Conclusions: In combination with the HEp-2 cell assay, the *SeraSpot*® ANA assay can be used as a novel cost-effective multiplex assay for the serological confirmation of CTDs.

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AB1198 THE DIFFERENCES OF THE DISTRIBUTION OF FEEDING VESSELS AND BONE SURFACE IRREGULARITY BETWEEN YOUNG AND ELDERLY ADULTS IN WRIST JOINTS OF HEALTHY VOLUNTEERS BY MUSCULOSKELETAL ULTRASOUND (MSKUS)

K. Misaki[1], K. Ikeda[2], K. Inoue[1], Y. Imaizumi[3]. [1]*Department of Rheumatology, KITA-HARIMA MEDICAL CENTER, Ono*; [2]*Department of Allergy and Clinical Immunology, Chiba University, Chiba*; [3]*Department of Orthopaedic surgery, Kita-Harima Medical Center, ono, Japan*

Background: Synovial vascularity as measured by power Doppler (PD) of MSKUS is correlated to rheumatoid arthritis disease activity, and PD signal reveals the prevalence of subclinical synovitis overlooked on physical examination. It is often difficult to distinguish bone erosion from normal concave surface of the bone, and it is necessary for us to be familiar with these normal structures well in evaluating disease activity by using MSKUS. Here we examine the age-specific differences of normal feeding vessels and bone surface irregularity between in wrist joints.

Objectives: To elucidate the differences of distribution of feeding vessels and bone surface irregularity in wrist joints both young and older adults among healthy volunteers.

Methods: The dorsal side of wrist joints was scanned with 2D-probe in healthy volunteers (young <50 y.o., elder≧50 y.o). The distribution of feeding vessels in the capsule and the extensor(E.) tendon sheath(TS), and the evaluation of bone surface irregularity at lunate(Lu) were examined. The comparative review between young and elderly adults was validated.

Results: The distribution of feeding vessels in younger healthy volunteers (n=30: mean age 32.2±8.0 y.o.) vs elderly healthy volunteers (n=21:mean age 66.0 ±7.2 y.o.) were near-Trapezoid (Rt100.0% vs 100.0%, Lt100.0% vs 100.0%: p=*1.00*),E.digitorum TS(Rt86.7% vs 81.0%:p=*0.59*, Lt66.7% vs 76.2%:p=*0.47*),E. digiti minimi TS(Rt30.0% vs 52.4%:p=*0.11*, Lt30.0% vs 66.7%:p=*0.0089*), near-Capitate (Rt23.3% vs 42.9%:p=*0.14*, Lt30.0% vs 47.6%:p=*0.21*), near-TFCC (Rt16.7% vs 19.0%:p=*0.83*, Lt30.0% vs 38.1%:p=*0.56*), distal radial side of radio-carpal joint(Rt20.0% vs 42.9%:p=*0.08*, Lt23.3% vs 28.6%:p=*0.68*), distal end of Ulna(Rt10.0% vs 42.9%:p=*0.006*. Lt16.7% vs 28.6%:p=*0.31*). feeding vessels from vascular channels were depicted at Lu(Rt53.3% vs 52.4%:p=*0.95*, Lt46.7 vs 66.7%:p=*0.16*), Radius(Rt20.0% vs 33.3%:p=*0.29*, Lt16.7% vs 23.8%:p=*0.54*), Triquetrum (Rt10.0% vs 42.9%:p=*0.0057*, Lt16.7% vs 33.3%:p=*0.17*) and Capitate(Rt6.7% vs 33.3%:p=*0.013*, Lt10%vs33.3%:p=*0.0395*). The bone surface irregularity as a transverse diameter (Mean ±S.D.) at Lu of dominant hand in both groups were 1.26±0.33 vs 1.14±0.2 mm:p=0.21, respectively.

Conclusions: The frequency of feeding vessel's distributions in elderly adults were significantly higher at E.digiti minimi TS, distal end of Ulna and Triquetrum/ Capitate vascular channels compared to those of younger adults. It is suggested that these differences are crucial to evaluate the age-specific synovitis with ultrasound.

Disclosure of Interest: None declared

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AB1199 DYNAMIC ULTRASOUND FOR MULTILEVEL EVALUATION OF MOTION AND POSTURE IN LOWER EXTREMITY AND SPINE

R.V. Bubnov[1,2], L. Kalika[3], L. Babenko[2]. [1]*Diagnostic and interventional ultrasound, Clinical hospital "Pheophania"*; [2]*Interferon, Zabolotny Institute of Microbiology and Virology, National Academy of Sciences of Ukraine, Kyiv, Ukraine*; [3]*https://nydnrehab.com/, New York Dynamic Neuromuscular Rehabilitation and Physical Therapy, New York, USA*

Background: Evaluation of motion and posture is a crucial task in management patient with rheumatic diseases and pain. Integrative protocol including multilevel assessment of intrinsic/extrinsic muscles postural imbalance for disease staging and treatment efficacy control has not been finally developed.

