

# Compare Patients With Ankylosing Spondylitis and Non-Radiological Axial Spondyloarthritis

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**Abstract:** The aim of the study was to study the clinical picture, disease activity, and functional disorders in patients with ankylosing spondylitis (AS) and non-pathogenic axial spondyloarthritis (hp-axSpA).

**Material and methods.** In the period from 2021 to 2023, 153 patients were examined. The patients were divided into two groups: the first included patients with a reliable diagnosis of AS (n=119), the second – with hp-ACSPA (n=34). BASDAI, BASFI, BASMI, MASES, ESR, and HLA-B27 antigen indices were determined in both groups.

The average age of patients in group 1 was  $36.5 \pm 0.7$  years, in group 2 -  $27.0 \pm 1.2$  years. The duration of the disease in patients with AS was  $14.7 \pm 0.6$  years, with hp-ACSPA –  $4.1 \pm 0.5$  years.

**Results and discussion.** There were 68.9% of men with AS, and 70.6% with hp-ACSPA. The axial variant prevailed in both groups (group 1 - 53.7%, group 2 – 67.6%). The average value of the pain level according to the visual analog scale (VAS) in group 1 was  $40.6 \pm 1.6$  mm, in group 2 -  $31.6 \pm 2.4$  mm ( $p < 0.01$ ). 51.2% of patients with AS and 41.1% with hp-axSpA had high activity according to the BASDAI index. Patients of the 2nd group they had significantly lower average activity index values ( $3.4 \pm 0.2$ ) compared to the first group ( $4.0 \pm 0.1$ ). BASFI functional disorders were more pronounced among patients with AS ( $3.2 \pm 0.2$ ) than with hp-axSpA ( $1.5 \pm 0.2$ ). BASFI index values  $>4$  were not observed in patients of the 2nd group. When assessing the BASMI index, higher indicators were found in patients with AS ( $1.9 \pm 0.1$ ) than in patients with hp-ACSPA ( $0.5 \pm 0.1$ ).

**Conclusion.** The ASAS criteria of the ACCSPA make it possible to establish a diagnosis at an early stage, before the appearance of persistent functional disorders. Patients at the dorentgenological stage have lower activity and pain levels according to YOUR.

**Keywords:** ankylosing spondylitis; non-pathogenic axial spondyloarthritis; activity; functional disorders.

## INTRODUCTION

Ankylosing spondylitis (AS) is a systemic chronic inflammatory disease of the axial skeleton with frequent involvement in the pathological process of the entheses and peripheral joints, as well as other organs and systems. According to domestic and foreign statistics, diagnosis of AS is delayed by an average of 7-10 years. The reasons for late diagnosis are often poor clinical symptoms at the beginning of the disease, insufficient awareness of doctors about this pathology and, accordingly, untimely referral to a rheumatologist. One of the reasons is the lack of there are obvious signs of sacroiliitis (SI) on an overview radiograph of the pelvic bones. According to some researchers, radiologically SI is detected 5 and even 10 years after the appearance of the first symptoms of the disease. To make a diagnosis at the present stage, modified New York criteria are used, where the main condition is the presence of SI – unilateral stage III–IV or bilateral stage II

Kellgren. The first studies on SI imaging using magnetic resonance imaging (MRI) were conducted in the 90s of the last century. In 2009, the light ASAS criteria for axial spondyloarthritis have been released (acsSpA), which make it possible to establish this diagnosis in the presence of SI according to

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MRI data. The main MRI sign of SI is osteitis. In 2013, the term "non-radiological acsSpA" (hp-acsSpA) was proposed to designate acsSpA that is not accompanied by radiological signs of SI.

The aim of the study was to study the features of the clinical picture, disease activity, and functional disorders in patients with AS and hp-ACSPA.

## MATERIALS AND METHODS OF RESEARCH

The diagnosis of AS was established according to the modified New York criteria of 1984. In patients with inflammatory back pain (IBS), but without changes in the sacroiliac joints (CPS) on the X-ray, the following methods were used for diagnosis criteria of the International Working Group on the Study of Spondyloarthritis (ASAS) for ACSPA (duration of back pain  $\geq 3$  months in patients under the age of 45 years). The 1st group included 119 patients with AS (average age  $36.4 \pm 0.9$  years), the 2nd group included 34 patients with hp-ACSPA (average age  $27.0 \pm 1.6$  years). The activity of the disease was determined according to the BASDAI index (Bath Ankylosing Spondylitis Disease Activity Index). At BASDAI values from 0 to 2, activity was considered low, from 2.1 to 3.9 – moderate, 4 or more – high. The functional status was determined by the BASFI index (Bath Ankylosing Spondylitis Functional Index). The result  $>4$  was regarded as a significant limitation of functional activity. Spinal mobility was measured using an index BASMI (Bath Ankylosing Spondylitis Metrology Index). The enthesites were evaluated in 13 areas included in the validated MASES enthesitis index (Maastricht Ankylosing Spondylitis Enthesitis Score). The clinical characteristics of patients with AS and hp-axSpA. All patients underwent a pelvic bone scan. The radiological stage of SI was determined by Kellgren. If the patient had IBS according to the criteria of ASAS 2009 and there were no changes in the overview image of the pelvic bones, an MRI of the CPS was performed. STIR and T2 modes with fat suppression were used. SI was considered reliable in the presence of one zone of bone marrow edema on two consecutive sections or several zones of inflammatory edema on one section. HLA-B27 was determined- antigen and ESR. The processing of the obtained material was carried out using statistical software packages Statistica 8.0 (StatSoft, USA) and SPSS 17.0. The analysis included standard methods of descriptive statistics, nonparametric comparison methods. The analysis of the obtained data was carried out using the Student's criterion, the Pearson correlation coefficient, the Fisher criteria and  $\chi^2$ .

