

MEDICINE

CLINICAL EVALUATION OF VOICE IN CHILDREN WITH DYSPHONIA

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ABSTRACT

Objective: make a comparative analysis of the voice of the index (VHI) and endoscopic studies in the pathology of the voice of children.

Material and Methods: The study involved 87 children, from 6 months to 14 years. The clinical study included fibrorinolaryngoscopy with video fixation (C-MAC, K. Storz, Ø-2,7 mm) and a survey of parents (or guardians) of children at the Uzbek version of the voice handicap index (pVHI), with sub-sections (functional - F, the physical - P and emotional - E).

Results: endoscopic diagnosed laryngitis 20,6% (n = 18), functional 16,1% (n = 14) and mutational 9,2% (n = 8), dysphonia, benign larynx (respiratory papillomatosis) - 18.4 % (n = 16), the vocal cords paresis - 5.7% (n = 5), the vocal folds nodules 26.4% (n = 23), throat structure anomalies (acquired) 3,4% (n = 3). The survey revealed pVHI average points total pVHI and its sub-group of patients were as follows: F - 13,94, P - 15.48, E - 12.15 and T - 41.58, which is significantly higher than the group of healthy children and children with functional disorders of voice.

Conclusions: Fibrolaryngoscopy with the smallest diameter of the lumen of the laryngoscope with video fixation allowed to quickly ascertain the diagnosis of organic disease of the larynx in children. In addition, the survey pVHI allowed to differentiate the severity of the vocal apparatus, to conduct timely special endoscopic diagnosis of vocal cord diseases.

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Voice pathology is one of the most frequently encountered complaints that parents turn to a pediatrician, while only a third of them pay attention to the long-term, constant change in voice. It is worth noticing that anxiety about hoarseness increases dramatically by 6-7 years. When interviewing parents, why did they make such complaints, despite the fact that otherwise they considered the child healthy, parents paid attention to the possibility of the influence of speech disorders on the quality of life of the child and his future [5, 7]. Health was defined by the World Health Organization (WHO) as "a state of complete physical, mental and social well-being" ((1) p. 1), while the consequences of a disease or disorder were classified into several levels, including body structure and functioning, activity restriction, restriction of participation, and the impact on its surrounding world (society, or the

mutual influence of society and health of the individual). Essentially, assessments of the effects of a disease or disorder, or its treatment, should include an assessment of the effects that the disease has on all of these levels [1,4,7]. Changes in the structure and functioning of the level (known as the level of depreciation) refers to the anatomical, physiological, and psychological consequences. Changes in activity limitations (known as disability) relate to effects that structural and functional consequences may have on an individual's daily activities and daily life. Changes in the restriction of participation (or disorder) relate to the effects caused by the disease or disorder which relate to the decision to limit social activity in the individual's surrounding world. Therefore, failure at least in one of these levels leads to significant changes in the quality of life. There are many questionnaires about the impact of voice pathology on the quality of life [1,4,5,7,8,9]. Voice Handicap Index (VHI) (Voice Disorder Index) is considered to be the most used, as well as reliable, reflecting the full characteristic of voice quality and its effect on health. Moreover, for each language and for each country, its adapted versions have been created. [1-6]. We have developed the same VHI and translated it into Uzbek, and also created its version for children – pVHI.

Objective: to conduct a comparative analysis of the vocal index (VHI) and endoscopic studies in children with voice pathology.

Material and research methods: 268 children aged from 3 months to 11 years with complaints of hoarseness were examined, 76 of them are children of early age, up to 3 years, 3-5 years - 101 patients and children over 6 years old - 91. Complaints, anamnesis and endoscopy of the larynx - fibrin-rharingoscopy with video fixation (C-MAC, K. Storz, Ø-2.7 mm) were studied in detail. The study time was up to 5 minutes (3.23 minutes on average); it did not take special preparation of patients. Constant dysphonia was observed in 102 children, intermittent - in 166. Among children with persistent dysphonia, signs of respiratory failure were observed in 22 children, while 4 children were accompanied by dysphagia (1 had a burn history of the esophagus, 2 had an injury with unconventional treatment), 1 child has prolonged intubation.

