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Master's Thesis

**FEATURES OF NURSING CARE AND EMERGENCY CARE
FOR PATIENTS WITH BLEEDING IN THE EMERGENCY
DEPARTMENT**

Master of Science in Nursing

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ABSTRACT

Bleeding is one of the most life-threatening complications of the body. It may be the result of trauma or damage to the arteries, veins and parenchymal organs; erosion of a large vessel in a purulent wound or ulcer; rupture of an aneurysmically dilated artery or venous varicose vein; as well as increased fragility or permeability of the walls of blood vessels, especially in conditions of violation of the blood coagulation system. However, two-thirds of injury deaths and most non-fatal injuries could have been avoided. To do this, it is necessary to timely and correctly provide emergency care to patients with life-threatening bleeding.

To date, we can say with confidence that not all aspects of this problem have been fully studied.

To determine the principles of providing emergency medical care to patients with bleeding in the emergency department, as well as to investigate the features of nursing care for patients with life-threatening bleeding.

To study the main clinical symptoms of external and internal bleeding, the principles of providing emergency medical care to patients with bleeding , the basic principles of bleeding prevention were used to clinical research methods, such as observation, comparison, measurement .

The results of the study deepen theoretical knowledge about the risk factors for bleeding in injuries and various diseases. This pilot study opens up new prospects for using the acquired knowledge to develop algorithms for the provision of medical care for bleeding.

The dissemination of the data obtained in medical institutions, as well as among relatives and close patients with the risk of bleeding, contributes to the widespread use of various methods for the prevention and treatment of life-threatening bleeding and saving the lives of patients.

As a result of the study, the authors made the following conclusions:

1. The study identified the main risk factors for bleeding.

2. In practice, the distinctive features of various types of bleeding and prognostic factors for the emergence of a threat to life during bleeding have been studied.

3. The regularities of the occurrence of bleeding as complications of other diseases have been studied.

4. The most effective methods of providing emergency care for bleeding have been studied.

5. The basic principles of bleeding prevention have been studied: when working with piercing and cutting instruments, observe safety rules; avoid injury; in the presence of chronic diseases, often consult a doctor to avoid complications in the form of bleeding.

CONTENT

LIST OF SYMBOLS.....	4
INTRODUCTION.....	5
CHAPTER 1. BLEEDING, FEATURES OF PROVIDING MEDICAL CARE FOR LIFE-THREATING BLEEDING (REVIEW OF LITERATURE).....	8
1.1. Classification of bleeding.....	10
1.2. Medical care for bleeding.....	16
CHAPTER 2. OBJECT AND METHODS OF INVESTIGATION	19
CHAPTER 3. MAJOR RISK FACTORS OF BLEEDING ASSOCIATED & COMPLICING THE MAIN DISEASE.....	23
3.1. In the event of gastrointestinal bleeding with pre-existing liver disease	23
3.2. Risk of bleeding during antithrombotic therapy.....	25
3.3. Uterine bleeding.....	32
3.4. Risk of gastrointestinal bleeding.....	37
3.5. Risk of pulmonary hemorrhage.....	42
CHAPTER 4. CLINICAL MANIFESTATIONS OF EXTERNAL AND INTERNAL BLEEDING OBSERVED IN THE EMERGENCY DEPARTMENT.....	46
4.1. Distinguishing features of different types of bleeding	46
CHAPTER 5. TECHNIQUE TO STOP LIFE DANGEROUS BLEEDING OF AN OPEN WOUND SURFACE.....	48
5.1. Features of assistance with external bleeding	48
5.2. Rules for imposing a tourniquet or twist... ..	56
CHAPTER 6. NURSING CARE FOR SMALL EXTERNAL BLEEDING.....	59

6.1. Basic rules to be observed when providing a patient with first aid	59
6.2. Features of medical care depending on the patient's type of external bleeding	61
CHAPTER 7. NURSING CARE FOR LIFE-THREATING INTERNAL BLEEDING.....	63
7.1. Features of nursing care and skilled care for life-threatening internal bleeding	63
CONCLUSIONS.....	66
BIBLIOGRAPHY	67

LIST OF SYMBOLS

BP - blood pressure

IB - internal bleeding

CB - capillary bleeding

MN - medical supervision

EB - external bleeding

EC - emergency care

OB - open bleeding

POB - prevention of bleeding

PB - pathological bleeding

PF - prognostic factors

CD - chronic diseases

INTRODUCTION

The relevance of research. In the emergency department, it is quite common to provide care to patients with various types of bleeding [1, 11, 33].

