INTRODUCTION

Physical development of children is correlated with their physical growth regime, early detection, prevention and treatment of diseases that accompany growth. From an early childhood a pose of man undergoes significant changes, most ones pronounced in preschool and school age. Postural disorders and spinal deformities are among the most common diseases in children and adolescence ages. For years, the problem has been assuming alarming proportions. The reason is a reduced motor activity, prolonged staying in front of the computer from early childhood, bad posture at school, heavy backpacks, inappropriate diet, increased traumatic injuries, congenital spinal anomalies, few hours sport taking up. Consequently, a fatigue of the spinal musculature occurs, children take bad posture which is repeated and reach flawed conditional process (Nikolova & Lekina (Николова & Лекина), 2003). Early detection, correct diagnosis, adequate treatment and rehabilitation, prevention, appropriate active exercise routine, all can prevent adverse effects of the postural disorders and spinal deformities and ensure smooth functioning of the adolescent organism. The seriousness of the problem of the impaired posture in children and adolescents comes from the fact that there is no timely correction of the static deformation. It is a predisposing factor for the development of structural changes in the spine and the internal organs diseases, causing reduced disability in middle age (Crais (Крейз), 1999; Vasilyeva & Mikhailov (Васильева & Михайлов), 2002; Abolishin & Tsitskishvili (Аболишин & Цицкишвили), 2002; 2006; Mitova, Popova & Gramatikova (Митова, Попова, & Граматикова), 2014).

Increased attention to the study of postural disorders and spinal deformities is required because of the ever growing number of spinal deformities in pupils over recent years. Due to unnoticed start, slow and indolent course, weak manifestation of clinical symptoms in children with poor posture lead to a delayed diagnosis and treatment (Ryazkova & Kirova (Рязкова & Кирова), 2002).

Proper posture is made and shaped in parallel with the growth of the child and the development of all body functions, especially the proper functioning of musculature. It is formed under the influence of the external environment, as any driving habit and should be educated during the child’s growth and development as all other motor skills. The motor stereotype for proper posture should be maintained as it can change in a positive and negative sense. Posture, its maintenance and education depend on the correct form of the spine, of the proper functioning of the muscles, of its power derived from the equal distribution of muscle-power, i.e. harmonious work of all the muscles involved in the spine move-

FREQUENCY AND PREVALENCE OF POSTURAL DISORDERS AND SPINAL DEFORMITIES IN CHILDREN OF PRIMARY SCHOOL AGE

(Preliminary communication)

Stamenka Mitova

South-West University “Neofit Rilski”- Blagoevgrad
Faculty of “Public Health and Sports”,
Department of ,, Physical therapy”, PhD student, Blagoevgrad, Bulgaria

Abstract

A screening was conducted for early diagnosis of the changes and spine deformities in adolescents. The global problem is not a new one, but with a number of reports on the adolescents poor physical development the question of the high incidence and severity of these deviations is increasingly being raised. In this study 2129 children from Bulgaria, Blagoevgrad, aged (6-11) were involved. Research methods used are: medical history; somatoscopy (view), function tests for the guidance on the level of postural disorder. The percentage of deviations from the correct posture and spinal deformities are worrying. From all diagnosed cases the highest percentage of improper posture is - 58.85%, and of the spinal deformities is 23.67%.

Keywords: physical development, somatoscopy, function tests, correct posture, improper posture, prevention, palpation, percentage
ments. Postural disorders are changes in motor habit stand. Initially, changes in normal posture have a functional character, but in the absence of proper correction permanent structural changes, especially in the spine, ensue (Popov (Попов), 2006). Spinal deformities are permanent deviations from a normal shape of the spine. Deformities of the spine in a lateral direction (scoliosis) may be deviations from the mid line to the left or to the right, depending on which direction the convex of deformity is located in (Popov (Попов), 2006).

Periodic monitoring of the posture is an inherent requirement in order to timely detect deviations. Many authors reported that the early beginning of the conservative treatment can prevent the development of severe deformity and avoid surgery (Focarile, Bonaldi & Giarolo, 1991); (Fernandez-Filiberty, Flinn & Ramires, 1995); (Haher, Merola, Zipnick & Gorup, 1995); (Halm, Castro, Jerosch & Winkelmann, 1995). The prediction of spinal deformities depends on the child’s age, disease etiology, the degree of the anatomical features distortion, location and other factors that can enhance spinal deformity. This requires the use of various treatment methods, starting with physical therapy and orthopedic treatment with different braces, and if they fail surgical correction and stabilization can be applied. In order to achieve best result it is necessary to start an early treatment (Vladimirov, Djegov & Ivanov (Владимиров, Джевор, & Иванов, 2000). To make diagnosis and choose a rehabilitation treatment, a medical history, performed inspection, palpation, lower limbs measurements and feet plantogram, shortened muscles tests, investigated spine mobility and special tests application, are needed. The differences in the estimates of bad posture and spinal deformities in children many authors attribute to the lack of a unified research methodology and clear diagnosis criteria. As a result, the frequency of pathological defeats in school-age children ranged from 1.8 % to 87 %. All this is greatly “ blurring”, the limit of the normal and pathological and cannot make a clear identification of children at risk.

The purpose of this study is to diagnose early changes and deformations of the musculoskeletal system in adolescents.

METHODS

This study comprised 2129 children of primary school age (6-11). The study was conducted in ten (10) schools in Blagoevgrad after signing the written consent. To determine the existence of the postural distortions following methods were applied:

- Medical History
- Somatoscopy (view)
- Palpation
- Functional tests for guidance on the level of postural disorder

Contingent of the study.

