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Possibilities of MRI diagnostics of fibromyalgia syndrome .

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Relevance. Diseases of the joints and spine are a serious problem of modern medicine, as they lead to the development of a pronounced anatomical and functional inferiority of the musculoskeletal system. In the structure of the incidence of the population of Uzbekistan, they occupy one of the first places due to the high prevalence, chronic nature, as well as a large percentage of temporary and permanent loss of working capacity. Pain in the lower back is one of the common causes of limited physical activity in people of working age [8].

Among this symptom complex , the defeat of the sacroiliac joints (SIJ) is 30-90% [12]. Diagnosis of SIJ lesions at the initial stage of the patient's examination is based mainly on clinical signs. These signs are usually associated with radicular syndrome and osteochondrosis, which often leads to diagnostic errors [3]. The most significant in assessing the condition of the CPS are the methods of radiation research. Among them, standard radiography is recognized as generally accepted, which is used in almost 100% of cases, since traditional X-ray examination is relatively easy to perform and is generally available [6]. However, its diagnostic significance is limited primarily by the lack of specificity and the possibility of reliably determining only bone changes that appear in the later stages. diseases [1, 9].

The wide and effective introduction of new technologies of radiation diagnostics into the clinic over the past two decades has determined their role in the diagnostic algorithm for sacroiliitis [4, 7]. There have appeared works reflecting the results of applying the method of X-ray computed tomography (CT) in various lesions of the SIJ [2, 10]. The disadvantage of CT is the visualization of only bone structures and a limited assessment of the state of fibrocartilaginous and soft tissue structures, while in case of SIJ lesions, changes primarily occur in soft tissues [5, 11].

Purpose of the study. Optimization of diagnosis of fibromyalgia syndrome based on MRI study.

Materials and research methods. The analysis of clinical, radiological and magnetic resonance data in 131 patients from 20 to 50 years (Table 1). From the presented data it follows that the most numerous (58 people) group of patients aged 30 to 40 years. The mean age of patients with ankylosing spondylitis was 40± 7.6 years, with spondyloarthropathies - 30±5.6 years. The control group was selected to study the normal MP-anatomy of unchanged sacroiliac joints and consisted of 34 volunteers (volunteers) who did not have clinical, laboratory and subjective signs of SIJ changes. The average age of the subjects in the control group was 35±6.7 years.

Table 1. Distribution of patients by age and sex.

Patient groups	M (20-30)	Wome n (20-30)	M (30-40)	W (30-40)	M (40-50)	W (40-50)	M (total)	F (total)	Total
SIJ injuries		five	fiv e				five	five	10

SIJ injury in ankylosing spondylitis	3	four	2	3	2	2	7	nine	sixteen
The defeat of the SIJ in spondyloarthropathies	10	8	20	sixteen	nine	8	39	32	71
Control group	6	6	6	6	five	five	17	17	34
Total	eighteen	23	33	25	sixteen	15	68	63	131

Research results . According to the nature of the complaints, clinical symptoms, results of laboratory and instrumental studies, the patients were divided into 3 clinical and 1 control groups: the 1st group was represented by 20 patients with complaints of pain in the sacrum, but with negative clinical, laboratory and radiological data (conventional radiography, CT) studies. Five of these patients showed changes in SIJ on MRI (cancellous edema and soft tissue changes). The 2nd group consisted of 62 patients with complaints of pain in the sacrum and with positive data from clinical examination, laboratory and radiological studies. Group 3 included 15 patients with complaints, positive clinical examination data, radiological studies, and no changes in C-reactive protein levels. The control group consisted of 34 volunteers with no complaints from the CPS, with negative clinical and laboratory data. All patients in the control group received informed consent for complex radiological examinations. In 6 patients from this group, according to traditional radiography, asymmetry and uneven narrowing of the joint space were revealed, which were confirmed by CT only in two patients. MRI of these patients (2) showed the same signs and subcortical sclerosis, and one of them had edema of the spongy substance of the ilium. Prior to magnetic resonance imaging studies included an examination by an arthrologist ; in 100% of cases - traditional radiography of the pelvic bones with targeted radiography of the sacroiliac joints in oblique projections; x-ray computed tomography; in isolated cases - ultrasound. To identify changes in primary and dynamic examinations of patients, to evaluate the effectiveness of various diagnostic methods and the results of ongoing treatment, the data of own and provided by patients radiation studies (traditional radiography, linear tomography, X-ray computed tomography, magnetic resonance imaging) were studied. The data of the used radiation methods were compared with the results of clinical observation, as well as laboratory data in order to determine their diagnostic value. Patients underwent a complex of clinical and laboratory diagnostics, including anamnesis, examination by a clinician of the appropriate profile, general and special blood tests with the determination of rheumatoid factor, the level of sialic acids, alkaline phosphatase, C-reactive protein as an indicator of the activity of the inflammatory process. MPT included studies of both SIJs in each patient with an assessment of the state of the structure of bone, fibrocartilage and soft tissue elements of the joint. MP

