with anthropometric parameters; visceral fat diameter showed negative correlation with B-CrossLaps ( $\rho=-0.193$ ;  $p=0.01$ ), urinary NTx ( $\rho=-0.237$ ;  $p<0.01$ ), osteocalcin ( $\rho=-0.287$ ;  $p<0.01$ ) and P1NP ( $\rho=-0.189$ ;  $p=0.012$ ). Females with increased %FM had significantly lower osteocalcin (21.3 (18.5, 28.7) ng/mL) and urinary NTx levels (41.2 (32.0, 53.25) nmol BCE/mmol creatinine) compared to females with normal %FM (25.2 (19.8, 31.18) ng/mL);  $p=0.023$  for osteocalcin and 49.95 (34.78, 61.35) nmol BCE/mmol creatinine;  $p=0.044$  for urinary NTx.

Our study results showed lower bone turnover in obese postmenopausal females compared to normal weight females suggesting that adipose tissue might exert protective effect on bone loss by lowering bone turnover. However, larger prospective studies are needed to confirm the findings.

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## DYNAMICS OF THE PURULENT FOCUS IN PATIENTS WITH FURUNCLES OF MAXILLOFACIAL AREA WITH VARIOUS APPROACHES TO INTEGRATED TREATMENT

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Furuncles continue to be one of the most common neodontogenic inflammatory diseases of the maxillofacial region. Complex therapy of patients with this pathology should be highly effective, since it is important to prevent complications and to maintain the aesthetics of the facial skin after the primary surgical treatment of the infectious inflammatory focus. This fact determines the improvement of the knowlages and search for new methods of