FRI0571

ADDITIONAL SCREENING FOR LOW THORACIC BONE MINERAL DENSITY IN PATIENTS REFERRED FOR CARDIAC CT – A DANISH, MULTI-CENTRE, AND CROSS-SECTIONAL STUDY

J. Therkildsen¹, S. Winther², H.S. Jørgensen³, L. Nissen¹, J. Thygesen⁴, P. Ivarsen⁵, E.-M. Hauge⁶, M. Böttcher¹. ¹Department of Internal Medicine, Hospital Unit West, Herning; ²Department of Cardiology; ³Department of Nephrology; ⁴Department of Clinical Engineering, Aarhus University Hospital; ⁵Department of Nephrology; ⁶Department of Rheumatology, Aarhus University, Aarhus, Denmark

Background: Quantitative computed tomography (QCT) can precisely and with high reproducibility measure spine bone mineral density (BMD) using cardiac computed tomography (CT) scans.¹ Standard for diagnosing osteoporosis is a dual-energy X-ray absorptiometry (DXA) scan.² Despite DXA being fast and with low radiation, many patients with osteoporosis goes undiagnosed.³

Objectives: The aim was to characterise the bone mineral density (BMD) status in a group of patients with low to intermediate risk of coronary artery disease (CAD).

Methods: This study is a retrospective, cross-sectional study analysing prospectively acquired data from the Dan-NiCAD study. Participants were patients with symptoms suggestive of CAD referred for a cardiac CT between 2014–09 and 2016–03. Patient data were collected from interviews. BMD was measured in 3 vertebrae starting from the left main coronary artery using QCT. We used the American college of radiology cut-off values for lumbar spine QCT to categorise patients into very low (<80 mg/cm³), low (80–120 mg/cm³), or normal BMD (>120 mg/cm³).

Results: Analyses included 1487 patients. Mean age was 57 years (range 40–80), 52% were women. The total number of patients with very low BMD was 179 (12%) (105 women, 74 men). The majority of patients with very low BMD was not previously diagnosed with osteoporosis (87%) and received no anti-osteoporotic treatment (90%). Compared to patients with normal BMD, individuals with very low BMD had more risk factors for osteoporosis such as higher age ($p < 0.001$), predisposition to osteoporosis ($p < 0.001$), and were more often former smokers ($p < 0.01$).

Conclusions: Very low BMD seems present in a significant proportion of men and women, a majority of which were not diagnosed with osteoporosis or receiving anti-osteoporotic medication. Patients with very low BMD had more osteoporotic risk factors compared to patients with normal BMD. Additional screening for osteoporosis can potentially prevent osteoporotic fractures. However, thoracic spine QCT is a new method without diagnostic cut-off values and prospective studies regarding fracture risk prevention are missing.

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FRI0572

PREVALENCE OF ECHOCARDIOGRAPHIC FINDINGS IN CONNECTIVE TISSUE DISEASES – A RETROSPECTIVE COHORT STUDY

K. Weiss¹, W.A. Schmidt¹, A. Krause¹, V.S. Schäfer². ¹Medical Center for Rheumatology Berlin-Buch, Immanuel Krankenhaus Berlin, Berlin; ²Medical Clinic and Policlinic III, Department of Oncology, Hematology, Immuno-Oncology and Rheumatology, University Medical Center Universitätsklinikum Bonn, Bonn, Germany

Background: Echocardiography is routinely performed in patients with connective tissue diseases (CTD), mostly to evaluate cardiac involvement or development of pulmonary arterial hypertension (paH). Despite its frequent application there is incomplete data for the range and frequency of findings.

Objectives: 1) To study the frequency of echocardiographic findings in routinely examined patients with different CTD. 2) To report which findings were associated

with a history of inflammatory cardiac involvement. 3) To analyse whether findings changed over time in patients with several examinations.

Methods: Retrospective chart review of all consecutive patients from a tertiary rheumatological referral centre with CTD diagnosis and echocardiographic examination between 01/01/2006 and 31/12/2015. For each echocardiographic finding, the proportion of patients per diagnosis with a pathological result in at least one examination was calculated. Each finding's frequency was compared between patients with and without previously documented inflammatory cardiac involvement; $p < 0.05$ in Fisher's exact test was considered significant. For patients with more than one visit, we recorded how often findings developed or resolved between two consecutive examinations.

