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RADIOFREQUENCY ECHOGRAPHIC MULTISPECTROMETRY (REMS) TECHNOLOGY AND DXA FOR BMD ASSESSMENT IN KIDNEY TRANSPLANT RECIPIENTS

A. F. Fassio¹, S. A. Andreola², D. G. Gatti¹, M. G. Gatti¹, G. G. Gambaro², M. R. Rossini¹, P. P. Pisani³, L. F. A. Lombardi³, G. A. Adami¹

¹Rheumatology Unit, University of Verona, Verona, ²Nephrology Unit, University of Verona, Verona, ³National Council of Research - Institute of Clinical Physiology (CNR-IFC), Lecce, Italy

Objective: REMS is a novel ultrasound-based technique that has shown good reliability in the assessment of BMD in women affected by post-menopausal osteoporosis. Data on special populations with secondary osteoporosis are needed. The aim of this study was to compare the performance of the REMS BMD assessment with DXA in a cohort of kidney transplant recipients (KTR).

Methods: Consecutive patients referring to our KTR clinic were enrolled. All subjects fulfilled the following inclusion criteria: Caucasian population, both genders, age between 40-80 y, BMI <40 kg/m². The enrolled patients underwent a lumbar spine (LS) and femoral neck (FN) examination with DXA and REMS. Differences in DXA vs. REMS T-scores were analyzed through Student's t-test for independent samples, correlations were tested through Pearson's correlation. Differences in prevalence were tested through chi-squared test. Written informed consent was obtained from all participants (protocol 1483CESC).

Results: 40 patients were enrolled (Table). At the LS, BMD was significantly lower when assessed through REMS. The correlation between the T-scores obtained with DXA and REMS are depicted in Figure. When adopting the worst site, the prevalence of subjects with T-score<-2.5 was 40.5% with DXA and 37.8% with REMS (p=NS) and of subjects with T-score<-1 was 89% with DXA and 97.5% with REMS (p=0.003).

Table. Characteristics of the cohort and differences in T-scores acquired through DXA or REMS.

Sample size (M)	40 (22)	
Age (y)	60 [53-68]	
Body weight (kg)	67 [59-73]	
BMI (kg/m ²)	23.5 [21.9-25.7]	
Corticosteroid treatment %	95%	
History of fragility fracture(s) %	23%	
Lumbar spine		
DXA T-score (mean±SD)	REMS T-score (mean±SD)	Student's t-test
-1.28±1.64	-1.88±0.90	P=0.049
DXA T-score<-2.5 prevalence	REMS T-score<-2.5 prevalence	χ ² p-value
17.5%	22.5%	P=NS
DXA T-score<-1 prevalence	REMS T-score<-1 prevalence	χ ² p-value
65%	89%	P=NS
Femoral neck		
DXA T-score (mean±SD)	REMS T-score (mean±SD)	Student's t-test
-1.97±1.01	-1.90±0.94	P=NS

DXA T-score<-2.5 prevalence	REMS T-score<-2.5 prevalence	χ^2 p-value
27%	19%	P=NS
DXA T-score<-1 prevalence	REMS T-score<-1 prevalence	χ^2 p-value
81%	86%	P=NS

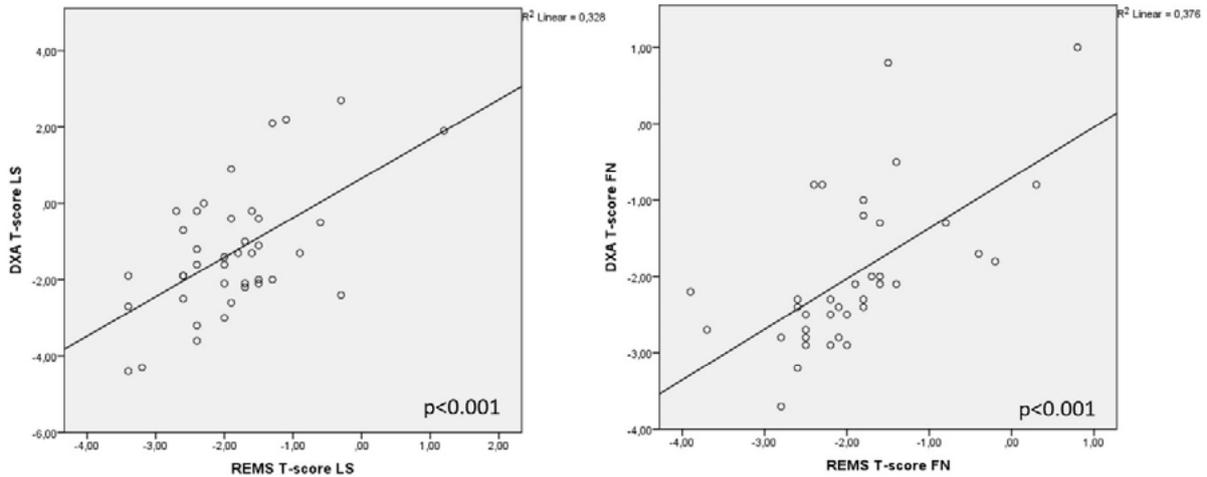


Figure. Scatter dot depicting the correlation between the T-scores obtained with DXA and REMS at the lumbar spine and femoral neck.

Conclusion: These results showed a good reliability of the REMS technology with respect to DXA in the classification of KTR patients as having low bone mass and/or osteoporosis. Furthermore, REMS might be more sensitive than DXA in the detection of early bone impairment and in the classification of KTR patients with low bone mass.