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ANALYSIS OF THE FREQUENCY OF PATHOLOGIES OF THE CERVICAL SPINE IN ADOLESCENTS ACCORDING TO COMPUTED TOMOGRAPHY

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Abstract

Spinal pathologies today occupy a leading position in the rankings of diseases with a high degree of disability of patients, translating the problem into the category of medical and social. Cervical lesions are one of the most common manifestations of spinal pathology, and cervical osteochondrosis ranks second after lumbar. Literature sources indicate that today spinal pathologies have a pronounced tendency to rejuvenate. The aim of our study was to determine the frequency of pathological lesions of the cervical spine among adolescents in a randomized sample according to computed tomography. 100 series of anonymized computed tomograms of young people (18-21 years old) were processed. The examination was performed on the TSX-101A Aquilion 16. According to the analysis, only 22% of the examined young people do not have pathological changes in the study area. Changes in

intervertebral discs in the form of protrusions of different localization were found in 51% of the examined persons, in 23% - intervertebral hernias. The high frequency of pathological lesions of the cervical spine indicates the need to identify the causes of their occurrence, as well as the development and application of effective preventive measures.

Key words: cervical spine; adolescence; computed tomography.

Introduction

Pathologies of the spine today occupy a leading position in the rankings of diseases that have a high degree of disability of patients, translating the problem into the category of medical and social [1-4]. The most common diseases of the spine include its pathological curves, traumatic injuries, osteochondrosis, intervertebral hernias and protrusions. Among the causes of spinal pathologies in addition to heredity and trauma, various authors call hypodynamia, prolonged static position, inadequate physical activity, improper workplace organization, chronic fatigue and stress, sleep and eating disorders, deficiency or excess weight [1, 2, 3, 5]. The cervical spine is the most labile and, at the same time, the most vulnerable to external factors and has a pronounced ability to quickly adjust under their action [5-8]. O.E. Marchenko, B.A. Nevsky [9] emphasize that cervical lesions are one of the most common manifestations of spinal pathology, and cervical osteochondrosis ranks second after lumbar.

Literature sources indicate that today spinal pathologies have a pronounced tendency to rejuvenate [3-5, 10]. Drozdova KV, Bashavets NA [4] emphasize the problem of juvenile osteochondrosis, which can develop in 5-6-year-old children, but most often affects the spine of 10-12-year-olds against the background of hormonal changes in the body. Osteochondrosis is asymptomatic mainly in children, adolescents and adolescents [4] and its symptoms can be detected only by the results of screening examinations, in particular - computed tomography.

The aim of our study was to determine the frequency of pathological lesions of the cervical spine among adolescents in a randomized sample according to computed tomography.

Material and research methods. In the course of the work we processed 100 series of anonymized computer tomograms of adolescents (50 boys and 50 girls), who under various indications or for screening purposes were examined at the medical center "ABSolyut MED" (Lviv) (Fig. 1). The selection criterion was age (18 - 21 years). The examination was performed on a TSX-101A Aquilion 16.

