Acute mountain disease

Acute mountain disease (AHN) arises due to hypoxic hypoxia, which manifests itself when ascending to high altitudes. výšky.

Symptoms

In addition to other symptoms typical of hypoxia, there are also very serious problems in the form of pulmonary edema and brain edema.

Lung edema

It occurs mainly in people who have been subjected to strenuous physical activities after climbing to high altitudes. According to current theory, swelling is caused by the fact that some pulmonary arteries do not have enough muscle to contract during hypoxia. The pressure then damages the walls of the capillaries and causes the alveoli to be filled with both fluid and blood cells.
Symptoms pulmonary edema is extreme fatigue, inability to catch breath, blue or gray lips, or nails (cyanosis), choking or bubbling breathing, cough, tightness or pressure in the chest. Sputum, when expectated, is foaming, pinkish, liquid.

Brain swelling

It is caused by dilatation of the brain arterioles, which occurs as a result of an effort to supply brain more less oxygenated blood. This increases the pressure in the capillaries, which then push more fluid into the surrounding tissue.
Brain swelling manifests itself in thought disorders, loss of coordination, lethargy, confusion, significant behavioral changes and staggering (i.e. similar states of intoxication).

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Other symptoms

Symptoms of acute mountain sickness also include vomiting and frequent urination, which can lead to dehydration because of a loss of thirst.
Symptoms decrease when alkalosis is prevented by administration of acetazolamide or when the development of cerebral edema is reduced by high doses Glucocorticoids. But the basic help of affected AHN is **descent to lower altitudes** as soon as possible after the symptoms have manifested themselves.

Acclimatization

Acclimatization to alpine conditions takes place during **4 – 5 days**after climbing the mountains and several compensation factors coincide.

pH ventilation and balance

Immediately after entering the alpine environment, the body responds with hyperventilation, up to 5 × increased ventilation than usual. This leads to some increase in partial pressureoxygenin the arteries, in the arteries, but above all to increase CO excretion2, which evokes Respiratory alkalosis. Z Elevated pH of body fluids inhibits respiratory center chemoreceptors in Brainstem, so initially it suppresses the stimulatory effect of hypoxia and the ventilation response to hypoxia paradoxically decreases. Active transport H acts against this+ to cerebrospinal fluid (and probably the development of lactic acidosis in cerebrospinal fluid), which lowers the pH around the chemoreceptors and increases the ventilation response, which then increases smoothly until**day 4** after the exit. Then hyperventilation decreases (but only in trained mountaineers does the ventilation of the original values before the output), because the effect of the increased amount begins erythrocytes.

Influence of erythropoiesis

erythopoietin, a hormone stimulating the formation of new ones erythrocytes, although it is moderated to an increased extent from the first day after the ascent, it decreases somewhat under the influence of hyperventilation. During acclimatization, there are also changes in tissues. Respiratory alkalosis shifts the dissociation curve Hb to the left. In contrast, erythrocytes produce hypoxia 2,3-DPG and this shifts the dissociation curve to the right. The result is a small shift of the curve to the right, ie a reduction in the affinity of Hb to O2, which is O2 easier to reach for tissues. However, this effect is not very great and will lose its significance with increased erythrocyte levels. There is also a increase mitochondria and myoglobin.

Links

External links

Literature used

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