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Features Of Endotracheal Anesthesia

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ABSTRACT

This article is devoted to giving a complete overview of the various diseases that the human body in life experiences through the respiratory tract.

KEYWORDS

Artificial ventilation of the lungs, components of this method of anesthesia

INTRODUCTION

Intubation (endotracheal) anesthesia is the immersion of the body in a state of deep narcotic drug sleep in combination with complete relaxation of the muscles and the lack of spontaneous breathing. To achieve this depth of pain relief, several components are needed. Therefore, its full modern name is combined intubation endotracheal anesthesia. The main components of this method of anesthesia are:

Intubation of the trachea - the introduction of an endotracheal tube into the lumen of the

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trachea, through which artificial ventilation of the lungs will be carried out while a person is in a narcotic sleep.

Patients often ask why gas should be injected into the lungs through a tube when a mask can be used. Many advantages of this method lie precisely in the possibility of interaction of the anesthetic apparatus directly with the respiratory organs - it actually "breathes" for a person, carrying out ventilation of the lungs with a mixture of gases - oxygen and anesthetic substance. Thanks to this, the doctor can carry out the operation as much as necessary, without limiting himself in time.

Intubation anesthesia is performed using an apparatus that monitors all vital body functions during the operation and automatically varies the concentration of the supplied gas. This eliminates risks such as a sudden withdrawal of the patient from sleep or a deterioration in his health due to an increased concentration of anesthesia.

In addition, endotracheal anesthesia provides the following options:

The accuracy of the dosage of drugs, which cannot be achieved with mask anesthesia;

The ability to adjust the intensity of pulmonary ventilation to change the blood gas composition;

Good patency of the respiratory tract. During intubation, patients are not threatened with sinking of the tongue, the patient will not choke on saliva, blood or food masses;

The possibility of bronchopulmonary sanitation (through a special catheter, sputum, pus, accumulated mucus can be removed);

The possibility of the simultaneous use of muscle relaxants, which reduce the risk of bleeding and relax the muscles.

The last point is especially important for the surgeon. With other methods of anesthesia, without connecting the patient to a breathing apparatus, significant relaxation of the muscles will lead to respiratory arrest. And some operations, for example, microsurgical ones, require exactly the maximum relaxation of the muscles - just in this case, endotracheal anesthesia is suitable.

Indications and contraindications for intubation anesthesia. The choice of the method of anesthesia is always the responsibility of the surgeon. His task is to determine the most gentle and reliable option, taking into account the characteristics of the patient's body, his weight, age, etc. A number of operations do not allow using this method, since it is important for the doctor that the lungs are in a relaxed (compressed) state, while the gas greatly inflates them.

Endotracheal anesthesia is recommended:

With prolonged (from 1 hour) complex surgical interventions;

In cases involving possible respiratory arrest (which will lead to the death of the patient);

With threats of suffocation (swelling of the throat, laryngospasm, emergency intervention with a full stomach, etc.);

During ENT operations, during which it is necessary to protect the respiratory tract from the ingress of blood and saliva;

With interventions on the thyroid gland, neck, head, face;

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For microsurgical operations requiring absolute relaxation of the body, etc.

There are no absolute contraindications to endotracheal (intubation) anesthesia. It is used with caution in acute respiratory diseases, diseases and malformations of the respiratory tract, making the introduction of an endoscopic tube dangerous or very difficult, in acute renal and hepatic pathologies and in myocardial infarction.

How endotracheal anesthesia is performed

Before anesthesia, premedication is carried out - drug preparation of the patient. In the evening, the patient is given sleeping pills or tranquilizers, which relieve spasms caused by fear and nervousness. In the morning, drugs are injected that reduce saliva production and inhibit the function of the vagus nerve.Because it is an invasive and uncomfortable medical procedure, intubation is usually performed after administration of general anesthesia and a neuromuscular-blocking drug. It can, however, be performed in the awake patient with local or topical anesthesia or in an emergency without any anesthesia at all. Intubation is normally facilitated by using a conventional laryngoscope, flexible fiberoptic bronchoscope, or video laryngoscope to identify the vocal cords and pass the tube between them into the trachea instead of into the esophagus. Other devices and techniques may be used alternatively.

After the trachea has been intubated, a balloon cuff is typically inflated just above the far end of the tube to help secure it in place, to prevent leakage of respiratory gases, and to protect the tracheobronchial tree from receiving undesirable material such as stomach acid. The tube is then secured to the face or neck and connected to a T-piece, anesthesia breathing circuit, bag valve mask device, or a mechanical ventilator. Once there is no longer a need for ventilatory assistance or protection of the airway, the tracheal tube is removed; this is referred to as extubation of the trachea (or decannulation, in the case of a surgical airway such as a cricothyrotomy or a tracheotomy).

