

AGE-RELATED FEATURES OF THE CLINICAL MANIFESTATION AND DYNAMICS OF THE DEVELOPMENT OF SPINAL DEFORMITY IN IDIOPATHIC SCOLIOSIS

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Abstract

Idiopathic scoliosis of varying degrees and severity was studied (216 children) in terms of the age of the initial manifestation of spinal deformity. It has been established that the first clinical signs of scoliotic deformity appear at the age of no more than 10 years. those. before the beginning of the period of physiological maturation of the organism. Analysis of the data obtained makes it possible to determine the proportions of various variants of natural development and predict the prospects for the development of pathology in patients with idiopathic scoliosis.

Keywords: scoliosis, spinal deformities, children, age-related features.

Introduction

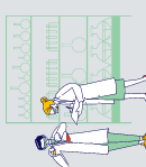
In the nosological structure of children's orthopedics, idiopathic scoliosis is one of the classic diseases. Because this disease is characterized by the main of the set of orthopedic symptoms - a specific curvature of the spine, and it manifests itself clinically in childhood. According to many authors, the clinical picture of the initial signs of curvature of the spine in idiopathic scoliosis is visible in children from the age of 5-7 [5,6,9,10].

But the symptoms of the disease can be observed relatively early in 3-4 years or close to adolescence in 10-12 years. This situation makes it necessary to classify patients according to the age of the disease according to the stage of development [1,3,7].

Because, treatment methods are used based on information about bone growth process and its maturity [2].

It is known from the scientific literature that the growth process can have a negative effect on the future development of scoliotic curvature of the spine. Therefore, the rapid development of this orthopedic disease is one of the unavoidable factors [4,8]. However, many clinical observations have shown that during the physiological development of patients with idiopathic scoliosis, regardless of the age and the initial clinical picture, the natural development of the vertebrae may be skewed in different ways [10].

The purpose of the work: to assess and predict the development of clinical and radiological signs of the curvature of the spine in patients with idiopathic scoliosis depending on age.



Materials and testing methods

The examination materials were carried out in the polyclinic of the Samarkand branch of the Republican Traumatology and Orthopedic Scientific and Practical Medical Center during the years 2013-2023. Out of 216 patients aged 3-19 who underwent orthopedic examinations, 155 (71.8%) were girls, 61 (28.2%) were boys (ratio 7:3). It was based on X-ray examinations along with clinical examinations of patients. X-ray examinations (upright position) were used.

During the clinical examination, the patient's height is visually assessed from the front, side and back. In the initial stage of scoliosis, it is difficult to determine the inclination of the vertebral column in the frontal plane compared to the sharp edges. When viewed from the front, it is not difficult to determine the disproportion of the lumbar triangle (Fig. 1).

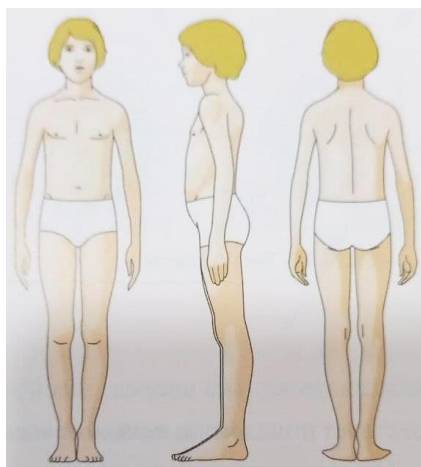
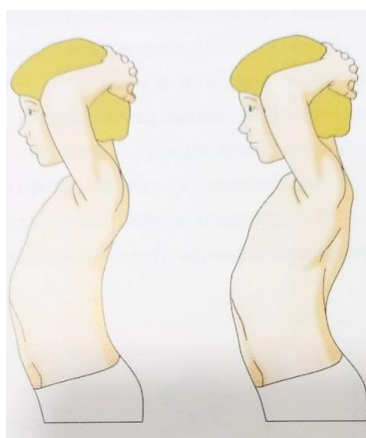