tomograms were performed according to the developed optimal standardized protocol. The first group consisted of 20 people complaining of SIJ, but with negative data of distension tests and normal levels of C-reactive protein. In this group, 5 (25%) people showed changes on MRI. In one of the patients of this group, with a normal picture of CPJ on CT and MRI, the pain syndrome subsequently increased and, during dynamic observation two months later, signs of edema of the spongy substance and capsulitis were revealed on MRI scans. Thus, this case was taken as the initial false-negative result. The second group is represented by 62 patients with positive results of clinical examination by arthrologists, instrumental and laboratory data. All patients in this group complained of pain in the SIJ. Traditional radiography revealed a large number of false-positive - 30 (48.4%) and false-negative 17 (27.4%) results. This is due to the subjectivity of the assessment, the summation skiological picture, limited scope of the studied semiotics, incorrectly selected technical conditions, errors in the positioning of the patient. Due to limitations, the X-ray method was used only to assess the compact substance of the bone tissue. As a rule, subcortical sclerosis was described on radiography, which was not confirmed on CT examination. At the same time, a large number of erosions visible on CT and MP studies were not visualized on radiographs. Eight patients from this group underwent an ultrasound examination of the SIJ. This method turned out to be uninformative, as it was not possible to clearly visualize the structures of the joint. In addition, in all cases, there was a discrepancy between the obtained ultrasound data and the results of clinical and other instrumental research methods, which indicates the low information content of ultrasound in this diagnostic situation. The third group consisted of 15 people with complaints of pain in the SIJ and positive distension tests, but with negative C-reactive protein. Among this group of patients, 5 (33.3%) patients showed changes on CT, 11 (73.3%) on MRI, and 2 (13.3%) on conventional radiography. To assess the state of the spongy substance of the sacrum and iliac bones, only the MRI method was used, since X-ray methods did not allow the detection of bone edema, which is the leading sign of the activity of the inflammatory process. In the control group of patients, represented by 34 volunteers, the results of clinical examination and laboratory research were within the normal range. There were no complaints from patients in this group. In 6 (17.6%) patients, changes were detected during conventional radiography in the form of asymmetry and uneven joint spaces. CT and MP studies revealed asymmetry and unevenness of the joint spaces in two patients, and MRI revealed edema of the spongy iliac bone in one of them. On re-examination of this patient (who presented four months later with complaints of pain in the sacrum), there were severe clinical symptoms and more widespread edema of the cancellous substance on MRI, as well as an increase in the level of C-reactive protein.

Eight patients from this group underwent an ultrasound examination of the SIJ. This method turned out to be uninformative, as it was not possible to clearly visualize the structures of the joint. In addition, in all cases, there was a discrepancy between the obtained ultrasound data and the results of clinical and other instrumental research methods, which indicates the low information content of ultrasound in this diagnostic situation. The third group consisted of 15 people with complaints of pain in the SIJ and positive distension tests, but with negative C-reactive protein. Among

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Conclusions . MRI is a non-alternative method for studying SIJ. In the visualization of edema of the spongy substance of the bone structures of the joint, the sensitivity of MRI in comparison with CT and conventional radiography is 98.7%, 0%, 0%, respectively, the specificity is 95.2%, 0%, 0%, the accuracy is 97.9%, 0%, 0%. In the assessment of soft tissue structures, these comparisons also indicate the priority of MRI and are sensitivity - 98.7%, 5.7%, 0%, specificity - 95.2%, 4.2%, 0%, accuracy - 97.9%, 4.8%, 0% respectively.

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