Removable dentures are removed from the oral cavity - they can interfere with the introduction of the apparatus tube. Before surgery, a tube is inserted into the trachea (intubation). This moment passes absolutely painlessly, since the anesthesiologist preliminarily introduces intravenous anesthesia and relaxing drugs (muscle relaxants), and the person falls asleep. Before inserting the endotracheal tube, the doctor covers the patient's teeth with special pads and applies other measures to protect the oral cavity from injury. For endotracheal anesthesia, the latest drug Sevoran is used, which is characterized by minimal side effects. It is quickly eliminated from the body without causing complications.

Anesthesia drugs are injected into the respiratory tract by the method of standard inhalation anesthesia using a device, for example, Fabius Tiro, which takes into account all indicators of the patient's condition. For endotracheal anesthesia, the newest drug Sevoran is used, which has minimal side effects. It is quickly eliminated from the body without causing complications. After the end of the operation, the patient is taken out of anesthesia and when he begins to breathe, the tube is removed. The anesthesiologist does not leave the patient until he fully

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regains consciousness and his health is restored.

Possible complications

This type of anesthesia can be accompanied by the introduction of various drugs, their choice depends on the type of operation and the patient's material capabilities. In addition, the duration of drug exposure should be considered. After awakening, patients may feel the unpleasant consequences of general anesthesia associated with intubation and the action of the drugs themselves:

Nausea and vomiting;

Pain, swelling, or dryness in the throat, mouth;

Weakness, headache, and dizziness;

Mood swings;

Manifestations of allergies (rash and itching).

All manifestations are quite tolerant and pass quickly.

Endotracheal anesthesia helps to endure even a very complex operation without worry, pain and psychological stress. The safest option for general anesthesia is widely used in laparoscopic operations and in thoracic surgery, in cardio and neurosurgery. It is also used in plastic surgery during aesthetic and reconstructive operations.

Anesthesia can be local or general. Local anesthesia is used in minor surgery. For example, when removing papillomas, wen and moles, or when reinforcing the face. With local anesthesia, the patient is awake, but the operation area completely loses sensitivity.

General anesthesia is necessary for long and difficult operations. Under general anesthesia, the patient is immersed in a state of drug-induced sleep, and vital functions - breathing, cardiac activity - are controlled by an anesthesiologist. Anesthesia is always general anesthesia. The terms "local anesthesia" or "general anesthesia" are meaningless, although sometimes they can be found in publications and in everyday speech.

Intravenous administration of narcotic anesthetics, tranquilizers, sedatives (thiopental, recofol, sibazone, fentanyl). The introduction of muscle relaxants - drugs that block neuromuscular transmission, due to which complete relaxation of the striated muscles, including the respiratory one, is achieved. Potentiation of narcotic sleep with inhaled narcotic drugs. Recently, intubation anesthesia has rarely been supplemented with this component. Artificial ventilation of the lungs - the implementation of gas exchange in the body due to the ventilator.

Stages and drugs used

Multi-component anesthesia requires strict adherence to the staging of the procedure. The anesthesiologist-resuscitator interferes with the physiology of the cardiovascular and respiratory systems and uses potentially lethal drugs for purposes that are not initially curative. All stages are very important, so every little thing should be considered. Coming out of medication sleep or waking up are no less important stages than introducing or maintaining it. The direct procedure for endotracheal anesthesia is represented by:

Premedication - preparing the patient for immersion in medication sleep. Promedol, fentanyl, sibazon are used. Prevention of cardiac disorders during pain relief is represented by the administration of atropine;

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Introductory anesthesia - the direct introduction of the brain into a narcotic sleep with the help of barbiturates. Thiopental, hexenal, callipssol are used. All of them inhibit the function of the respiratory center; therefore, they are introduced gradually under the strict control of oxygenation;

Muscle relaxation - complete muscle relaxation. After the patient falls asleep and the body is adequately oxygenated, the relaxant ditilin is introduced, which is necessary for tracheal intubation. Long-term maintenance of relaxation is achieved by the introduction of arduan;

CONCLUSION

Endotracheal intubation - the introduction of a special plastic tube of the required diameter into the trachea. With its help, a free supply of a gas mixture of a certain composition and concentration to the lungs is carried out. At the end of the tube there is an air cuff that tightly overlaps the entrance to the airways, which prevents foreign objects from entering them (first of all, vomit);

Awakening - a gradual return of consciousness and spontaneous breathing. Only after full confidence in their presence can the endotracheal tube be removed.

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