

DYSPHASIA (SPEECH DISTURBANCES), CAUSED BY THE  
FUNCTIONAL STAMMERING (Phoniatic aspects )

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Stammering is a result of the functional variations in the central nervous system, influencing the motor mechanisms of respiration, phonation and articulation. The study of biomechanisms of the process of speech and voiceformation will add the new facts for the correction of the existing methods of the rehabilitation of the patients with functional stammering.

The functional stammering is related to the constitutional disturbances of the speech, and not being independent disease, is considered a symptom in quite a number of diseases of the central nervous system.

Stammering is a result of the functional variations in the central nervous system, influencing the motor mechanisms of respiration, phonation and articulation. According to the data of Zeeman, up to 30% of stammering children have inherited dysphasia from the parents. The reason of stammering in these cases may be the congenital constitutional deficiency of motor mechanisms. By origin it is customary to distinguish two types of functional stammering: stammering, which appeared in the period of development and posttraumatic stammering.

In view of the fact, that voice-speech process depends on the activity of respiratory, phonator and articulator organs, the convulsive conditions of that or this part of the organs cause the correspond-

ing form of stammering. For example, the convulsion of respiratory muscles determines difficulty of inhalation or exhalation which causes the interruption in the process of voiceformation. Pharyngospasm leads to the intermissions in voting. Spasm of muscles of the articulator system impedes the formation of phonemes. Potention of the respiratory, phonation and articulatory muscles is characteristic for hyperkinetic form of stammering. According to the data of chronaximetry - chronaxia of the buccal muscles achieves 0,15 m/sec.

Relaxation of muscular tension is typical for the buccal muscles lengthens from 0,4 to 0,5 m/sec.

The function of the closed throat ring may be violated in such cases and air will pass through the nose during the pronunciation of mouth sounds.

Sometimes, the disturbance of breathing of stammerers may be strongly pronounced and noticeable for the people surrounding them. During the observation of the function of external respiration of such patients the usage of the thoracic respiration was typical for childhood and adult age. As a rule, stammerers have asymmetric breathing that is the left and right sides contract asynchronously, as evidenced by the contractions of diaphragma during roentgenoscopy. The number of respiratory movements per unit time is not constant, during paroxysm it becomes so frequent, that sometimes it achieves paradoxical figures. These features are accompanied by acceleration of expiration phase, which may be here interrupted by inhalation. The disturbance of breathing at continuous stammering takes place not only during the phonation process, but during the condition of rest. The isolation of the mouth cavity from the nasal one with the closed throat ring may be incomplete at reduction of muscular tension, air may penetrate into the nose, that creates difficulties during the pronunciation of the explosive sounds. The absence of air in the mouth cavity negatively affects the articulation. The movement of the articulatory muscles is sharply limited. One can notice that the violation of the possibility to make the

simplest movements with the tongue (as its raising upwards and lowering), the displacement of an angle of the mouth to the right and to the left, it droops. The paralysis of the corresponding muscles is not discovered in this position.

The speech is monotonous, colourless, deprived of melodiousness, the artificial drawl of the vowels only emphasizes these qualities. When examining speech one should pay special attention to stresses, appreciate the words from the point of view of grammar and syntax.

The disturbance of the function is expressed in constantly repeated strong compression of the vocal folds. The data of endoscopy ascertain in such cases the dilation of the blood vessels, stasis of blood flow, and also the parts with varicose vessels on the mucosal internal edge of the vocal folds, the vestibular folds, in the subfolded zone. During the long-term laryngospasms the mucosal membrane becomes stagnately hyperemic, the dystrophically changes develop with the deaf of surface layers of epithelium. In such cases the mucosal membrane may thicken, hypertrophy, more often hypertrophic laryngitis, keratosis, pachydermia and others organic diseases of the vocal folds.

According to the preliminary data of electronic laryngostroboscopy it is discovered, that in cases of strong compression of the larynx the vocal folds may come one over another, traumatizing the mucosal one, the rhythm of oscillation of the vocal folds is asynchronous, the amplitude is inconstant. In such cases the larynx moves up, down and forward. The voice becomes firm, explosive, the attack of the sound is hard.

Motor hypertonus leads to the development of hyperkinetic dysphonia, spastic aphonia.

In case of hypotonus the symptoms of hypokinetic dysphonia are developing, that is a reverse symptom. The flabbiness of the vocal folds and the absence of motor movements in them ( the data of electronic laryngostroboscopy) create the impossibility of voiceformation.

Sharp tension and compression of the vocal folds as well as their flabbiness are noted only during an attack of stammering. The study of biomechanisms of the process of speech- and voiceformation will add the new facts for the correction of the existing methods of the rehabilitation of the patients with functional stammering. It is known, that the intellectual people can conceal stammering much better, whereas the mentally deficient and psychopathic persons manifest their ailment in an expressed form.

Our data on the treatment of neurogenic dysphonia by the method of acupuncture

are used with regard for an individual corresponding approach, which is typical for hypo- and hyperkinetic forms in the whole complex of rehabilitative measures. Timely successful rehabilitation, implemented, especially in childhood will allow determine without limitation the labour orientation of these patients whereas at adult age it will raise their labour ability, increase the labour potential of the country.