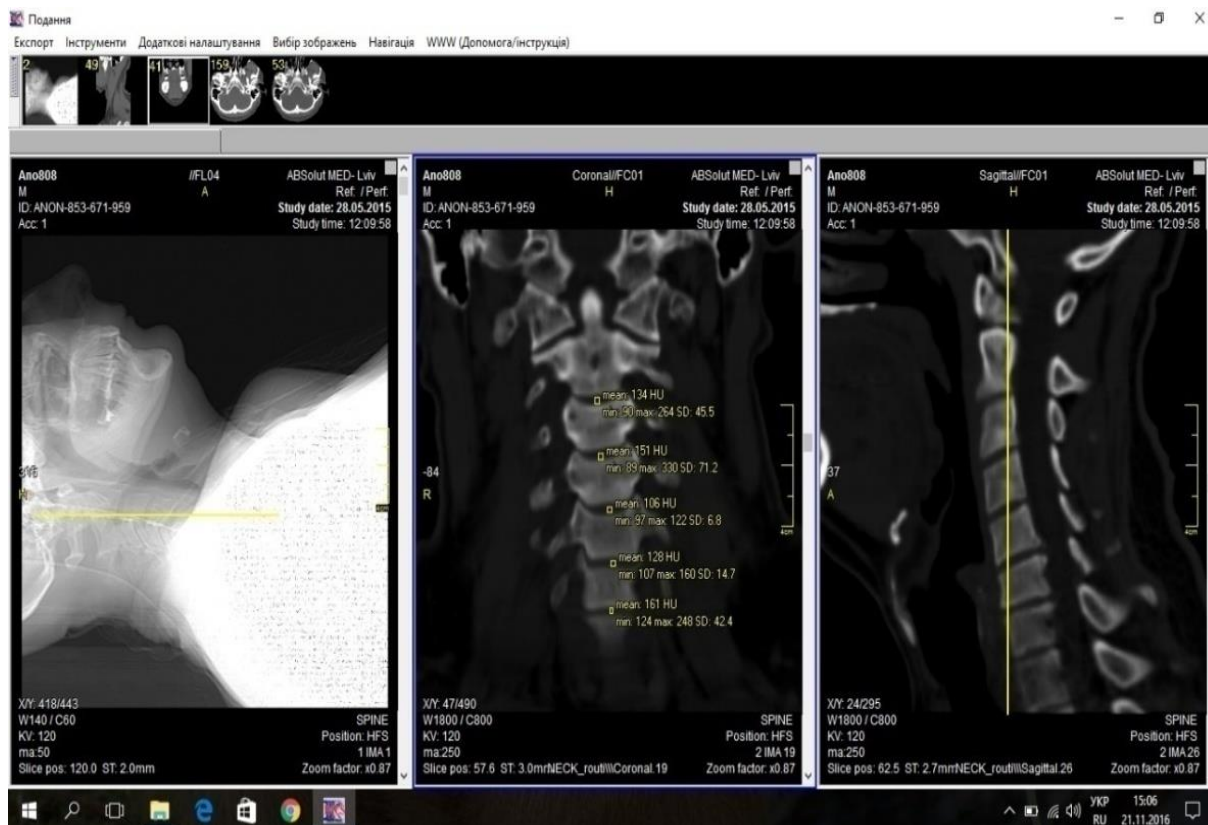


Fig. 1. Computed tomography of the cervical spine of a 19-year-old boy

Research results

As a result of processing 100 series of computed tomograms of the cervical spine of adolescents, more than half of the subjects were diagnosed with protrusions of various shapes and locations (51% of subjects, including 25 boys (50% of all examined boys) and 26 girls. Only protrusion was diagnosed in 9 boys (4.5%) and 8 girls (4%), and in all other cases, 16 boys and 18 girls, protrusion was part of the combined lesion: protrusion and trauma (6 people), protrusion, trauma and scoliosis (3 people), protrusion and scoliosis (12 people), protrusion, scoliosis and intervertebral hernia (5 people), protrusion and intervertebral hernia (5 people).

Scoliosis of the cervical spine was found in 37% of the examined persons. Among those diagnosed with scoliosis, 16 boys (32% of all examined boys) and 21 girls (42% of all examined girls). Scoliosis as an isolated pathology of the cervical spine was detected in only 5 people (1 boy and 4 girls), and as part of combined pathologies - in 32 people (15 boys and 17 girls). The most common combination of scoliosis with protrusion (12 people). The combination of scoliosis with trauma was found in 6 people; scoliosis with protrusion and

between the vertebral hernia in 5 people; scoliosis with hernia in 3 people, and a combination of scoliosis with protrusion, hernia and trauma in 3 more people.

Injuries of the cervical spine were diagnosed in 25% of the examined, including 15 boys (30% of all examined boys) and 10 girls (20% of all examined girls). Trauma on the background of physiologically formed cervical spine without additional identified pathologies was diagnosed in only 6 people; trauma on the background of scoliosis - in 6 people, trauma on the background of protrusions - in 6 more people; trauma on the background of scoliosis and protrusions - in 3 people; trauma on the background of detected intervertebral hernias - in 1 person and trauma on the background of scoliosis with detected protrusions and intervertebral hernias - in 3 people.

23% of all subjects (11 boys and 12 girls) were diagnosed with intervertebral hernias. In this case, hernias as an isolated pathology of the cervical spine were found in only 6 people; in combination with an injury - at 1 person; in combination with protrusion - in 5 people; in combination with trauma and protrusion on the background of scoliosis - in 3 people; on the background of scoliosis only - in 3 people and on the background of scoliosis in combination with protrusion in 5 more people.

The smallest group among all examined were persons with a physiologically formed spine, in which the examination did not reveal any pathological changes in the cervical spine. This group included 22% of the surveyed, including 12 boys (24% of all surveyed boys) and 10 girls (20% of all surveyed girls).

The results of the study showed that changes in the intervertebral discs in the form of protrusions of different localization are now detected by CT examination of more than half of adolescents included in the randomized sample, the criterion for the formation of which were age limits. The high frequency of protrusions, as well as intervertebral hernias, found in our study in adolescents, coincides with the data of the scientific literature on the rejuvenation of spinal pathologies [3-5, 10]. Taking into account their often asymptomatic course, we believe that the priority tasks of modern vertebrology today should include the prevention of juvenile osteochondrosis, as well as scoliosis, which is found in 37% of respondents.

Conclusions

1. According to the analysis of a random sample of series of computed tomograms of the cervical spine of adolescents, only 22% of subjects do not have pathological changes in the study area.

2. Changes in intervertebral discs in the form of protrusions of different localization were found in 51% of the examined persons, in 23% - intervertebral hernias.

3. The high frequency of pathological lesions of the cervical spine indicates the need to identify the causes of their occurrence, as well as the development and application of effective preventive measures.

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