

ЛД-21 ИИ

Federal State Budgetary Educational Institution
of Higher Education
"North Ossetian State Medical Academy"
of the Ministry of Health of the Russian Federation
(FSBEI HE NOSMA of the Ministry of Health of Russia)

Department of Anesthesiology, Intensive Care and Intensive Care

**METHODOLOGICAL RECOMMENDATIONS FOR PERFORMING
INDEPENDENT (EXTRACURRICULAR) WORK**

In the discipline «ANESTHESIOLOGY, RESUSCITATION, INTENSIVE CARE»

the main professional educational program of higher education - specialty program in the
specialty 31.05.01 General Medicine

Vladikavkaz

TASKS FOR INDEPENDENT WORK OF STUDENTS

TOPIC "FAINTING, COLLAPSE, COMA"

1. Questions to check the initial (basic) level of knowledge.

1. What is a coma
2. What is fainting
3. What is collapse

II. Objectives:

The student should know:

1. Etiological factors provoking simple fainting
2. Pathogenesis of simple syncope
3. Clinic of simple fainting
4. Etiological factors and pathogenesis of coma of various genesis
5. Etiological factors and pathogenesis of acute vascular insufficiency (collapse)
6. Acute vascular insufficiency Clinic

The student should be able to:

- * Make a diagnosis based on the clinical picture: fainting, collapse, coma.
- * To make a differential diagnosis between shock and collapse, fainting and coma, coma and collapse.
- * Determine the depth of the coma
- * Provide emergency care in case of fainting, collapse, coma.

Literature

Main:

1. Anesthesiology and resuscitation. Textbook for students of medical universities. /Edited by O.A.Dolina.- M.: GEOTAR-Media, 2006.
2. Guide to practical classes in anesthesiology, resuscitation and intensive care / Edited by N.M.Fedorovsky.-M., 2002.
3. Educational method. developed. for students. to practical classes "Fainting, collapse, coma. Poisoning". Vladikavkaz -2006.

Additional:

1. A guide for emergency physicians/Edited by V.A. Mikhailovich.-L.: Medicine, 1990.
2. Bogdanovich V.L. Intensive and emergency therapy in endocrinology. - M, 2000.
3. Intensive care. Resuscitation. First aid /Edited by V.D.Malyshov. - M, 2000.
4. Emergency neurological care in childhood / Edited by J.M. Pollock, E.K. Mayer. - M, 1989.
5. Ryabov GA. Syndromes of critical conditions. - M, 1994.
6. Sumin S.A. Urgent conditions. - M, 1997.

III. Tasks for independent work on the topic under study.

1. Make an algorithm for providing emergency care at the prehospital stage to a patient with loss of consciousness, acute vascular insufficiency.
2. Make up three test tasks on the topic under study according to the sample.
Emergency measures carried out at the prehospital stage in a comatose state:
A) ensuring airway patency and adequate ventilation;
B) the introduction of respiratory analeptics;
B) control and correction of hemodynamics;
D) the introduction of narcotic analgesics.
3. Make a situational task on the topic under study

TASKS FOR INDEPENDENT WORK OF STUDENTS

TOPIC "TYPES AND METHODS OF ANESTHESIA AT THE PREHOSPITAL STAGE"

2. Questions to check the initial (basic) level of knowledge.

1. The physiology of pain. Peripheral and central pathways of pain sensitivity.
2. Components of general anesthesia.
3. Types and methods of inhalation anesthesia. Clinical and pharmacological characteristics of inhaled anesthetics used at the prehospital stage: nitrous oxide, fluorotane, trilene. Advantages and disadvantages of the method.
4. Non-inhalation anesthesia. Clinical and pharmacological characteristics of non-inhalation anesthetics: propofol (diprivan), ketamine (calypsol), sodium oxybutyrate. Advantages and disadvantages of the method.
5. Opioid and non-opioid analgesics. Ataralgia. Neuroleptanalgesia. Clinical and pharmacological characteristics. Indications and contraindications for their use at the pre-hospital stage.

III. Objectives:

The student should know:

- * The physiology of pain, the effect of pain on body functions
- * Classification of pain relief methods
- * Pharmacology and pharmacodynamics of drugs used for pain relief.

