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Monitoring of respiration: pulse oximetry, capnography, oximetry by [Vlad Nevazhno](#)

Article published on December 25th 2011 | [Health](#)

In a sudden and sharp drop synchronous $R_{vt}SO_2$ often have reduced oxygen saturation and arterial hypotension. Of the four methods of monitoring, in which indicators respond quickly embolism (capnography, pulse oximetry, ECG, blood pressure measurement), only capnography provides information for a specific diagnosis, and the rest - signal that "a catastrophe".

If gas embolism absorption rates kapnogrammy normal.

Fat embolism is accompanied by a pronounced drop in $RetSO_2$. At the beginning of the process of reducing this figure is mainly due to multiple pulmonary microvascular obstruction fat embolism "and in the future - damage to lung tissue free fatty acids, the generators as a result of lipolysis. Develops acute respiratory distress syndrome, with its inherent mikrotrombozom and destruction of lung microvessels, which causes further deterioration of the persistent kapnogrammy.

Amniotic embolism accompanied by obstruction of the pulmonary blood flow particles syrovidnoy grease, meconium and lanugo, which leads to alveolar dead space and the typical changes $RetSO_2$. Then causes permanent reduction $RetSO_2$ and large alveolar-of course-ekspira-reflex differences in CO_2 are DIC, due to massive embolism microbunches transfusions and acute respiratory distress syndrome. Massive amniotic embolism with the classic clinical symptoms is diagnosed extremely rare but subclinical or deleted forms of this syndrome are much more common than generally assumed.

Embolism microbunches - another reason mikroemboly light - occurs when blood transfusions. Number microbunches in donated blood and plasma avalanche increases with a shelf life, and the use of special micro-filters for intravenous systems have not yet added to the list of healthy traditions of national health care. Capnography during transfusions can in each case to assess the relevance of this problem.

Mikrotrombozy small circle - an essential component of the syndrome of acute respiratory disorders. At the earliest, pre-clinical stages of the syndrome of pulmonary capillaries is covered by aggregates of platelets and white blood cells (the process of thrombosis, leykoagregatsii and sequestration) and later there are common mikrotrombozy small circle. This and other processes that violate the pulmonary microvascular permeability in RDS (destruction of capillaries, contraction of their high alveolar pressure during mechanical ventilation), cause the formation of dead space on ventilation in severe cases, which consumes up to 70-80% of tidal volume.

In patients with acute respiratory distress syndrome capnography totally unsuitable for the detection of hypo- or hyperventilation, their only objective benchmark of adequacy of ventilation minute volume remains $RaSO_2$.

Capnography in cardio-pulmonary resuscitation

The use of capnography in cardiac arrest provides medical information about the patient's condition and the effectiveness of resuscitation. Capnography in these cases, you can:

early detection of cardiac arrest;

monitor the effectiveness of resuscitation;

tentatively assess the quality of blood circulation after recovery heart rate.

The undoubted advantages of this method - it informative, noninvasive, and immediate opportunity to start monitoring after tracheal intubation. Also important is the fact that the inclusion of the monitor and attach the adapter to the endotracheal tube requires only a couple of seconds.

When you stop the blood flow stops venous blood to the lungs. This was followed in a few breaths - or independent hardware - alveolar gas is washed out of the lungs and is replaced by atmospheric air.

RetSO₂ trend in cardiac arrest and successful resuscitation (explanation in text)

Stopping the blood flow while maintaining respiration (independent or artificial) is accompanied by a sharp decline RetSO₂ to almost zero.

In cases where cardiac arrest is preceded by respiratory arrest, capnography detects apnea and "freezes" the last value on the screen RetSO₂, which may be normal.

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Even so, the monitor draws the attention of staff to disaster (apnea), the exact point where it is easy to set the trend. a [Pulse oximeter](#).

Article Keywords:

Oximeter