## THE RESULTS AND THEIR DISCUSSION

During radiography, CPS was detected in 119 patients (77.8%), of whom 46 (38.7%) had stage II, 40 (33.6%) III, 33 (27.7%) IV. In 34 (22.2%) patients, signs of C And X-ray were not detected. MRI scans of these 34 patients showed signs of unilateral or bilateral SI, and they also met the ASAS criteria for the 2009 acsSpA. Men predominated in both groups: 68.9% among patients with AS and 70.6% among patients with hp-ACSPA. The average age of onset of the disease in ASEPTIC and hp-axSpA did not differ and was respectively 21.5 and  $21.7 \pm 1.2$  years. The duration of the disease in patients of the 1st group ( $14.7 \pm 0.6$  years) was longer than in the 2<sup>nd</sup> ( $4.1 \pm 0.5$  years;  $p < 0.001$ ). The diagnosis of AS was established on average after  $11.6 \pm 0.6$  years, hp-ACSPA – after  $3.1 \pm 0.4$  years from the onset of the disease ( $p < 0.001$ ). The average pain level according to VAS in patients of group 1 was  $40.6 \pm 1.6$  mm, in group 2 -  $31.6 \pm 2.3$  mm ( $p < 0.01$ ). HLA-B27 in AS was detected in 85.9%, in NRAXPA – in 88.2% of cases. In the group of patients with AS, ESR was slightly higher ( $25.5 \pm 1.3$  mm/h) than in patients with hp-ACSPA ( $21.8 \pm 2.1$  mm/h), however, these differences are unreliable. The axial variant of AS prevailed among the patients of the two groups. The axial variant was detected in 64 (53.7%), peripheral (with joint damage) – in 55 (46.2%) patients with AS. The frequency of these flow variants in AS and hp-acsSpA did not differ significantly. At the time of examination of patients with hp-axSpA, damage to the peripheral joints and spine was observed in 11 (32.3%) of them, and the central variant was diagnosed in 23 (67.6%). Knee arthritis was more common in both AS and hp-ACSPA, which was detected in 12 (21.9%) and 6 (54.5%) cases, respectively. In the group of patients with AS, the BASDAI activity index was significantly higher –  $4.0 \pm 0.1$  than in hp-axSpA –  $3.4 \pm 0.2$  ( $p < 0.01$ ). However, there are significant differences in the number of patients with high, moderate and low activity according to BASDAI was not observed. In the whole group, most patients had minor functional disorders. In the AS group, they were detected in 68.1% of patients, and in 31.9%



there was a significant restriction of functional activity. The BASFI index  $>4$  was not recorded in the hp-accSpA group. There was a correlation between BASDAI and BASFI values ( $r=0.52$ ,  $p<0.05$ ). The BASMI index among patients with AS averaged  $1.9\pm 0.1$ , and in the hp-ACSPA group  $-0.5\pm 0.1$ . The number of enthesites in patients with AS averaged  $2.2 \pm 0.1$ , with hp-ACSPA  $-1.8 \pm 0.2$ . Of the extra-articular manifestations, uveitis prevailed in both groups. In the AS group, it was detected in 27 (22.7%) patients, and 8 of them had relapses of the disease. In the hp-axSpA group, uveitis was present in 17.6% of patients, and in one of them it recurred. Aortitis was diagnosed in only two patients with AS. In the present study, 34 patients did not have X-ray changes in the CPS, but, given the presence of IBS and signs of SI on MRI, they were diagnosed with hp-axSpA. In our patients with AS and NRAXPA, ESR also did not differ significantly. In our study, BASDAI, BASFI and BASMI were significantly lower in hp-ACSPA than in AS. However, according to the frequency of low, moderate and high activity of the group AC and hp-axSpA did not differ significantly.

## CONCLUSIONS

Thus, the identification of patients at the X-ray stage is essential. The new ASAS criteria make it possible to diagnose thank you at an early stage, i.e. at the stage of reversible structural changes. Early diagnosis of the disease will allow timely initiation of pathogenetic therapy with nonsteroidal anti-inflammatory drugs, which are considered structurally modifying for AS, which can help slow the progression of the disease and preserve the quality of life of patients with AS.

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