The student must be able to:

- * Perform anesthesia for painful manipulations and traumatic injuries, colic, pain syndrome.
- * Use drugs for NLA and ganglioblockers in the treatment of acute heart failure

Literature

Mandatory:

1. Anesthesiology and resuscitation. Textbook for students of medical universities. /Edited by O.A.Dolina.- M.: GEOTAR-Media, 2006.
2. Guide to practical classes in anesthesiology, resuscitation and intensive care / Edited by N.M.Fedorovsky.-M., 2002.
3. Educational method. development for students. "General anesthesia at the prehospital stage." Vladikavkaz-2007.

Additional:

1. A guide for emergency physicians / Ed. Prof. V.A.Mikhailovich.- L.: Medicine, 1990.
2. Darbinyan T.M., Zvyagin A.A., Cytovsky Yu.I. Anesthesia and resuscitation at the stages of medical evacuation. - M., 1984.
3. Bugrov A.V. Emergency anesthesiology.- M., 1990.
4. Clinical anesthesiology. Reference book: Trans. from English / Ed. V.A. Gologorsky, - M., 2001
5. Michael F. Ferante, Timothy R. Weind Boncore. Postoperative pain. - M., 1998.
6. Practical guide to anesthesiology /Edited by V.V. Likhvantsev. - M., 1998.
11. Guide to anesthesiology /Edited by A.A. Bunyatyan.- M., 1994.

III. Tasks for independent work on the topic under study.

Give answers to the following questions:

The physiology of pain. Peripheral and central pathways of pain sensitivity.

Components of general anesthesia. General - inhibition of mental perception of pain, hyporeflexia, analgesia, neurovegetative blockade, muscle relaxation, maintenance of adequate blood circulation, regulation of metabolic processes;

Types and methods of inhalation anesthesia. Clinical and pharmacological characteristics of inhaled anesthetics that can be used at the prehospital stage: nitrous oxide, fluorotane, trilene. Indications and contraindications for their use at the pre-hospital stage.

Advantages and disadvantages of the method.

Non-inhalation anesthesia. Clinical and pharmacological characteristics of non-inhalation anesthetics possible for use at the pre-hospital stage. Barbituric acid preparations (hexenal, sodium thiopental), non-barbituric drugs: propofol (diprivan), ketamine (calypsol), sodium oxybutyrate. Advantages and disadvantages of the method.

Opioid and non-opioid analgesics. Ataralgesia. Neuroleptanalgesia. Indications and contraindications for their use at the pre-hospital stage.

Make up three test tasks on the topic under study according to the following sample:

1. Non-inhalation general anesthetics are administered most often: A - intravenously, B - intramuscularly, C - orally, D - rectally, D - subcutaneously, E - intraperitoneally.

Make a situational task on the topic under study.

TASKS FOR INDEPENDENT WORK OF STUDENTS

TOPIC "ACUTE RESPIRATORY FAILURE"

3. Questions to check the initial (basic) level of knowledge.

1. Etiology, pathogenesis, pathophysiological and clinical signs of acute respiratory failure.

II. Targets:

The student should know:

- * Etiology, pathogenesis, classification, pathophysiological and clinical signs of acute respiratory failure, stages of ODN.
- * Methods of resuscitation and intensive therapy for acute respiratory failure (partial tracheobronchial obstruction syndrome, respiratory biomechanics disorder, pathological lung conditions of central origin, etc.).
- * Indications and methods of oxygen therapy.
- * The methodology of auxiliary and artificial lung ventilation, indications for its implementation. Artificial ventilation of the lungs by the simplest methods "mouth to mouth", "mouth to nose", with an Ambu bag.
- * Indications for conicotomy, the technique of its implementation.

The student must be able to:

- * Provide emergency care for acute respiratory failure that has developed as a result of massive pneumonia, lung atelectasis, non-canceling asthma attack, aspiration syndrome, bronchospasm and laryngospasm, swelling of the sublingual space. Respiratory distress syndrome.

Literature

Main:

1. Anesthesiology and resuscitation. Textbook for students of medical universities. /Edited by O.A.Dolina.- M.: GEOTAR-Media, 2006.
2. Guide to practical classes in anesthesiology, resuscitation and intensive care /Edited by N.M.Fedorovsky.-M., 2002.

