

OP 4

## Assessment of Trabecular Bone Score and its Relationship with Body Composition in Pre and Postmenopausal Women

Hasanga M.R.P.<sup>1#</sup>, Lekamwasam S.<sup>2</sup>, Wickramatilake C.M.<sup>1</sup>, Lenora J.<sup>3</sup>

<sup>1</sup>Department of Biochemistry, Faculty of Medicine, University of Ruhuna

<sup>2</sup>Department of Medicine, Faculty of Medicine, University of Ruhuna

<sup>3</sup>Department of Physiology, Faculty of Medicine, University of Ruhuna

#Corresponding author: hasangamr@gmail.com

**Background:** Trabecular bone score (TBS) reflects the bone quality, independent of bone mineral density (BMD). TBS is related to bone microarchitecture and it is strongly correlated with the number of trabeculae and their connectivity. Data on TBS are deficient in Sri Lankan population.

**Objectives:** To investigate the association between body composition and TBS in a group of community living pre and postmenopausal women.

**Methodology:** Adult women >20 years of age, living in Bope-Poddala MOH area were recruited by stratified random sampling method and divided in to pre (n=203) and postmenopausal (n=181) age groups. Body composition (total body BMD, regional BMDs, total body fat mass and total body lean mass) was analyzed by DXA and TBS was estimated using TBS iNsite® software. Partial correlation (age adjusted) and multiple regression were used to analyze the data.

**Results:** Mean (SD) age of pre and postmenopausal women were 35(10) and 60(6) years respectively, whereas mean (SD) TBS were 1.352(0.077) and 1.221(0.085) respectively. In premenopausal women TBS positively correlated with total body BMD ( $r=0.43$ ,  $p=0.001$ ), spine BMD ( $r=0.48$ ,  $p=0.001$ ), hip BMD ( $r=0.35$ ,  $p=0.001$ ) and femoral neck BMD ( $r=0.38$ ,  $p=0.001$ ). In postmenopausal women also TBS positively correlated with total body BMD ( $r=0.35$ ,  $p=0.001$ ), spine BMD ( $r=0.32$ ,  $p=0.001$ ), hip BMD ( $r=0.21$ ,  $p=0.005$ ) and femoral neck BMD ( $r=0.22$ ,  $p=0.003$ ). No association was seen between TBS and body fat or lean mass in both groups. In premenopausal women spine BMD emerged as the best predictor of TBS which explained 18% of variance in regression analysis. In postmenopausal women total body BMD was the best predictor of TBS and it explained 21% of variance.

**Conclusions:** BMD is positively associated with TBS in both groups of the selected sample. TBS was best explained by spine BMD in premenopausal women and by total body BMD in postmenopausal women in this study sample. Further, TBS was not associated with fat or lean mass in both groups of women.

**Keywords:** Trabecular bone score, Body composition