Results: 1004 patients with different CTD and a total of 1660 performed echocardiographies were analysed. Table 1 displays the frequency of findings in the whole cohort and for each CTD. The following findings were significantly more common in patients with known inflammatory cardiac involvement ($n=109$) than in those without ($n=896$): regurgitation of tricuspid valve (45.0% ($n=49$) of patients with cardiac involvement vs. 23.2% ($n=206$) of patients without, $p < 0.001$) and of pulmonary valve (15.6% ($n=17$) vs. 6.1% ($n=54$), $p=0.001$); global hypokinesia (3.7% ($n=4$) vs. 0.4% ($n=4$), $p=0.007$); dilatation of left atrium (33.9% ($n=37$) vs. 17.5% ($n=156$), $p < 0.001$), of left ventricle (LV) (11.0% ($n=12$) vs. 5.1% ($n=45$), $p=0.025$), of right atrium (15.6% ($n=17$) vs. 1.7% ($n=15$), $p < 0.001$) and of right ventricle (15.6% ($n=17$) vs. 1.9% ($n=17$), $p < 0.001$); signs of paH (28.4% ($n=31$) vs. 5.3% ($n=47$), $p < 0.001$), and pericardial effusion (43.1% ($n=47$) vs. 6.5% ($n=58$), $p < 0.001$). 314 patients had consecutive examinations; medium interval between first and last examination was 40 months (SD: 28, range: 0.9–115). New development or resolution of findings between consecutive examinations was common. The findings which most commonly developed were mitral valve regurgitation in 24% ($n=76$) of patients, tricuspid regurgitation in 21% ($n=67$), aortic valve sclerosis in 18% ($n=55$) and LV dysfunction in 20% ($n=62$). The findings which most commonly resolved were mitral regurgitation in 15% ($n=47$) of patients, tricuspid regurgitation in 16% ($n=49$), aortic valve sclerosis in 10% ($n=31$) and LV dysfunction in 13% ($n=42$).

Abstract FRI0572 – Table 1. Frequency of echocardiographic findings in patients with CTD