3. Educational method. development for students "Acute respiratory failure". Vladikavkaz-2006.

Additional:

- 1) Silber A.P. Respiratory failure. - M., 1986.
- 2) Intensive therapy. Resuscitation. First aid /Edited by V.D.Malyshev. -M., 2000.
- 3) Kassil V.L., Loskin G.S., Vyzhigina M.A. Respiratory support. - M, 1997.
- 4) Koryachkin V.A., Strashnov V.I. Anesthesia and intensive care (Handbook). - SPb., 2004.
- 5) Ryabov G. A. Syndromes of critical States. — M., 1994.
- 6) Sumin S. A. emergencies. — M., 1997.
7. Sykes M. K., Mac Nicol M, Campbell Ej. M. Respiratory failure. — M.: Meditsina, 1974.
8. Spirngs D., chambers, D., Jeffrey E. and Emergency treatment. — M.: Medicine, 2000.

III. Tasks for independent work on the topic under study.

1. Define acute respiratory failure
2. Determine the classification of ODN by etiological and pathogenetic characteristics.
3. Give a clinical classification of ODN, determine its stages by clinical and biochemical parameters.
4. Determine the nature of respiratory therapy depending on the etiological factor and the severity of ODN.
5. Make up three test tasks on the topic under study according to the following sample.
The most clear criteria for the adequacy of breathing are:
 - A) respiratory volume;
 - B) respiratory rate;
 - B) minute volume of alveolar ventilation;
 - D) indicators of RaO_2 and $RaSO_2$;
 - E) saturation of arterial blood with oxygen ($SatO_2$).
6. Make a situational task on the topic under study.

TASKS FOR INDEPENDENT WORK THE TOPIC OF "POISONING"

1. Questions to check the initial (basic) level of knowledge.

1. What ways of getting the poison into the body do you know
2. What are the different periods in the clinic of acute poisoning
3. What determines the degree of toxicity of the poison
4. What determines the detoxification ability of the body
5. What ways of natural and artificial detoxification of the body are known to you.

2. Target tasks:

The student should know:

1. Ways of getting toxic substances into the body.
2. Pathophysiology and clinic of poisoning with the most common poisons in everyday life: alcohol and its surrogates, sleeping pills and sedatives, FOS, chlorinated hydrocarbons, cauterizing liquids, carbon monoxide, mushrooms. The bite of poisonous snakes, insects.
3. General and special methods of treatment of acute poisoning
4. Features of intensive therapy for various acute poisoning
5. Pathophysiology, clinic, diagnostics, intensive therapy for food toxicoinfection, botulism, cholera.

The student must be able to:

- * On the basis of clinical and anamnestic data to establish the alleged nature of poisoning.
- If necessary, carry out specific (antidote) and non-specific - mandatory (gastric dialysis) detoxification therapy at the prehospital stage, forced diuresis.
- * Conduct symptomatic and post-syndrome therapy aimed at restoring and maintaining the main vital functions of the body.

Literature

Main:

1. Anesthesiology and resuscitation. Textbook for students of medical universities. /Edited by O.A.Dolina.- M.: GEOTAR-Media, 2006.
2. Guide to practical classes in anesthesiology, resuscitation and intensive care /Edited by N.M.Fedorovsky.-M., 2002.
3. Educational method. development for students. to the practical. classes "Fainting, collapse, coma. Poisoning". Vladikavkaz-2006.

Additional:

1. Koryachkin V.A., Strashnoe V.I. Anesthesia and intensive care (Handbook -St. Petersburg, 2004.
2. Kostyuchenko AL. Efferent therapy. - St. Petersburg, 2000.
3. Lopatkin NI., Lopukhin Yu.M. Efferent methods in medicine. - M., 1989.
4. Luzhnikov E.A. Clinical toxicology. - M., 1982.
5. Sumin S.A. Urgent conditions. - M., 1997.