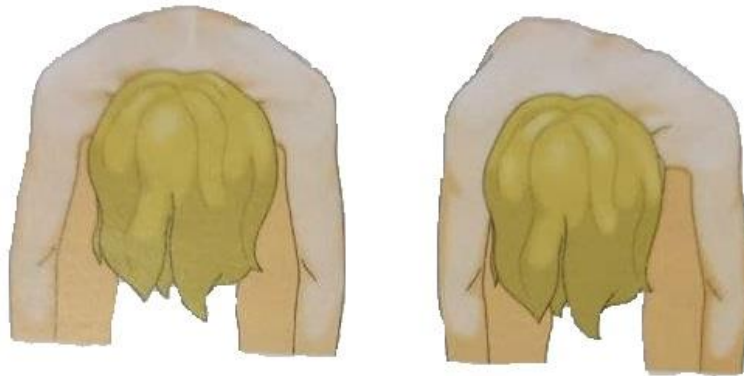
Figure-1. Front, side, and back view of the patient's stature in the clinical examination

It is possible to assess the functional state of the spine in the sagittal plane from the side of the patient. It is not difficult to observe the physiological kyphosis of the chest when the patient's stature is relatively relaxed and the chest is held in an upright position. Also, it is not difficult to determine the kyphotic condition of the patient when he puts his hands on the nape of the head (Fig. 2).



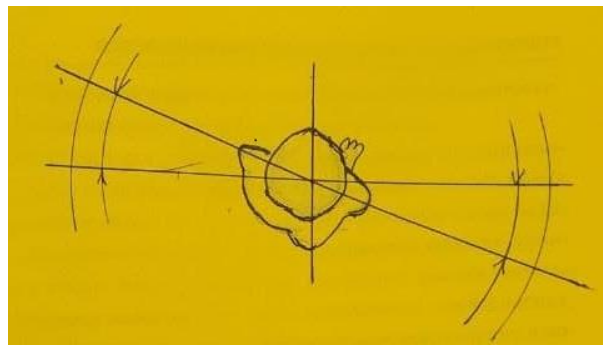
Picture-2. Physiological kyphosis is diagnosed in the patient's condition.

A rotational (twisting) component can be determined when the spine bends in three planes. For this, the patient leans forward with his arms down. This condition is called the Adams method (test) and the proportion of the back of the chest is evaluated. The identified disparity is evaluated depending on which part of the vertebrae it corresponds to (Fig. 3).



Picture-3 . Assessment by Adams method.

Also, in the visual assessment, the cross-proportion of the pelvis and shoulder girdle along the frontal axis and the direction of torsion of the patient's body are evaluated. In practice, orthopedists do not pay much attention to torso torsion from a clinical point of view. However, torsion of the body is important in the initial period of the disease. Because pathological rotation (twisting) of the vertebrae is observed during the development of the disease. As a result, the torsion of the body changes (Fig. 4).



Picture-4.

At the final stage, the child is asked to maintain the correct posture independently. All curvatures of the spine are mostly restored when the child maintains the correct posture. This method is a method of differentiating scoliosis from stature disorder. Also, to justify this situation, as a control, the child lays on his stomach and performs exercises that record the spine. If the child has a stature disorder, all the symptoms disappear, but in case of scoliosis, they remain. That is, in the region of the vertebrae where the rotational component is observed,

there is an imbalance due to the tension of the intervertebral muscles. That is, the Adams test is observed.

Results of X-ray examination V.D. It was evaluated according to the Haklin classification. From the X-ray image (with the patient in a standing position), the primary curvature angle in the frontal plane was 10° or less in the frontal plane in 31 patients. Level II (angle of arc of curvature $11-25^\circ$) - in 78 patients, III level (the angle of the bending arc is $26-40^\circ$).

