P687

IDENTIFICATION OF FRAIL PATIENTS USING FEMORAL RADIOFREQUENCY ECHOGRAPHIC MULTI SPECTROMETRY (REMS)

G. Adami[1], G. Arioli *[2], G. Bianchi *[3], M. L. Brandi *[4], C. Caffarelli *[5], L. Cianferotti *[4], G. Girasole *[3], S. Gonnelli *[5], M. Manfredini *[2], M. Muratore *[6], E. Quarta *[6], L. Quarta *[6], D. Gatti[1]

[1]Rheumatology Unit, Department of Medicine, University of Verona, Verona, [2]Department of Neurosciences and Rehabilitation, Carlo Poma Hospital, ASST-Mantova, Mantova, [3]SC Rheumatology, ASL 3 Genovese, Genoa, [4]Department of Experimental and Clinical Biomedical Sciences, University of Florence, Metabolic Bone Diseases Unit, University Hospital of Florence, Florence, [5]Department of Medicine, Surgery and Neurosciences, University of Siena, Siena, [6]O.U. of Rheumatology, Galateo Hospital, San Cesario di Lecce, ASL-LE, Lecce, Italy

*equal contributors listed in alphabetical order.

Objective: REMS has been recently presented as a valuable approach for osteoporosis diagnosis and fracture risk prediction [1]. The aim was to investigate the effectiveness of the T-score values provided by REMS and DXA scans at femoral neck in the identification of patients (pts) with frailty.

Methods: The ability of REMS and DXA T-score values to assess the incidence and site of fractures was evaluated through an analysis of covariance (ANCOVA). Differences among groups were assessed by Kruskal-Wallis test.

Results: 721 Caucasian women were enrolled. Fracture prevalence was 13.2%. In particular, 43.2% involved the upper limb (forearm, elbow, humerus, wrist, hand), 16.8% hip, 15.8% the thorax (shoulder blade, shoulder, rib), 14.7% lower limb excluding femur (tibia, ankle, metatarsus), 9.5% the vertebrae. No statistically significant differences were observed among subcategories of fractured pts (p=0.91, 0.6, 0.08, and 0.09 for age, height, weight and BMI, respectively). T-score values for fractured pts were lower than for non-fractured pts both for REMS (median -2.3 [IQR: -2.8 – -1.7] vs. -1.8 [-2.3 – -1.1], respectively, p<0.001) and DXA (-2.2 [-2.8 – -1.6] vs. -1.7 [-2.3 – -1.1], respectively, p<0.001). In the ANCOVA model including age, height and BMI as covariates, the difference of T-score values between fractured and nonfractured pts remains statistically significant both for REMS and DXA.

Considering the fractured subgroup, pts with fractures at femur and vertebra reported statistically significant lower T-score values than nonfractured pts both for REMS and DXA (p<0.001, Figure).

Conclusion: REMS T-score measured at femoral neck is an effective parameter to identify frail patients, in particular with fractures occurring at hip and vertebra in a population-based sample of female subjects.

Reference: 1. Diez-Perez A. Aging Clin Exp Res 2019;31:1375.

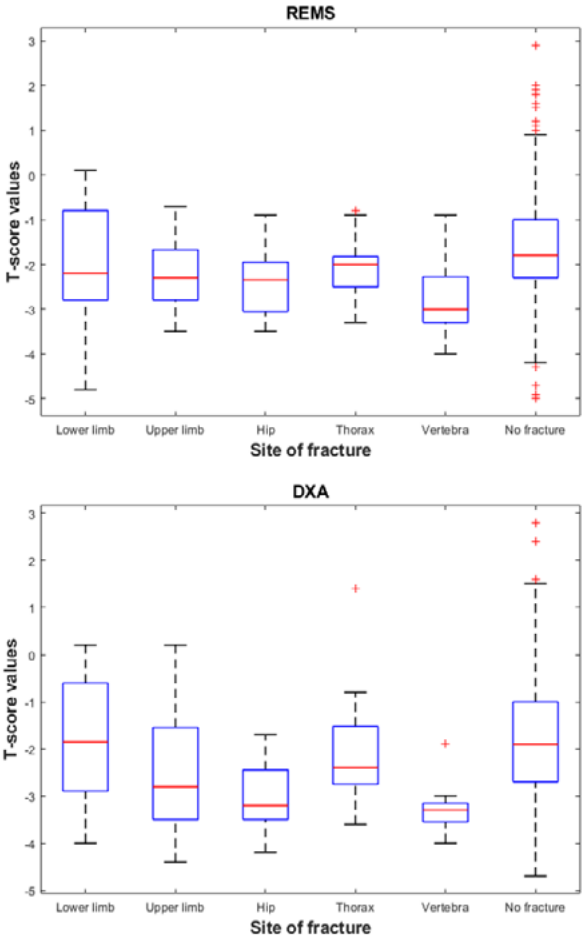

Figure 1. Boxplot of the distribution of T-score values estimated by REMS (above) and DXA (below) at femoral neck among patients with fragility fractures at different sites, i.e., lower limb (excluding femur), upper limb, hip, thorax and vertebra, and patients without fragility fracture. Statistically significant lower T-score values were found in patients with femoral or vertebral fractures with respect to patients without fractures both for DXA and REMS.