III. Tasks for independent work on the topic under study.

1. Ways of getting toxic substances into the body.
2. Pathophysiology and clinic of poisoning with the most common poisons in everyday life: alcohol and its surrogates, sleeping pills and sedatives, FOS, chlorinated hydrocarbons, cauterizing liquids, carbon monoxide, mushrooms. The bite of poisonous snakes, insects.
3. General and special methods of treatment of acute poisoning.
4. Features of intensive therapy for various acute poisoning
5. Pathophysiology, clinic, diagnostics, intensive therapy for food toxicoinfection, botulism, cholera.
6. Make up three test tasks on the topic under study according to the sample.
With severe dichloroethane poisoning, the following are observed:
A - hypervolemia,
B - hemorrhagic diathesis,
B - pulmonary edema,
G - brain edema,
D OII OPN,
E - acute liver failure,
G- gastrointestinal paresis,
3 - gastrointestinal bleeding.
7. Make a situational task from which it would follow that the patient has exogenous poisoning.

TASKS FOR INDEPENDENT WORK OF STUDENTS
TOPIC "TERMINAL STATES. CARDIOPULMONARY RESUSCITATION AT THE
PREHOSPITAL STAGE"

4. Questions to check the initial (basic) level of knowledge.

1. Classification of terminal states.
2. Pathophysiological changes in terminal conditions.
3. Clinical death.
4. The sequence of resuscitation measures and intensive care methods when removing a patient from a state of clinical death.

5. Mechanisms of action of pacemakers, cardiovascular and antiarrhythmic agents.

II. Targets:

The student should know:

- 1) Know the pathophysiology of terminal conditions.
- 2) Determine indications and contraindications for cardiopulmonary resuscitation.
- 3) Causes of sudden circulatory arrest.
- 4) Clinical signs of sudden circulatory arrest.
- 5) Electrocardiographic changes in asystole, ventricular fibrillation, ineffective heart.
- 6) Mechanisms of action of pacemakers, cardiovascular and antiarrhythmic agents.
- 7) Know the clinical signs of the effectiveness of resuscitation measures.

The student should be able to:

- * Diagnose sudden circulatory arrest based on clinical symptoms.
- * Carry out the simplest resuscitation measures: restoration of airway patency, ventilation by mouth-to-mouth, mouth-to-nose injection, through an S-shaped tube, an AMBU bag and indirect heart massage.
- * To determine with the help of an ECG the type of cardiac arrest — asystole, ventricular fibrillation, ineffective heart.
- * Conduct therapy aimed at restoring independent heart contractions.
- * Conduct intensive therapy aimed at restoring brain functions in the early post-resuscitation period.
- * Determine indications for electrical defibrillation of the heart.
- * Be able to perform "chemical" defibrillation of the heart.
- * To carry out a complex of CPR with one and two resuscitators at the pre-hospital and hospital stages.
- * Provide assistance in case of drowning in fresh and sea water, electric trauma.

Literature

Main:

1. Anesthesiology and resuscitation. Textbook for students of medical universities. /Edited by O.A.Dolina.- M.: GEOTAR-Media, 2006.
2. Guide to practical classes in anesthesiology, resuscitation and intensive care /Edited by N.M.Fedorovsky.-M., 2002.
3. Doev V.D., Slepushkin V.D. "Modern algorithm of cardiopulmonary resuscitation". Study guide. Vladikavkaz-2016.

Additional:

1. Groer K., Covallaro D. Cardiopulmonary resuscitation. Trans. from English- M.: Praktika, 1996
2. Don H. Decision-making in intensive care: Trans. from English- M.: Medicine, 1995.

3. Zilber A.P. Clinical physiology in anesthesiology and resuscitation. - M.: Medicine. 1984.
4. Emergency conditions and emergency medical care / Edited by E.I.Chazov. - M.: Medicine, 1988.
5. Fundamentals of resuscitation / Edited by V.A. Negovsky.-M.:Medicine, 1975.
6. Resuscitation /Edited by G. N. Tsybulyak.- M.: Medicine, 1976.
7. Resuscitation at the prehospital stage / Edited by G. N. Tsybulyak. - L.: Medicine, 1980.
8. Safar P. Cardiopulmonary and cerebral resuscitation: Translated from English.- M.: Medicine, 1984.

III. Tasks for independent work on the topic under study.

Define preagonia, agony, clinical, social and biological death.

Circulatory arrest. Types of cardiac arrest. Causes, precursors, symptoms, diagnostics

Determine the stages and stages of cardiopulmonary resuscitation

Methods of cardiopulmonary resuscitation at the prehospital and hospital stages. Heart massage.

