SAT0710-HPR  RADIOFREQUENCY ECHOGRAPHIC MULTI SPECTROMETRY OSTEOPOROSIS DIAGNOSIS ON FEMORAL NECK: A SPANISH CLINICAL EXPERIENCE

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Background: Radiofrequency Echographic Multi Spectrometry (REMS) is an innovative echographic technology able to provide the most important densitometric parameters by a fully automatic approach. Its high accuracy with respect to the conventional Dual X-ray absorptiometry (DXA) has been shown in a very recently published multicenter clinical trial [1].

Objectives: To evaluate the performance of the REMS technology in osteoporosis diagnosis, with respect to DXA (Clinical Gold Standard), when applied on femoral neck.

Methods: DXA and REMS acquisitions were performed on the femoral neck in 324 female patients, aged between 51 and 70 year, recruited at the Department of Internal Medicine of the Hospital del Mar (Barcelona, Spain). REMS technology is based on a automatic integrated processing of the native unfiltered “raw” (RF) signals, which can be employed to assess the bone health status through comparisons with reference spectral models previously derived from osteoporotic and healthy patients. The data shown have been obtained in the strictest adherence to manufacturer’s procedures and indications. REMS accuracy was assessed by investigating its discriminating ability between osteoporotic and non-osteoporotic patients and by evaluating the correlation between REMS and DXA measurements.

Results: The REMS approach is effectively able to discriminate between osteoporotic and non-osteoporotic patients with a sensitivity equal to 93% and a specificity equal to 95%. These data are further emphasized by the obtained Pearson Correlation value ($r=0.90$; $p<0.001$). REMS accuracy was confirmed also by Cohen’s kappa coefficient ($k$ equal to 0.76. Finally, a very low average difference (expressed as bias ± 2 SD) between REMS and DXA measured BMD (-0.006 ± 0.078 g/cm²) was shown.

Conclusion: In conclusion, REMS technology has proven to be an accurate non-ionizing approach to detect osteoporosis disease at the femoral neck. The performance of this radiation-free technique opens new perspectives for early diagnosis and screening of osteoporosis in clinical and epidemiological studies.

REFERENCE


Disclosure of Interests: Diana Ojeviero Crespo: None declared, Xavier Nogués: Speakers bureau: Lilly, Amgen and Eli Lilly. Adolfo Díez-Perez: Speakers bureau: Lilly, Amgen, GSK and UCB


SAT0712-HPR  VALIDATION OF THE TEST FOR SUBSTITUTION PATTERNS – IN INDIVIDUALS WITH SYMPTOMATIC KNEE OSTEOARTHRITIS

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Background: Few tools evaluates quality of movements in individuals with knee osteoarthritis (OA). The Test for Substitution Patterns (TSP) is developed to measure the difficulty to perform five functional movements regarding postural control and altered movement patterns. (1) TSP is validated and reliable in individuals with anterior cruciate ligament injury, but has not yet been evaluated in individuals with knee OA.

Objectives: To study the relationships between the OA modified TSP (OA-TSP) and self-reported knee function as measured with the Knee Injury and osteoarthritis Outcome Score (KOOS) and the 30-s chair stand test (30-s CST) in individuals with symptomatic knee OA. A second aim was to study the discriminative ability of the OA-TSP for unilateral knee pain.

Methods: Sixty-two individuals with symptomatic knee osteoarthritis were included using consecutive sampling. Health status was assessed with the EuroQol five dimension scale (EQ5D, 0-1 worst-best), and knee function in five subscales for KOOS (pain, symptoms, ADL, quality of life and sport/recreation, 0-100 worst-best). The 30-s CST-test measured the number of rises in 30 seconds. In the OA-TSP, substitution patterns are observed and scored from 0-3 (no substitution pattern-poorly performed) during five standardized functional movements. The maximum score is 54 points scored with score of ten points. Median and interquartile were used for all descriptive data. Spearman’s correlation and Wilcoxon signed rank test were used for analyzes. A correlation coefficient $r_s \geq 0.50$ is considered large, $0.30 \leq r_s < 0.50$ moderate and $0.10 \leq r_s < 0.30$ small.

