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AB0514

PRELIMINARY DATA ON THE STUDY OF THE POSSIBILITY OF USING ULTRASOUND TO OBJECTIFY THE MOBILITY OF THE SPINE IN ANKYLOSING SPONDYLITIS

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Background: Spinal damage with limited mobility requires the search for diagnostic methods that allow us to accurately and quantitatively assess the developing decline in function and track this change in dynamics. One of these possible methods is ultrasound examination of the spine, which was recently described in the article Yurdakul O. V. [1].

Objectives: to study the possibility of using ultrasound for dynamic monitoring of sagittal mobility of the spine in ankylosing spondylitis (AS).

Methods: Ultrasound of the spine was performed in 15 patients with AS according to the method described in the article Yurdakul O. V. - determination of the sonographic distance between the spinous processes C5-C6, Th11-Th12 and L4-L5 of the vertebra (initial - vertical position, and when tilted - maximum sagittal flexion). All patients underwent a double examination: at inclusion in the study and after 2 weeks. The average age of the patients was 40.8±11.4 years, and the average duration of the disease was 5.5±3.5 years. 93.3% of patients were positive for HLA-B27. All patients were treated with nonsteroidal anti-inflammatory drugs, and 9 (60%) had biological therapy. The differences (Δ) between the indicators obtained on the first day and after 2 weeks - were calculated and further compared.

Results: During 2 weeks of follow-up, ESR practically did not change (it was 16 [6;48], after 2 weeks 14 [6;27], p=0.45), CRP decreased by 3.5 times (22.3 [2.5;40.5] and 5.9 [3.0;23.7], p=0.4), BASDAI (7.2-3.1, p=0.003), ASDAS-CRP (3.7-2.2, p=0.001) and BASFI (5.5-2.5, p=0.001), but not BASMI 10 (24-22, p=0.18). There were also no significant changes in mobility indicators according to sonographic measurements for 2 weeks. However, the correlation analysis of the dynamics of indicators for the study period showed the following results (see the Table 1):

Table 1. Correlation (r) between spinal ultrasound parameters and AS activity indices and metrological indices at the beginning of the study and after 2 weeks.

Δ of the indicators	ΔC ₅ -C ₆	ΔC ₅ -C ₆	ΔTh ₁₁ -Th ₁₂	ΔTh ₁₁ -Th ₁₂	ΔL ₄ -L ₅	ΔL ₄ -L ₅
ΔESR	-0.5*	-0.4*	-0.3	-0.2	-0.5*	-0.4*
ΔCRP	-0.3	-0.1	-0.4	-0.5	-0.4*	-0.7*
ΔASDAS	-0.4	-0.5	0.1	-0.3	0.1	0.2
ΔBASDAI	-0.2	-0.1	-0.2	-0.3	-0.3*	-0.5*
ΔBASFI	-0.6*	-0.5*	-0.5	0.2	0.3	-0.3
ΔBASMI 10	-0.2	-0.1	-0.2	-0.3	-0.3*	-0.5*

Note: *p<0.05, Δi - C5-6, Th11-12, L4-5, mm – the difference between the indicators obtained by ultrasound in the vertical position at admission and after 2 weeks, Δs – the difference between the indicators at maximum sagittal flexion.

A correlation was found between an increase in the interspinous distance in the cervical and lumbar spine and a decrease in the level of ESR, and in the lumbar spine - with CRP. There is also a significant relationship between the activity of AS according to the BASDAI index and the mobility of the spine at the level of L4-5, which was manifested by an increase in the interspinous distance with a decrease in the activity of the disease. Sonographic measurements of all three levels of the spine show a negative correlation with the combined metrological index BASMI 10, most significantly with the L4-5 level of the spine.

Conclusion: The method of ultrasound examination of spinal mobility in AS allows not only to objectify the indicators, but can also be used to monitor the function of the axial skeleton during follow-up.

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AB0515

MICRONUTRIENT DEFICIENCIES IN PATIENTS WITH SPONDYLOARTHRITIS: AGE AND GENDER IMPLICATIONS

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Background: Micronutrient deficiencies (MNDs) are common among patients with chronic inflammatory diseases. These are associated with a pro-inflammatory status and co-morbidities, and influenced by several factors, such as age and gender.