Types of massage - indirect (closed), methodology, performance indicators, complications. The simplest methods of cardiopulmonary resuscitation with the assistance of one and two resuscitators. Artificial ventilation of the lungs by the simplest methods "mouth to mouth", "mouth to nose", with an Ambu bag. Indications for conicotomy, the technique of its execution.

Electro-pulse therapy: defibrillation, cardioversion, electrical stimulation. Indications, methodology, performance indicators, complications; drug therapy.

Pharmacodynamics of substances used to restore the activity of the heart, indications for their use, doses, procedure and route of administration (intravenous, intratracheal). Infusion therapy during cardiopulmonary resuscitation.

Dependence of therapeutic measures on the type of cardiac arrest. The sequence of resuscitation measures and intensive care methods when removing a patient from a state of clinical death.

Drowning, electrical injury.

Methods of monitoring the condition of vital organs and body systems during resuscitation.

Monitoring.

Clinical signs indicating the onset of "brain death", biological death. Indications for termination of resuscitation measures.

Questions of deontology at the termination of resuscitation. Ethical and socio-legal problems associated with the termination of resuscitation.

The concept of a disease of a lively organism. Management of the patient in the early post-resuscitation period. Possible complications, their prevention and treatment.

Make up three test tasks for cardiopulmonary resuscitation according to the following sample:

Signs of clinical death are:

- 1) respiratory arrest;
- 2) lack of consciousness;
- 3) pupil dilation;
- 4) lack of pupillary reflex;
- 5) lack of pulse on the carotid arteries and blood pressure;
- 6) pallor and acrocyanosis;
- 7) seizures;
- 8) pathological types of breathing;

Make up a situational task from which the need for carrying out a complex of cardiopulmonary resuscitation to the victim (patient) would follow.

TASKS FOR INDEPENDENT WORK OF STUDENTS
TOPIC "RESUSCITATION AND INTENSIVE THERAPY FOR SHOCK OF VARIOUS ETIOLOGIES"

5. Questions to check the initial (basic) level of knowledge.

1. What are the components of the blood macrocirculation system
2. What are the components of the blood microcirculation system
3. What is cardiac output, what does it depend on
4. What determines the oxygen capacity of the blood
5. What is the role of the hypothalamic-pituitary-adrenal system in the regulation of cardiac output
6. What is a "Shock Index"

V. Target tasks:

The student should know:

- a. Physiology and pathophysiology of blood circulation
- b. Principles of treatment of hypovolemic shock of various etiologies

The student must be able to:

1. Provide emergency care for hypovolemic shock of various etiologies: traumatic, hemorrhagic, burn, anaphylactic, septic.
2. Conduct intensive therapy for shock, due to transfusion of incompatible blood.

Literature

Mandatory:

1. Anesthesiology and resuscitation. Textbook for students of medical universities. /Edited by O.A.Dolina.- M.: GEOTAR-Media, 2006.
2. Guide to practical classes in anesthesiology, resuscitation and intensive care /Edited by N.M.Fedorovsky.-M., 2002.
3. Educational and methodological development for students "Shock". Vladikavkaz - 2007.

Additional:

1. Zilber A.P. Clinical physiology in anesthesiology and resuscitation. -M, 1984.
2. Intensive care. Resuscitation. First aid /Edited by V.D.Malyshov. -M, 2000.
3. Koryachkin V.A., Terrible V.I. Anesthesia and intensive care (Handbook). - St. Petersburg, 2004.
4. Ryabov G.A. Syndromes of critical states. - M, 1994.
5. Sumin S.A. Urgent conditions. - M, 1997.
6. Shock: Theory, clinic, organization of anti-shock care /Under the general editorship of G.S. Mazurkevich, S.F. Bagnenko. - St. Petersburg, 2004.

III. Tasks for independent work on the topic under study.

1. Identify common measures in the treatment of hypovolemic shock of any etiology
2. Give a description of specific measures in the treatment of shock of various etiologies and pathophysiological reactions of the body characteristic of it.
3. Make up three test tasks on the topic under study according to the sample:

Signs of decompensated blood loss:

- A - cyanosis of the skin,
- B - thready pulse,
- B - excitation,
- G - Ht 35%,
- D - CVD 4 cm of water,

E - oliguria,

F - hypothermia,

3 - Algover index - 1.5.

4. Make a situational task from which it would follow that the patient (victim) clinical picture of hypovolemic shock.