	All patients	Sjögren's syndrome				Systemic sclerosis		Myositis		DM		UCTD	MCTD
	1004	SLE	Primary	Secondary	Diffuse	Limited	With Myos.	PM	DM	Anti-Jo1	UCTD	93	85
Number of patients		190	208	115	84	145	17	21	29	17			
Valvular regurgitation													
Mitral	368 (37)	87 (46)	78 (38)	44 (38)	41 (49)	46 (32)	3 (18)	6 (29)	10 (34)	4 (24)	20 (22)	29 (34)	
Aortic	178 (18)	26 (14)	44 (21)	29 (25)	15 (18)	29 (20)	1 (6)	3 (14)	3 (10)	3 (18)	8 (9)	17 (20)	
Tricuspid	255 (25)	45 (24)	50 (24)	25 (22)	31 (37)	52 (36)	5 (29)	3 (14)	7 (23)	5 (29)	20 (22)	17 (20)	
Pulmonary	71 (7)	6 (3)	20 (10)	5 (4)	10 (12)	11 (8)	2 (12)	1 (5)	0	5 (29)	4 (4)	7 (8)	
Valvular sclerosis													
Mitral	96 (10)	20 (11)	18 (9)	15 (13)	13 (15)	15 (10)	1 (6)	0	3 (10)	2 (12)	6 (6)	3 (4)	
Aortic	202 (20)	25 (13)	38 (18)	43 (37)	26 (31)	33 (23)	5 (29)	2 (10)	4 (14)	5 (29)	11 (12)	10 (12)	
Tricuspid	3 (0)	0	0	1 (1)	0	1 (1)	0	0	0	0	1 (1)	0	
Pulmonary	1 (0)	0	0	1 (1)	0	0	0	0	0	0	0	0	
Valvular stenosis													
Mitral	10 (1)	2 (1)	1 (0)	0	1 (1)	3 (2)	0	0	1 (3)	1 (6)	0	1 (1)	
Aortic	45 (4)	4 (2)	6 (3)	13 (11)	9 (11)	6 (4)	0	2 (10)	0	1 (6)	2 (2)	2 (2)	
Tricuspid	1 (0)	0	0	0	0	1 (1)	0	0	0	0	0	0	
Pulmonary	1 (0)	0	0	1 (1)	0 (0)	0	0	0	0	0	0	0	
Contraction and ejection													
LV dysfunction	216 (22)	29 (15)	39 (19)	33 (29)	24 (29)	42 (29)	4 (24)	2 (10)	5 (17)	3 (18)	20 (22)	15 (18)	
EF reduced (all)	93 (9)	19 (10)	11 (5)	11 (10)	14 (17)	16 (11)	2 (12)	1 (5)	1 (3)	3 (18)	10 (11)	5 (6)	
EF 45–54%	50 (5)	10 (5)	3 (1)	4 (3)	10 (12)	9 (6)	1 (6)	1 (5)	1 (3)	3 (18)	4 (4)	4 (5)	
EF 30–44%	30 (3)	7 (4)	6 (3)	4 (3)	3 (4)	5 (3)	0	0	0	0	4 (4)	1 (1)	
EF < 30%	13 (1)	2 (1)	2 (1)	3 (3)	1 (1)	2 (1)	1 (6)	0	0	0	2 (2)	0	
Local akinesia	66 (7)	16 (8)	10 (5)	8 (7)	9 (11)	7 (5)	0	2 (10)	0	4 (24)	5 (5)	5 (6)	
Global hypokinesia	8 (1)	1 (1)	0	0	3 (4)	2 (1)	0	0	0	1 (6)	0	1 (1)	
Muscular hypertrophy and cavity dilatation													
LV hypertrophy	46 (5)	9 (5)	7 (3)	9 (8)	8 (10)	4 (3)	0	1 (5)	0	2 (12)	3 (3)	3 (4)	
Concentric hypertrophy	6 (1)	1 (1)	1 (0)	0	0	2 (2)	0	0	1 (3)	1 (6)	0	0	
Septal hypertrophy	50 (5)	7 (4)	7 (3)	10 (9)	8 (10)	8 (6)	0	1 (5)	2 (7)	2 (12)	1 (1)	4 (5)	
LA dilatation	193 (19)	35 (18)	35 (17)	34 (30)	28 (33)	20 (14)	3 (18)	4 (19)	3 (10)	8 (47)	13 (14)	10 (12)	
RV dilatation	57 (6)	12 (6)	10 (5)	9 (8)	5 (6)	2 (1)	0	3 (14)	0	4 (24)	8 (9)	4 (5)	
RA dilatation	32 (3)	1 (1)	8 (4)	5 (4)	6 (7)	5 (3)	1 (6)	1 (5)	0	1 (6)	1 (1)	3 (4)	
RV dilatation	34 (3)	5 (3)	9 (4)	1 (1)	5 (6)	5 (3)	2 (12)	1 (5)	0	1 (6)	2 (2)	3 (4)	
Other findings													
Signs of pAH	78 (8)	11 (6)	11 (5)	5 (4)	20 (24)	16 (11)	1 (6)	2 (10)	0	4 (24)	3 (3)	5 (6)	
Pericardial effusion	105 (10)	32 (17)	14 (7)	9 (8)	15 (18)	10 (7)	2 (12)	1 (5)	3 (10)	5 (29)	6 (6)	8 (9)	
Aneurysm	11 (1)	6 (3)	1 (0)	1 (1)	0	1 (1)	0	0	1 (3)	0	0	0	1 (1)

Abbreviations: SLE: Systemic Lupus Erythematosus, Myos: Myositis, PM: Polymyositis, DM: Dermatomyositis, UCTD: Undifferentiated Connective Tissue Disease, MCTD: Mixed Connective Tissue Disease, LV: left ventricle, EF: ejection fraction, LA: left atrium, RA: right atrium, RV: right ventricle, pAH: pulmonary artery hypertension

Conclusions: Echocardiographic examinations frequently revealed structural and/or functional abnormalities in patients with CTD. Some findings were associated with previous cardiac involvement and might be disease-related. When reevaluating a patient, findings had often newly developed or resolved since the last examination. Overall, repeated echocardiographic examinations may be a valuable part of follow-up in CTD patients.

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FRI0573

ULTRASONOGRAPHY AND HISTOLOGICAL DIAGNOSIS CONCORDANCE IN PATIENTS WITH SUSPECTED PRIMARY SJÖGREN SYNDROME

L. Barrio Nogal¹, C. Bohórquez¹, A. Perez Gómez¹, A. Castelló², M.J. León¹, P. Pretel¹, M. Álvarez de Mon¹. ¹ESI-Reumatología, Hospital Universitario Príncipe de Asturias; ²Centro Nacional de Epidemiología, Instituto de Salud Carlos III, Madrid, Spain

Background: Minor salivary gland biopsy (MSGB) is the most used diagnostic tool for primary Sjögren Syndrome (SS). The potential relevance of an alternative

non-invasive, fast, low cost and choice by the patient technique, like mayor salivary gland ultrasonography (MSGUS), has to be investigated.