Objectives: No any study has investigated MNDs and their correlation with gender in Spondyloarthritis (SpA). With this purpose, this study analyzed the occurrence of anemia and the status of ferritin (Fe), vitamin D [25(OH)D], vitamin B12 (B12), and folic acid (FA) in a cohort of patients with SpA.

Methods: Levels of Hb, Fe, 25(OH)D, B12, FA, were evaluated in 220 SpA outpatients (137 females and 83 age-matched males) with Psoriatic arthritis (PsA, n=110) and SpA (n=110). Disease activity was assessed by DAPSA or ASDAS-CRP as appropriate and functional status was evaluated with HAQ score. Body Mass Index (BMI) was selected as a metabolic clinic parameter.

Results: Male and female patients were similar for disease duration and severity as well as the distribution of diagnosis and treatments (Table 1). In males, BMI was higher than in females (P=0.03) and positively correlated with the age (P=0.01). In female patients, BMI directly correlated with HAQ (P=0.03). The prevalence of anemia (Hb<12) was 13.6% of the study cohort; half of anemic patients had PsA, the others had enteropathic SpA (ESpA). Anemia resulted almost wholly in female patients (99%). In the male group, Hb resulted inversely related to age (P=0.01) and CRP levels (P=0.008). Ferritin was lower in females than in males (P=0.0003). 25(OH)D deficiency (≤20 ng/ml) was present in 23.2% of the cohort: males had lower 25(OH)D than females (P=0.02). Among male patients, disease duration correlated positively with ferritin (P<0.001) and inversely with 25(OH)D (P=0.02). Low levels of serum B12 (≤200 pmol/l) were rare (13.2%), while deficiency in FA (≤4 ng/ml) was frequent (22%) and associated with B12 defect in 31% of cases, with almost similar occurrence in males and females. A diagnosis of ESpA occurred in 55% of cases with B12 deficiency and 62.5% of FA defect, without gender difference. Mean levels of ferritin, 25(OH)D, B12, and FA did not differ significantly between PsA and SpA patients.

Table 1. Data from the study population.

	Females (n=137)	Males (n=83)	P
Age (yrs; §)	51.65 ± 13	52.9 ± 12.8	NS
BMI (*)	24 [17.2 - 50.2]	25.8 [19.6 - 43.6]	< 0.05
CRP (mg/l; *)	2.9 [0 - 53]	2 [0 - 61]	NS
Hb (g/dl; §)	13 ± 1.2	14.4 ± 1.4	NS
Fe (mg/l; *)	37 [2 - 148]	64 [4 - 452]	< 0.05
25(OH)D (ng/ml; *)	28.2 [5 - 67]	25 [5 - 50]	< 0.05
Vitamin B12 (pmol/l; *)	350 [60 - 990]	313 [47 - 797]	NS
Folic Acid (ng/ml; *)	7 [1.7 - 40]	6.9 [1.8 - 39]	NS
PsA (N%)	73/68.23	34/31.77	NS
SpA (N%)	64/41	49/59	NS
Concomitant IBD (n%)	56/65.9	29/34.1	NS
Disease duration (months; *)	69 [6 - 540]	76.5 [3 - 768]	NS
Low D.A. (N%)	62/45.25	47/56.6	NS
Moderate-high D.A. (N%)	75/54.75	36/43.4	NS
COXIB-inhibitors (N%)	21/15.4	8/9.6	NS
cDMARDs monotherapy (N%)	35/25.5	10/12	NS
bDMARDs (N%)	81/59.12	65/78.4	NS

BMI, body mass index; CRP, C-reactive protein; Hb, haemoglobin; Fe, ferritin; 25(OH)D, vitamin D; PsA, psoriatic arthritis; SpA, spondyloarthritis; IBD, inflammatory bowel disease; D.A., disease activity; cDMARDs, conventional Disease Modifying Antirheumatic Drugs; bDMARDs, biological DMARDs; § mean ± SD; * median [min-max].

Conclusion: Our study describes for the first time the possibility of a relevant prevalence of MNDs in SpA patients. Furthermore, we show that MNDs could be also influenced by gender difference and age. Of note, our findings highlight the importance of a screening focused on MNDs in SpA patients. This could be key in optimizing management of SpA patients, in which inflammatory-dependent dysmetabolism is frequent.

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