ACTION OF PROFESSIONAL FACTORS ON ORL-ORGANS AND SIGNIFICANCE OF REHABILITATION OF NASAL BREATHING DISORDERS IN COMPLEX TREATMENT OF MOTOR DISTURBANCES

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Abstract: *professional factors, depending on the peculiarities of engineering process, have different effect on the development of pathological processes in respiratory channels, acoustic and vestibular analyzers.*
Primary reaction of the organism on the action of many chemical and physical factors reveals during functional otorhinolaryngological studies.
During nasal breathing disorders of different etiology take place various changes in the action of visceral organs.
Established linkage between respiratory irritations of respiratory channel and change in electric activity of skeletal muscles of upper extremities allows us to make conclusion on the role of upper respiratory channels in the pathogenesis of skeletal muscles motor activity disorders.
That's why in case of combination of respiratory irritations of respiratory channel with atrophic syndrome in addition to the complex treatment of atrophic syndrome (which includes medications, application of physiotherapeutic procedures or electric treatment, therapeutic massage and gymnastics) is necessary to carry out the rehabilitation of normal nasal breathing, which promotes creation of optimum background for regulation of muscular tone.
Keywords*: action of chemical factors, nasal breathing disorders, electrical activity of skeletal muscles.*

ДЕЙСТВИЕ ПРОФЕССИОНАЛЬНЫХ ФАКТОРОВ НА ЛОР-ОРГАНЫ И ЗНАЧЕНИЕ ВОССТАНОВЛЕНИЯ РАССТРОЙСТВ НОСОВОГО ДЫХАНИЯ В КОМПЛЕКСНОМ ЛЕЧЕНИИ ДВИГАТЕЛЬНЫХ НАРУШЕНИЙ

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Аннотация**:** *профессиональные факторы, в зависимости от особенностей технологического процесса, оказывают разное влияние на развитие патологических процессов в дыхательных путях, слуховых и вестибулярных анализаторах.*
Первичная реакция организма на воздействие многих химических и физических факторов выявляется при функциональных оториноларингологических исследованиях.
При расстройстве носового дыхания разной этиологии происходят разнообразные изменения в деятельности висцеральных органов.
Установленная связь респираторных раздражений дыхательного тракта и изменения электрической активности скелетных мышц верхних конечностей позволяет сделать заключение о роли верхних дыхательных путей в патогенезе нарушений моторной активности скелетных мышц.
Поэтому при сочетании расстройств носового дыхания с атрофическим синдромом в комплексное лечение атрофического синдрома медикаментами, применением физиотерапевтических процедур или электролечения, лечебного массажа и гимнастики, необходимо включить восстановление нормального носового дыхания, способствующего созданию оптимального фона для регуляции мышечного тонуса.
Ключевые слова*: действие химических факторов, расстройства носового дыхания, электрическая активность скелетных мышц.*

At the modern stage of development of medicinal science the study of the role of LOR-organs in vital activity of organism both under normal and pathological conditions is of substantial significance during carrying out preventive and curative measures [1, 2, 3, 4].

The atmosphere of industrial premises may be polluted by aerosols with solid and liquid dispersion phase, gases, vapors at the different stages of engineering process: in preparation of raw materials, execution of chemical processes, manufacturing of final production, during repair works, waste removal from plant territory.

Poisons may penetrate the organism not only via respiratory passages, but also through the skin and gastrointestinal tract.

High air temperature, heat radiation, ionizing radiation, noise, and vibration may be among accompanying negative factors in chemical industry [1, 6, 7].

The study of pathological processes developing not only in nasal airways, but also in ear and throat, takes on particular significance, since the primary reaction of organism on action of many chemical and physical factors reveals during functional studies of upper respiratory channels, olfactory, acoustic and vestibular analyzers [6, 7].

Functional disorders in respiratory channels and system of analyzers originate long before morphological disorders, that’s why their detection may promote not only early diagnosis of disorders in these organs themselves but also the related changes in action (activity) of internal organs [9, 13, 14].

Allergizing effect of number of chemical agents on upper respiratory channels, interrelation of condition of upper respiratory channels in formation of dust bronchitis, pneumoconiosis and bronchial asthma evidences the necessity of in-depth comprehensive study of effect of respiratory channels on visceral functions.

Action of professional factors, exogenic factors of the environment, causing functional and morphological changes in nasal airways, leads to the difficulty or complete failure of nasal breathing.

For instance, antibiotic production has its negative impact on workers’ health due to formation of antibiotic dust. Specially should be noted that the dustiness depends on engineeri ng process, which consists of following stages: fermentation, filtration, chemical cleaning, drying of final product, preparation of finished dosage form and its packing. The biggest total dustiness is mentioned during tablets’ loading into big pans in dragee department, grain grinding, loading of components into hoppers of tabletting machines, sieving of manufactured shells in tabletting department. Such diseases, as subtrophic rhinitis and pharyngitis, frequent complaints about the difficulty of nasal breathing, nasal hemorrhages etc. are widely spread among workers engaged in penicillin and streptomycin productions [1, 3, 6, 7].

Nasal cavity passableness reflects the degree of air stream passage through nasal cavity. This function is one of the basic ones for nasal cavity and it is malfunctioned during various nasal diseases and illnesses of its maxillary sinuses [7, 10, 11].

We have studied the interrelation of nasal breathing and electrical activity of skeletal muscles [3, 8].

Electrical activity of skeletal muscles is in definite interrelation with breathing act. Respiration center sends respiratory impulses not only to muscles directly involved in the breathing, but also to muscles, which are not involved in respiratory process.

Deep nasal breathing, while amplifying the action of respiration center, promotes the intensification of electrical activity of skeletal muscles of upper extremities. The abovementioned is confirmed by synchronous intensification of breathing and electrical activity of skeletal muscles of upper extremities.

One can suppose that impulses of respiration center, widely irradiating throughout the whole central nervous system, also have their influence on cerebrospinal centers causing the intensification of electrical activity of muscles.

Mouth breathing under conditions of relative physiological rest in case of switching-out of nasal breathing causes reduction (weakening) of electrical activity of skeletal muscles.

Mouth breathing, while promoting strengthening of afferent parasympathetic signalization, causes activation of parasympathetic section of vegetative nervous system and promotes reduction of electrical activity of skeletal muscles.

Based on obtained data on the effect of respiratory irritation of respiratory channels on the electrical activity of skeletal muscles one can suppose that nasal breathing disorder plays definite role in the pathogenesis of progression of muscular atrophy (when distal or distant segments of upper extremities are affected).

That's why in case of combination of respiratory irritations of respiratory channel with atrophic syndrome in addition to the complex treatment of atrophic syndrome (which includes medications, application of physiotherapeutic procedures or electric treatment, therapeutic massage and gymnastics) is necessary to rehabilitate the normal nasal breathing, which promotes creation of optimum background for increase of muscular tone.

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