Object of the study were children of primary school aged 6-11. The survey was conducted from October 2013 to February 2014 within ten (10) schools in Blagoevgrad.

RESULTS AND DISCUSSION

Screening covered 2129 children aged 6-11, 1060 boys (49.79%) and 1069 girls (50.21%), (Table 1). The number of children who were examined is different, depending on the number of children in school, and depending on how many of the examined children gave their written consent to participate.

The obtained results on the frequency distribution of the improper posture and spinal deformities are given in Table 2. The prophylactic - diagnostic examination covered 2129 children in elementary school, in the

Table 1. Distribution of the examined children in schools

<table>
<thead>
<tr>
<th>Schools</th>
<th>Total</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII Average Primary School „ Kuzman Shapkarov “</td>
<td>412</td>
<td>190</td>
<td>222</td>
</tr>
<tr>
<td>III Average Primary School „ Dimitar Talev „</td>
<td>361</td>
<td>169</td>
<td>192</td>
</tr>
<tr>
<td>IV Primary School „ Dimcho Debelianov “</td>
<td>123</td>
<td>61</td>
<td>62</td>
</tr>
<tr>
<td>II Primary School „ Dimitar Blagoev „</td>
<td>191</td>
<td>102</td>
<td>89</td>
</tr>
<tr>
<td>V Average Primary School „ Georgi Izmirliev „</td>
<td>159</td>
<td>81</td>
<td>78</td>
</tr>
<tr>
<td>Average Primary School ICHE</td>
<td>178</td>
<td>89</td>
<td>89</td>
</tr>
<tr>
<td>VI Average Primary School „ Ivan Vazov „</td>
<td>242</td>
<td>119</td>
<td>123</td>
</tr>
<tr>
<td>IX Primary School “ Peio Kracholov Iavorov “</td>
<td>76</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>VIII Average Primary School „ Arsenii Kostenets „</td>
<td>294</td>
<td>167</td>
<td>127</td>
</tr>
<tr>
<td>XI Average Primary School „ Hristo Botev „</td>
<td>93</td>
<td>46</td>
<td>47</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2129</td>
<td>1060</td>
<td>1069</td>
</tr>
</tbody>
</table>
In the town of Blagoevgrad, in 504 children (23.67%) spinal deformities were found, in 1253 (58.85%) deviations from the correct posture and in 372 (17.47%) good physique. 626 (29.40%) girls and 627 (29.45%) boys exhibited improper posture; 272 (12.78%) girls and 232 (10.90%) were found to have spinal deformities.

Table 3 shows the number of children with spinal deformities and improper posture. The results of the prophylactic-diagnostic examination covered 2129 children from elementary school in the town of Blagoevgrad. The percentage of pupils with correct posture is 372 (17.47%). The percentage of deviations from the correct posture and spinal deformities is alarming - 1757 (82.53%); 898 (42.18%) were girls and 859 (40.35%) were boys.

The obtained data on the number of cases of deviation from the correct posture, divided by age, sex and type of the postural disorder are clearly indicating following facts: in the town of Blagoevgrad there are only 372 (17.47%) children with good physique, 1253 (58.85%) have spinal deformities and 504 (23.67%) have improper posture.

From all diagnosed cases the highest percentage of the improper posture is 1253 (58.85%), the number of girls is 626 (29.40%) and the number of boys is 627 (29.45%). 504 (23.67%) children were with spinal deformities - 272 (12.78%) were girls and 232 (10.90%) were boys. Higher percentage is attributed to the girls.

As a result of the research and the examinations performed following recommendations can be made:

- The results of the examinations on the prevalence of spinal deformities in Blagoevgrad show that out of 2129 examined children, aged 6 to 11, in 504 (23.67%) spinal deformities were found, 1253 (58.85%) exhibited improper posture and only 372 (17.47%) children had good physique.

- The percentage of deviations from the correct posture and spinal deformities is alarming - 1757 (82.53%); 898 (42.18%) of these are girls and 859 (40.35%) are boys.

- Of the total observed instances of the spine deformation the highest percentage was of the improper posture - 1253 (58.85%).

- In everyday life there are no preventive actions against spinal distortions and deformations. There is a lack of physical activity, lack of exercise,
irrational nutrition and many other bad habits leading to poor muscle support, obesity, improper posture and spinal deformities. Increased the awareness of students, teachers and parents and their education about the preventive measures for such a serious problem are recommended so that they can find a place in the daily lives of children.

- Restoration of the practice of creating groups of the correct body posture gymnastics in schools is recommended.

CONCLUSION

Periodic monitoring of the posture is an inherent requirement in order to timely detect deviations. Early diagnosis of the postural disorders and spinal deformities can be achieved through an effective screening system. To fight against spinal deformities and their early diagnosis, every parent, teacher and health worker must have the necessary knowledge. Responsibility of the healthcare network lies in providing the necessary knowledge. Responsibility of the healthcare network lies in providing the necessary knowledge. Responsibility of the healthcare network lies in providing the necessary knowledge. Responsibility of the healthcare network lies in providing the necessary knowledge.

REFERENCES


Correspondence:

Stamenka Mitova, PhD students
South-West University “Neofit Rilski”- Blagoevgrad
Faculty “Public Helath and Sports”,
Department of “Physical therapy”
66 “Ivan Mihaylov” St. 27000 Blagoevgrad, Bulgaria
E-mail: stami80@abv.bg