Bleeding from significant wounds or deep cuts requires medical attention. In addition to external bleeding, bleeding from internal organs is also noted. Any suspicion of internal bleeding requires urgent medical attention. Bleeding is a life-threatening condition, since without emergency care, the patient will end up dying.

Bleeding occurs with damage to internal organs and wounds, as well as spontaneously. Spontaneous bleeding is most often associated with diseases and lesions in the gastrointestinal or genitourinary tract.

With open bleeding (OB), blood flows out of an open wound, the development of traumatic shock is possible; the patient may experience cold sticky sweat, dizziness after injury; very fast pulse (rapid heart rate); dyspnea; confusion, decreased attention; weakness. This can lead to the death of the patient.

With internal bleeding (IB) , there may be pain in the abdomen, bloating; blood in stools (black, maroon, or bright red) or very dark stools blood in the urine (red, pink, tea-colored); vaginal bleeding (heavier than usual or after menopause); blood in vomit (looks bright red or brown, like coffee).

Particularly dangerous is a decrease in blood pressure (BP) (arterial hypotension) and shock during bleeding. With a long-term small volume of internal bleeding, iron deficiency anemia (decrease in hemoglobin).

Therefore, there are some features of nursing care [5, 6, 10] and emergency care for patients with bleeding [33].

The relevance of the study is also determined by the fact that in the WHO statistical reports [2] mortality from injuries, which is very often accompanied by life-threatening bleeding, remains at a high level. In a recent study published in the Lancet and in a new publication by the WHO Regional

Office for Europe, Regional Office experts estimate the severity of the burden of injuries: in the WHO European Region, about 800 000 people die each year as a result of injuries (8.3% of all deaths in the Region), which is, on average, almost 2,200 injuries per day or 90 per hour. For every injury death, there are approximately 30 hospitalizations and 300 outpatient visits to emergency departments [30, 37, 38, 39].

However, two-thirds of injury deaths and most non-fatal injuries could have been avoided. To do this, it is necessary to timely and correctly provide emergency care to patients with life-threatening bleeding.

To date, we can say with confidence that not all aspects of this problem have been fully studied.

Purpose of the study. To determine the principles of providing emergency medical care to patients with bleeding in the emergency department, as well as to investigate the features of nursing care for patients with life-threatening bleeding.

Research assignments . 1. To study the role of risk factors for bleeding among various categories of patients and healthy people .

2. Investigate the distinguishing features of various types of bleeding and prognostic factors for life-threatening bleeding.

3. To study the patterns of bleeding as a complication of another disease.

4. Investigate the most effective methods of emergency management of bleeding and learn the basic principles of bleeding prevention.

Object _ research. Nursing care and medical care for patients with life-threatening bleeding .

Subject of study. Factors in the occurrence of life -threatening bleeding and features of the provision of medical care to patients with bleeding in the emergency department .

Research methods: epidemiological, clinical (observation, comparison, measurement), statistical.

Scientific and practical significance of the study. The results of the study deepen theoretical knowledge about the risk factors for bleeding in injuries and various diseases. This pilot study opens up new prospects for using the acquired knowledge to develop algorithms for the provision of medical care for bleeding.

The dissemination of the data obtained in medical institutions, as well as among relatives and close patients with the risk of bleeding, contributes to the widespread use of various methods for the prevention and treatment of life-threatening bleeding and saving the lives of patients.

CHAPTER 1

BLEEDING, FEATURES OF PROVIDING MEDICAL CARE FOR LIFE-THREATING BLEEDING (REVIEW OF L AND TERRATURE)

Bleeding (hemorrhage) is the outflow of blood from the bloodstream due to damage to blood vessels or an increase in their permeability.

Bleeding is one of the most life-threatening complications of the body. It may be the result of trauma or damage to the arteries, veins and parenchymal organs; erosion of a large vessel in a purulent wound or ulcer; rupture of an aneurysmically dilated artery or venous varicose vein; as well as increased fragility or permeability of the walls of blood vessels, especially in conditions of violation of the blood coagulation system.

Bleeding - the release of blood outside the vascular bed or heart into the environment (external bleeding), into the body cavity or the lumen of a hollow organ (internal bleeding). Examples of external bleeding (EB) are metrorrhagia (uterine), melena (intestinal), internal hemopericardium, hemothorax, hemoperitoneum, hemarthrosis (respectively, into the cavity of the heart shirt, into the cavity of the pleura, into the abdominal and articular cavities).