Test results:

When analyzing the distribution of patients diagnosed with idiopathic scoliosis by age (table-1), the disease was detected in 5 (25.4%) patients aged 13-14 years. The second place was 43 (20%) patients aged 11-12 years, the third place was 9-10 years old -31 (14.3%), the fourth place was 15-16 years old -25 (11.6%) . According to the data, 98 (45.4%) of the 11-14-year-old patients make up the majority of patients who applied for the first time, and the period of physiological growth is the most accelerated and is characterized by the transition to adulthood. Adolescent children aged 3-10 made up 80 (37%).

When familiarizing with the patients' polyclinic-ambulatory cards, when talking with the patients' parents, it was possible to determine the age at which the initial clinical signs of scoliotic curvature appeared from the medical history. According to the established data, the early symptoms of the disease were observed in the majority of patients at the age of 3-12 years before turning to the hospital. At what age of the child, the symptoms of height disproportion appeared, it was determined in a conversation with the patient's parents.

In the hospital, the first degree of the disease was detected in 31 patients (14.3%), the main part of which was detected in 27 (12.5%) patients aged 3-14 years.

Table-1.

| Severity of deformity at primary examination | Number of patients | 3-6 years old | 7-8 years old | 9-10 years old | 11-12 years old | 13-14 years old | 15-16 years old | 17-19 years old | Abs. the number | % To total no ratio |
|--|--------------------|---------------|---------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------|
| I ($S 10^\circ$) | abs. number % | 20.9% | 52.3% | 52.3% | 62.8% | 94.2% | 20.9% | 20.9% | 31 | 14.3% |
| II ($11-25^\circ$) | abs. Sony% | 52.3% | 125.6% | 125.6% | 167.4% | 2210.2% | 73.2% | 41.9% | 78 | 36.1% |
| III ($26-40^\circ$) | abs. Sony% | 62.8 % | 115.1% | 146.5% | 157.0% | 177.9% | 125.6% | 73.2% | 82 | 38.0% |
| IV (41° and more) | abs. number % | 10.4 5% | 31.4% | 41.9% | 62.8% | 73.2% | 41.9% | 0 | 25 | 11.6% |
| Total | | 14 | 31 | 35 | 43 | 55 | 25 | 13 | 21 | 100% |
| abs. the number % considered | | 6.5% | 14.3% | 16.2% | 20.0% | 25.4% | 11.6% | 6.0% | 6 | 100% |

II of the disease initial symptoms of the disease were detected in 78 patients (36.1%).

Early symptoms of the disease were detected mainly in 67 (31.0%) patients aged 7-14 years.

III degree of the disease was detected in 82 patients (38%), most of them were detected in 67 (31%) patients aged 7-14 years.

Severe IV degree curvature of the spine was detected in 25 (11.6%) patients, most of them were detected at the age of 9-16 years.

Analyzing the results of early detection and diagnosis of the disease, it became clear that the earlier the first symptoms of scoliotic curvature of the spine develop, the more aggressive the process of curvature is during the physiological growth of the patient, that is, the faster the disease develops, the worse the level of the disease becomes. That is, if the first symptoms of the disease develop at the age of 3-4, 60-70% of IV degree of scoliosis is observed. If the symptoms of the disease develop at the age of 11-13 years, the IV degree of scoliotic deformation is not observed, and only in 16-21% of cases, the III degree of the disease is likely to be observed.

Conclusions:

Clinical and X-ray observations have shown that the appearance and development of the first symptoms of scoliotic curvature of the spine depend to a certain extent on the patient's age.

The first early symptoms of the spine were observed to develop mainly before the age of 10-11 years, that is, before puberty.

Determining the period of appearance and development of symptoms of the disease provides an opportunity to predict the future development of scoliotic curvature of the spine in patients. Umurta pogonasining radiologist qiishiklik dar azhasi va etuklik k̄yrsatkichlari davolashning optimal correctionlash yoki stabillashtiruvchi usullarni tanlash imkoniyatini beradi.

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