We also conducted a survey of parents (or guardians) of children according to the Uzbek version of the Voice Disorder Index (pVHI), presented in general 23 questions divided into three subsections (functional sphere - F, physical sphere - P and emotional sphere - E influencing the quality of life). When compiling the questionnaires, we paid special attention to the questions that were answered by the parents, given that they could not always pay attention to the child's emotional reactions to the disorder of his voice, although the functional and physical part of the VHI during the survey was fairly objective.

The results of the study: examination of patients - endoscopy - revealed functional and organic changes in the respiratory tract, patients with acute inflammatory processes and a duration of voice disorder of less than 1 month were excluded from the study. Thus, we mostly diagnosed inflammatory diseases of the laryngeal mucosa (chronic laryngitis, reflux-laryngitis) in the form of laryngitis 23.5% (n = 63), functional 17.2% (n = 46) and mutational 11.6% (n = 31) dysphonia. Changes in the voice due to paresis and paralysis unilateral were detected in 7.8% of cases (n = 21). Organic pathology in the form of laryngeal papillomatosis was found in 19.8% of cases, vocal folds 11.9% (n = 32), laryngeal abnormalities (congenital - epiglottis cysts) 3.1% (n = 9). In patients with permanent dysphonia (n = 102), a scar membrane was found in the vocal cords (n = 11), while congenital membrane was found in 8 patients and acquired in 3 patients.

Pathology of the larynx	Persistent dysphonia n=102	Periodic dysphonia n=166	Total (n=268)
Laryngitis (reflux laryngitis, catarrhal laryngitis)	4	59	63/23,5
Functional dysphonia	4	42	46/17,2
Mutational dysphonia	5	26	31/11,6
Respiratory papillomatosis	53	-	53/19,8
Paresis of the vocal cords	5	16	21/7,8
Nodules of the vocal cords	9	23	32/11,9
Epiglottis cysts	11	-	11/4,1
Cicatricial membrane (congenital)	8	-	8/3
Scar membrane (congenital)	3	-	3/1,1

At the same time, respiratory insufficiency of an increasing character was observed only in children with laryngeal papillomatosis. The presumptive diagnosis in the case of permanent dysphonia in 90.9% of cases coincided with the established diagnosis. In case of periodic hoarseness, the study found: laryngeal papillomatosis (single papillomas) (n = 6), vocal nodules (n = 14), laryngopharyngeal reflux (n = 9). In case of periodic dysphonia, errors in the diagnosis were observed in respiratory papillomatosis, but surgical findings in all cases confirmed the diagnosis of organic pathology of the larynx, based on endoscopic examination. It is worth noting that the diagnosis of organic pathology in previous studies was not identified, such patients often had a diagnosis of laryngitis with appropriate treatment using physiotherapeutic procedures, which of course contributed to a more rapid progression of the disease.

The pVHI survey revealed average scores of the total pVHI and its subsections in the control group (healthy children): functional (F) - 1.47, physical (P) - 0.20, emotional (E) - 0.18 and total (T) - 1, 84 Indicators in the group of patients were as follows: F - 13.94, P - 15.48, E - 12.15 and T - 41.58. It is worth noting that the subsection of the emotional sphere changed depending on the age - the less the child's age, the closer the indicators were equal to the indicators of the control group. The impact of voice disorders on the emotional sphere has increased dramatically since school age. The nature of the pathology also influenced the difference in the pVHI index, as functional pathology showed lower rates (F - 6.45, P - 10.48, E - 6.21 and T - 23.14), in contrast to organic pathology (F - 14.25, P - 16.15, E - 13.65 and T - 44.15) on which a greater influence was made by a group of patients with respiratory papillomatosis.

Conclusions.

1. The detectability of diseases of the vocal apparatus among children directly depends on the availability of high-tech equipment and the knowledge of outpatient clinicians about the possible presence of organic pathology of the larynx with prolonged voice disorder.

2. Fibrolaryngoscopy with the smallest diameter of the laryngoscope lumen with video fixation allowed in a short time to accurately establish the diagnosis of organic pathology of the larynx in children of early and preschool age, which is especially important due to the need for the earliest decision on therapeutic tactics with increasing respiratory failure. And vice versa, it allowed to exclude this pathology in case of functional changes, eliminating the need to apply radiation diagnostic methods (multispiral computed tomography).

3. Questionnaire pVHI (as well as VHI) in patients with voice disorder will allow differentiation of the severity of the lesion of the vocal apparatus, with the timely provision of special endoscopic diagnosis of vocal apparatus diseases.

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