

Respiratory physiotherapy of children with asthma

Bronchial asthma

Asthma bronchiale is a chronic inflammatory disease of the airways, characterized by increased reactivity to various stimuli, leading to bronchial obstruction. This is caused by a **spasm** of the bronchial smooth muscles, a **swelling** of the respiratory tract mucosa wall and the subsequent **hypersecretion** of viscous mucus. It is typical of asthma that the obstruction **is reversible** either spontaneously or due to therapy. The clinical manifestation is repeated states of "wheezing" when breathing, *shortness of breath*, "pressure" on the chest and *cough* especially at night and early morning. In childhood, the prevalence of asthma in boys is 2:1 compared to girls, and in adulthood this ratio reverses to the disadvantage of girls. Symptoms also often subside during puberty.

Viral infections and allergies are important factors involved in the onset and development of asthma. Furthermore, genetic and developmental factors and environmental influences (air pollution, influence of smoking in the prenatal and postnatal period). Asthma is classified according to severity as intermittent, persistent, mild persistent, persistent moderate, and persistent severe.

Respiratory Physiotherapy

It is important to apply respiratory physiotherapy methods as soon as possible, because the progression of asthma brings life-threatening cardio-pulmonary complications. Respiratory physiotherapy should include correction of the postural system (from the pelvis cranially), i.e. correction of pelvis, lumbar, thoracic, cervical spine and head, relaxation and correction of breathing patterns, and mobilization and elimination of bronchial secretions to prevent pulmonary infections. The basic methodological procedures of respiratory physiotherapy are **corrective physiotherapy of the postural system, respiratory physiotherapy** and **relaxation preparation**.^[1]

Corrective physiotherapy of the postural system

Patients with bronchial asthma tend to have weakened and shortened muscles in relation to the mechanics of breathing. The m. rectus abdominis, m. obliquus internus et externus and deep flexors of the cervical spine. It is often shortened to m. pectoralis major and m. trapezius. For these reasons, their posture is typical, which is manifested by protraction and elevation of the scapula (scapula alata) and head forward. This results in hyperkyphosis of the thoracic spine, the so-called "round back", which negatively affects breathing. The goal of corrective physiotherapy of the postural system is the training of optimal body posture with relaxed breathing using the correction of the postural system (from the pelvis cranially), i.e. correction of pelvis, lumbar, thoracic, cervical spine and head. The most common position for correcting the postural system is sitting according to Brügger.

Respiratory Physiotherapy

Respiratory physiotherapy corrects and modifies motor patterns during breathing and is used to mobilize and eliminate bronchial secretions. Its goal is to achieve the most efficient lung ventilation, which consists in reducing the respiratory rate, but not in increasing the volume of air during inspiration and expiration, which could cause spasm of the bronchi.

Relaxation preparation

Relaxation preparation is general or muscle and joint relaxation. Relaxation exercises are used to relax muscles that are strained during active exhalation.^[2]

Possibilities of respiratory physiotherapy for bronchial asthma in children

The aim of respiratory physiotherapy for asthmatics is mainly the effort to maintain the patency of the airways, preventive measures against chest deformities, the effort to improve the ventilation capacity and physical condition of the individual.

Methods of respiratory physiotherapy used in the treatment of asthma in children':

- drainage techniques,
- instrumental techniques,
- PEP breathing system and oscillating PEP breathing system,
- contact breathing,
- respiratory handling,
- methods based on neurophysiology (Vojt's method reflex locomotion),
- proprioceptive neuromuscular facilitation (PNF),
- ball facilitation,
- alternative methods (children's yoga),

- soft and mobilization techniques.

Links

Related Articles

- Asthma

External links

- Asthma (English Wikipedia)

Source

- PETRŮ, Vít. *Pediatric pro praxi* [online]. [cit. 2015-05-18]. <<http://www.pediatricpropraxi.cz/artkey/ped-200704-0005.php>>.
- MARÍA SOLEDAD, Aguilera Sanz. *Efectos de la fisioterapia respiratoria en pacientes infantiles con asma* [online]. [cit. 2015-05-18]. <<https://www.efisioterapia.net/articulos/efectos-fisioterapia-respiratoria-pacientes-infantiles-asma>>.

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2. KÓLÁŘ PAVEL. *Rehabilitation in clinical practice*. 1st ed. Prague: Galén, 2009, xxxi, 713 p.

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