Results: The median age was 54 years (30-61), 76% were women. The median Body Mass Index was 25 (18-48) and EQ5D 0.8 (0.29-1.00). There were no significant differences between the gender regarding BMI and EQ5D. Median OA-TSP total score was 29 (10-70). Median KOOS pain was 75 (36-100), symptoms 71 (21-96), ADL 87 (30-100), and sport/recre 50 (0-100). In the 30-s CST the median was 16 raises (5-32). Moderate, significant correlations were observed between TSP total score and KOOS pain and KOOS ADL ($r_s = -0.30$; $p=0.03$, $r_s = -0.35$; $p=0.01$ between high and medium risk. If widespread pain and pain from more than seven locations (multisite pain) were reported, patient was transferred from the medium to high risk group. All the three risk groups with regard to physical function (Roland Morris Disability Questionnaire (RMDQ), 0-24 best-worst), mental health (Hospital Anxiety and Depression scale (HADa and HADd) 0-21 no distress-maximum distress), health related quality of life (EuroQol-5D (EQ5D), 0-1 worst-best), fear avoidance for physical activity (PA) and work (Fear-Avoidance Beliefs Questionnaire (FABQ) PA, 0-24, and work, 0-42 best-worst) were analyzed in an ANOVA.

Results: Ninety-five patients (61% women), mean (SD) age 42 years (14) seeking health-care for their LBP were included in the study. Of those scoring low risk on SBST (n=19), 3 also reported multisite CWP. Of those who scored medium risk on SBST (n=48), 8 reported multisite CWP and were moved to the high risk group. Of 17 scoring high risk on SBST, 4 simultaneously reported multisite CWP. After constructing three risk groups combining SBST and multisite CWP, there were 19 in the low risk group, 40 in the medium risk group, and 25 in the high-risk group. The low, medium, high risk groups identified by the combined method, differed statistically significant in reported RMDQ (low, medium, high mean respectively 7.0, 12.2, 13.4, $p<0.001$), HADd (2.9, 4.0, 8.4, $p<0.001$), FABQ PA (9.1, 12.7, 14.4, $p=0.005$), EQ5D (0.72, 0.53, 0.38, $p=0.001$).

Conclusion: Adding information on multisite widespread pain to the SBST resulted in classifying more patients in the high risk group as compared to the original SBST. The three groups identified by combining the screening tools differed significantly on all investigated health variables, indicating the combination may be capturing more patients at risk for CLBP.

Disclosure of Interests: None declared


SAT0711-HPR  ADDING INFORMATION ON WIDESPREAD PAIN TO THE START BACK SCREENING TOOL WHEN IDENTIFYING LOW BACK PAIN PATIENTS AT INCREASED RISK FOR POOR PROGNOSIS

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Background: Early identification of those with the highest risk of developing chronic low back pain (CLBP) is important but difficult. STArt Back Screening Tool (SBST) is reported to capture patients at high risk of developing CLBP, but does not include concurrent pain from other locations, which is a known risk factor for worse outcome.

Objectives: To study differences in self-reported health between patients with low, medium and high risk of developing CLBP identified by the combination of SBST and information on widespread pain.

Methods: Adults aged 18-67 seeking primary care for LBP in the south-west of Sweden were included. The STSB was used to differentiate between three risk levels: low, medium and high risk. When patients were classified as medium risk, information from a pain manoeuvin on widespread pain and multisite pain were added to further distinguish

Disclosure of Interests: None declared


DYNAMIC JOINT STABILITY MEASURED AS GAIT SYMMETRY IN WOMEN WITH SYMPTOMATIC KNEE OSTEOARTHRITIS

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Background: Modern strategies for knee osteoarthritis (OA) treatment and prevention includes early detection and analyses about pain, gait and lower extremity muscle function including both strength and stability. The very first sign of knee OA is pain or perceived knee instability, often experienced during weight bearing activities e.g. walking. Increased muscle strength will provide dynamic joint stability, reduce pain, and disability. Specific measures of gait symmetry (GS) can be assessed objectively by using accelerometers, which potentially is a feasible method when evaluating early symptoms of symptomatic knee OA.