Objectives: To evaluate the utility of MSGUS as a diagnostic tool for primary SS and to study the concordance with MSBG.

Methods: 36 patients were consecutively recruited with clinical and/or analytical suspicion of SS, from outpatient Rheumatology consultations from 2015–2017. All patients received a MSGB and a MSGUS. Two echographers performed two images readings with an interval of at least one week. They worked blinded for clinical and histological results. Demographics, clinical, serological, ESSPRI and ESDAI were recorded. The histological results were classified according to *Chisholm* and *Mason* score and the US results according to the system by *Cornec et al.* The final SS diagnosis was made using the 2002 classification criteria. Subsequently the data was analysed using the statistical software STATA/MP. Adjusted concordance intra and interobserver (kappa coefficient) was calculated for the diagnoses performed by US (normal/pathological). The validity of US and biopsy to diagnose SS according to the 2002 criteria was evaluated by calculating the percent agreement between the tests, along with the specificity, sensitivity, PPV, NPV and area below the curve (AUC). Further, the percent association of the diagnoses between serology and US were determined, and the statistical significance of it was evaluated with chi-square test.

Results: 94% were female, with an average age of 58 years. 69% were non-smokers. 89% showed pathological Schirmer test, 78% extraglandular features, 19% hypocomplementemia and 44% hypergammaglobulinemia. As for the serological data, 81% had positive ANAS, 44% antiRo52, 39% antiRo60% and 28% antiLa. 39% of the patients were RF positive. 69% fulfilled the 2002 classification criteria with an average ESSPRI of 5.3 and ESSDAI of 1.5. Using these criteria as a gold-standard, the total percentage agreement was 83.3% for US and 80.6% for biopsy (S 92, Sp 64.3%). A good concordance was found between both observers (kappa=0.8) along with intraobserver (kappa=0.64 and 0.78 for first and second observer respectively). The percentage of patients with positive antibodies (48% antiRo52, 41% antiRo60, 30% antiLa) had pathological US. Significant statistical differences were not found in patients with normal US ($p>0.44$ in all associations explored).

Conclusions: MSGUS is a non-invasive imaging method useful for the diagnosis of primary SS in common clinical practice with a diagnostic value similar to the MSGB. MSGUS has good correlation intra and interobserver. There was no statistical significant association found between the positive autoimmune antibodies and US.

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FRI0574

RADIOFREQUENCY ECHOGRAPHIC MULTI SPECTROMETRY (REMS) FOR THE NON-IONISING DIAGNOSIS OF OSTEOPOROSIS AT FEMORAL NECK: RESULTS OF A MULTICENTER CLINICAL STUDY COMPARING REMS AND DXA

L. Cavalli¹, G. Arioli², G. Bianchi³, C. Caffarelli⁴, M. Matucci Cerinic⁵, L. Cianferotti⁶, F. Conversano⁶, M. Di Paola⁶, D. Gatti⁷, G. Girasole⁸, A. Giusti³, S. Gonnelli⁴, M. Manfredini⁹, M. Muratore⁹, R. Nuti⁴, P. Pisani⁶, E. Quarta⁹, M. Rossini⁷, O. Viapiana⁷, M.L. Brandi¹. ¹Department of Surgery and Translational Medicine, University of Florence, Metabolic Bone Diseases Unit, University Hospital of Florence, Florence, Italy, Firenze; ²Department of Neurosciences and Rehabilitation, "Carlo Poma" Hospital, ASST, Mantova; ³SC Rheumatology, ASL 3 Genovese, Genova; ⁴Department of Medicine, Surgery and Neurosciences, University of Siena, Siena; ⁵Department of Experimental and Clinical Medicine, University of Florence and SOD Rheumatology AOU, Florence, Italy, Firenze; ⁶Institute of Clinical Physiology, National Research Council, Lecce; ⁷Rheumatology Unit, Department of Medicine, University of Verona, Verona; ⁸"Carlo Poma" Hospital, ASST, Mantova; ⁹O.U. of Rheumatology, "Galateo" Hospital, San Cesario di Lecce, ASL-LE, Lecce, Italy

Background: Radiofrequency Echographic Multi Spectrometry (REMS) is an innovative densitometric technique able to automatically provide BMD values, which it has been shown to highly correlate with BMD obtained by DXA.¹

Objectives: To evaluate the accuracy of REMS measurements in postmenopausal women's femoral neck health assessment versus DXA results in a multicenter clinical study.

