

Brief historical study of the Polar Dyspnea

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During the first scientific staff travel of Academy of Medicine Sciences of USSR to Dickson Island and Tiksi in 1946 "frequent complaints of breath shortness and pain in the heart, even after minor physical activity were marked among clinically healthy people." This phenomenon is called the polar dyspnea. Kandror I. S. writes about this phenomenon: "When there is a strong, especially opposite wind and snow, which close up mouth and eyes, breathing becomes clogged, the person starts to choke and try to roll back to the wind." Further, the author writes: "... The Soviet polar explorer Kanaka B. indicates that there were cases of deaths during a blizzard not because of freeze, but suffocation caused by respiratory distress."

In the 60 -80 years of the last century "polar dyspnea" was thoroughly studied in Russia. It was called "circumpolar hypoxic syndrome" [1] by a group of Academician Avtsyn A.P., but up to the present time the reason of syndrome occurrence is not clear. Modern researchers have found that the syndrome is connected with bronchial obstruction.

It should be noted that in 1940, researchers led by the American physiologist Lawrence Irving discovered reflex of cold breath-holding or diving reflex among human. Subsequently, a number of researchers aroused the diving reflex without dipping his head into the water, but by application of moistened towels with cold water in the area of nasolabial triangle [2]. The same phenomenon causes the ingress of water into the face when taking a cold shower.

There is an assumption that "polar dyspnea" and diving reflex are related to each other [3]. Studies of Grishina O.V., Ustyuzhaninova N.V. showed that the development of protective mechanisms in the lungs aimed at eliminating of the damaging effect of inhaled cold air to the lung tissue "restrict ventilation reserves", which leads to respiratory hypoxia already at an ambient temperature below - 25 ° C.

Respiratory minute volume of a healthy person is about 8 l / min.

References

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