Objectives: The aim was to study if symptoms of early knee pain affected gait symmetry, and the association between lower extremity muscles function and gait symmetry in patients with symptomatic knee OA.

Methods: Thirty-five participants (mean age 52 SD 9 years, 66% women) with uni- or bilateral symptomatic knee OA, and without signs of an inflammatory rheumatic disease or knee trauma were included. Pain was assessed by a numeric rating scale (NRS, range 0-10 best to worse), tests of lower extremity muscle function with the maximum number of one leg rises. Dynamic stability was measured as GS by using wearable inertial sensors (PXNordic senseneering platform), during the 6 min walking test to obtain spatio-temporal gait parameters. GS was computed based on stride time (temporal symmetry, TS) and stride length (spatial symmetry, SS). Stride length was normalized by height. Kruskal-Wallis tests of lower extremity muscle function with the maximum number of one leg rises provided the better GS was observed. We found a significant relationship between TS and one-leg rise for the right r=0.39, p=0.006, and left r=0.40, p=0.004 left side). No significant relationship was observed between SS and one-leg rises.

Conclusion: Our results is in line with earlier findings stating that knee pain affects GS negatively and that lower extremity muscle function is an important feature for symmetry and dynamic joint stability in patients with symptomatic knee OA. We also found that pain in one leg was related to impaired GS. Bilateral knee pain was however more symmetrical and will need healthy controls for comparison to better understand the negative impact of symptomatic knee OA.

REFERENCES

Disclosure of Interests: None declared

SAT0713-HPR

BREAKING BAD: REPORTING OF VERTEBRAL FRACTURE AND THE IMPACT TO MANAGEMENT OF BONE HEALTH

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Background: Vertebral fracture fragility (VFF) is the most common osteoporotic fracture and a strong predictor for future vertebral fracture(s) and/or hip fracture. A clear reporting of VFF by radiologists offers ample opportunity for early diagnosis and appropriate management of osteoporosis among treating physicians.

Objectives: The objectives of this study were two-fold; to evaluate 1) the reporting of VFF by radiologists at one of the largest acute hospitals in southern Ireland 2) the management of osteoporosis (adherence to

Disclosure of Interests: None declared

SAT0714-HPR

THE EFFECTS OF EXERCISE ON PAIN AND DEPRESSION IN MOTHERS OF DISABLED CHILDREN WHO SUFFER FROM BACK PAIN

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Background: The rate of back pain prevalence and its subsequent negative psychological effects is quite high in mothers of disabled children. Family caregivers of children with a disability demonstrate higher degrees of chronic conditions and are more likely to engage in health risk behaviors (1, 2).

Objectives: The purpose of this study was to investigate the effects of home exercise programs on mothers’ back pain, relevant functional influence and the depression level (3).

Methods: Forty-two mothers aged 35.71±6.53 were included in this study whom children were diagnosed with cerebral palsy. Back pain level of the mothers was measured with Visual Analogue Scale (VAS), relevant functional disability was measured with Oswestry Disability index and depression level was measured with Beck Depression Scale. Disability level of their children was measured with Gross Motor Function Classification System (GMFCS). Following the assessments, a home exercise program consisting of Dynamic Lumbar Stabilization Exercises was given to mothers. They were asked to perform the exercises for three months and were assessed once in a month.

Results: GMFCS average of the children was 3.35±1.57. There was a significant difference in the pain level (VAS) changed from 4.90±2.67 to 3.21±2.50 after the exercise (p=0.000). The difference between the Oswestry Disability Index score before (13.92±8.32) and after the exercise (10.76±8.54) was statistically significant (p=0.001). Also there was a significant difference in the Beck Depression Scale score decreased from 25.16±9.46 to 12.76±7.50 (p=0.009).

Conclusion: Mothers with disabled children complain about back pain during activities such as caregiving their children (4). This study reveals that back pain, relevant functional influence and depression could be reduced in mothers by perform recommended exercises regularly.

REFERENCES

Disclosure of Interests: None declared