Methods: In seven Italian referral centres for osteoporosis management, 1659 postmenopausal women (51–70 years old) were enrolled. Both DXA and REMS examinations were performed on each patient at femoral neck, in the strictest adherence to the corresponding guidelines. After excluding the scans affecting by errors, the REMS diagnostic accuracy was evaluated by assessing sensibility and specificity in the discrimination between "osteoporotic" and "healthy" patients; the degree of correlation between DXA-BMD and REMS-BMD was quantified through Pearson's correlation coefficient (r) evaluation. In addition, the agreement between DXA-BMD and REMS-BMD was measured calculating the root mean square error (RMSE).

Results: A strong correlation ($r=0.94$, $p<0.001$) was detected between BMD obtained by DXA and REMS – estimated BMD at femoral neck, with a low residual error (RMSE=0.034 g/cm³). In addition to this, REMS resulted to have a high capability to discriminate osteoporotic from healthy patients (sensitivity=94.4%, specificity=95.6%).

Conclusions: Thanks to its high capability to identify osteoporotic patients, and the strong correlation with DXA parameters, REMS has been shown to be an accurate non-ionising approach to detect osteoporosis at femoral neck.

§=Equal contributors listed in alphabetical order

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FRI0575

EVALUATION OF SCREENING QUESTIONNAIRES FOR PSORIASIS ARTHRITIS IN A SAMPLE OF PATIENTS WITH PSORIASIS IN A THIRD LEVEL HOSPITAL

M.D. Ruiz Montesino¹, V. Moreira Navarrete¹, A.M. Carrizosa Esquivel², C. León Caro¹, J.J. Pérez Venegas¹, D. Mendoza Mendoza¹. ¹Servicio De Reumatología. Hospital Universitario Virgen Macarena; ²Servicio Dermatología. Hospital Universitario Virgen Macarena, SEVILLA, Spain

Background: Psoriatic arthritis (PsA) is an erosive joint inflammatory disease associated with psoriasis. Between 5% and 35% of patients with psoriasis may develop PsA. Screening questionnaires have been developed for dermatologists in order to make them suspect which patients should be referred to the rheumatologist for evaluation.

Objectives: To know the percentage of patients with PsA detected by the questionnaires in a group of psoriasis patients coming from an outpatient dermatology clinics.

Methods: The study was carried out in the rheumatology unit in collaboration with dermatology. Patients with cutaneous psoriasis who had not previously been diagnosed of any type of arthritis, from a dermatology clinic, were recruited consecutively. Patients were invited to participate in the study and referred to the rheumatology research unit where they signed the informed consent. Then, the questionnaires were administered.

Results: From November 2014 to December 2015, 53 patients were recruited: 30 women and 23 men. The mean age was 44 (± 13) years. The average duration of psoriasis was 11 (± 9) years. 61% had affected nails and skin. 11% of patients received no treatment for psoriasis and 13% received treatment with MTX or PUVA. The mean PASI was 3 (± 4). The quality of life, measured by DLQI, was 1 (± 2). 50% of patients had all the screening questionnaires positive. EARP was the questionnaire that tested positive in a higher percentage of patients, 70%. 68% of the patients had some painful joint and only 8% had some inflammation. Only 9 patients met CASPAR classification criteria and were diagnosed as PsA, of which 56% were in topical treatment by dermatology. These 9 patients had higher PASI than those undiagnosed and were the only ones who had swollen joints. The screening questionnaire that detected all these 9 patients was the EARP, but it was positive in 65% of patients who did not meet CASPAR criteria.

	S	E	VPP	VPN
ToPAS	0,55	0,61	0,22	0,87
PASE	0,33	0,81	0,27	0,85
PEST	0,44	0,70	0,23	0,86
EARP	1	0,36	0,24	1

Conclusions: The percentage of patients with PsA who was identified by EARP questionnaire was 100%, but with a high proportion of FP. PASE detected 33%, TOPAS 55% and PEST 44%. Therefore, questionnaires available are useless in daily clinical practice, due to lack of specificity or sensitivity. The development of a small questionnaire for dermatologist based on CASPAR criteria could be more effective