Objectives: The aim was to study feasibility of multilevel motion and posture analysis using dynamic M-mode ultrasound in foot, ankle, gluteus region, pelvis and spine.

Methods: We included 21 patients (13 females, aged 18–52 y.o.) with clinically diagnosed reduced motility in spine, pelvis and lower extremity levels due to detected back leg, pain, muscle spasticity, joints effusion, tissue swelling, etc. Another healthy 20 patients (aged 18–50 y.o.) without movement rstriction and pain were controls. We conducted precise physical tests, extensive neuromuscular ultrasound (US) using M-mode to evaluate muscle thickness, CSA and motion in intervetrebral spaces, pelvis, intrinsic/extrinsic muscles in foot and ankle gluteus region and pelvis, central and peripheral trigger points identification.[1]

Results: We obtained sufficient quality panoramic scans on leg using convex 5–8 MHz probe in 2 approaches to evaluate structure and motion of extrinsic/intrinsic portion of muscles during one session. Thickness measurements of peroneal portion, plantar intrinsic foot muscles on the plantar surface in two transverse positions and one longitudinal using linear probe; contractility using M-mode tested in walking were most representative data. We evaluated different patterns of decreasing motility, contractility (muscle contracted/rested thickness) on M-mode during functional tests and walking in all levels in group 1 ($p<0.05$). We observed the preliminary correlation between the changes (muscle hypertrophy) in contralateral extrinsics and intrinsics muscles at the same levels, due to biomechanical instability; local areas of spasticity (trigger points) were successfully detected on distal/proximal leg, pelvis and spine. Documented pictures were collected and accessible for telemedical consulting.

Conclusions: Extensive evaluation of motion posture in foot, ankle, and gluteus region, pelvis and spine is feasible and informative protocol for patient with pain and rheumatic diseases. Further studies needed to evaluate reliability studies, comparative RCT using US, CAREN, static and dynamic balance tests, pressure analysis, and extensive molecular profiling, to study crosslinks with immune phenotype of the patients; and to develop educational programs.

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AB1200 FROM THE CALCANEUS QUANTITATIVE ULTRASONOGRAPHY (QUS) TO THE FEMORAL RADIOFREQUENCY ECHOGRAPHIC MULTI SPECTROMETRY (REMS): NON-IONISING APPROACHES TO DIAGNOSIZE OSTEOPOROSIS PROPOSED BY F.I.R.M.O. FOUNDATION

L. Cavalli[§1,2,*], L. Cianferotti[§3], F. Giusti[§3], G. Gronchi[3], P. Pisani[2], M.L. Brandi[3]. [1]*Department of Surgery and Translational Medicine, University of Florence, Metabolic Bone Diseases Unit, University Hospital of Florence, Firenze*; [2]*Institute of Clinical Physiology, National Research Council, Lecce*; [3]*Department of Surgery and Translational Medicine, University of Florence, Metabolic Bone Diseases Unit, University Hospital of Florence, Florence, Italy, Firenze, Italy*

Background: The high prevalence of osteoporosis and its insidious development, often silent until a fracture occurs, make it necessary to resort to prevention by promoting early diagnosis and educational programmes for a healthy life style.

Objectives: To develop screening campaigns of the Italian population for the osteoporosis prevention thanks to the collaboration with F.I.R.M.O. Foundation (Fondazione Italiana Ricerca Malattie Ossee).[1]

Methods: An experienced medical staff administered to the afferent people the IOF "One minute risk test" questionnaire, (to detect the presence of clinical risk factors), together with a densitometric examination performed by a portable device aboard a mobile unit, in several Italian cities between 2011 and 2017.

The technique employed to assess bone status in 2011 and 2012 was calcaneus Quantitative Ultrasonography (QUS), applied to a peripheral skeletal site, which has been shown as effective in identifying osteoporotic men or post-menopausal women.[2] Although representing a low-cost and accessible approach, the heel measurement of speed of ultrasound (SOS) can be influenced by foot positioning, oedema and temperature.[3]

Since 2017, a novel non-invasive densitometric technique is available, which allows to evaluate the axial fragile bone sites (spine and femur). It is Radiofrequency Echographic Multi Spectrometry (REMS), that a multicentric clinical study has been shown to provide parameters highly correlated with DXA ones.

Results: As measured by calcaneus QUS in 7305 subjects, the prevalence rate of osteoporosis was approximately 18.7%, while the 42.6% had a T-score compatible with osteopenia. People with a QUS T-score <-2.5 was recommended to early undergo a DXA at lumbar and femoral sites and a specialistic visit.