The causes of bleeding can be divided into two groups: traumatic [37, 38] and pathological. Most often, the outflow of blood occurs due to injuries, namely, blows, bruises, cuts, fractures, etc. Pathological bleeding (PC) can occur in patients with atherosclerosis , cancer, syphilis , blood diseases, sepsis , etc. Sometimes the cause of hemorrhage is a sharp increase in blood pressure.

Depending on the environment of hemorrhage, there are:

Internal bleeding - this type of bleeding is characterized by an outpouring of blood into the body cavity or into the lumen of an organ.

External bleeding - blood flows out through the skin or mucous membranes.

Depending on the type of damaged vessels, the following types of bleeding are distinguished: **Arterial bleeding** - blood flows out of the arteries. You can recognize it by the bright red color of the blood, the stream of which flows continuously and pulsates to the beat of the heartbeat. If large arteries are affected, the blood beats with a "fountain".

Venous bleeding - blood flows out of the veins. The hallmark of bleeding from the veins is dark red blood. Due to the lower pressure in the veins, the blood stream does not pulsate and does not beat like a fountain, it flows out evenly and continuously.

Capillary bleeding (CB) - blood leaks from the capillaries. The most common and mild type of bleeding, which manifests itself as slowly flowing drops of blood over the entire surface of the wound. The color of blood in the capillaries is bright red, visually similar to the color of arterial blood.

Parenchymal bleeding (PB) - blood bleeds from the tissues of parenchymal organs (liver, spleen, kidneys, pancreas, etc.). Stopping this type of bleeding is difficult to implement, it is always abundant and almost always poses a threat to human life. **Mixed bleeding** - blood flows from the veins and arteries at the same time. A fairly common type of bleeding, characteristic of deep injuries. Any bleeding (except capillary) is potentially dangerous for human life, the level of danger depends on the amount of blood that has flowed out. If the amount of blood lost is more than 1000 ml, then blood loss is considered severe, more than 2500 ml - blood loss is fatal. Light blood loss is called if the volume of blood lost is less than 500 ml.

1.1. Classification of bleeding

What can cause bleeding? Here it is appropriate to note that there are also two fundamentally different types of them, based on the factor whether the normal vessel is damaged or the pathological condition arose against the background of the destruction of the altered vascular wall.

In the first case, bleeding is called mechanical, in the second - pathological.

The following main causes of bleeding can be distinguished:

Traumatic injuries [37, 38].

They can be thermal (from exposure to critical temperatures), mechanical (in case of a bone fracture, wound, bruise). The latter occur in various extreme situations: traffic accidents, railway and plane crashes, falls from a height, fights involving piercing objects, gunshot wounds. There are also industrial and domestic injuries.

Vascular diseases, including tumors (purulent tissue lesions with vascular involvement, atherosclerosis, hemangiosarcoma).

Diseases of the blood and liver coagulation system (hemophilia , von Willebrand disease, fibrinogen deficiency, hypovitaminosis K, hepatitis, cirrhosis).

General diseases. For example, diabetes mellitus, infections (viral, sepsis), lack of vitamins, poisoning cause damage to the vascular walls throughout the body, as a result, plasma and blood cells seep through them and bleeding occurs.

Ailments that affect various organs. Expiration of blood from the lungs can cause tuberculosis, cancer; from the rectum - tumors, hemorrhoids, fissures; from the digestive tract - ulcers of the stomach and intestines, polyps, diverticula, tumors; from the uterus - endometriosis, polyps, inflammation, neoplasms.

What threatens a person with bleeding?

One of the most important, but by no means the only function of blood is the transport of oxygen and nutrients. It delivers them to the tissues, and takes away metabolic products and carbon dioxide from them. With significant bleeding, there is a significant loss of this substance necessary for the body. The nervous system and the heart muscle are very sensitive to oxygen deficiency. The death of the brain with a complete cessation of blood supply to it occurs in humans and animals in just 5-6 minutes.

However, in addition to the direct loss of the precious oxygen-containing liquid, there is another problem. The fact is that it keeps the vessels in good shape and, with a significant loss of it, the latter subside. In this case, the blood remaining in the human body, which contains oxygen, becomes ineffective and can do little to help. This condition is very dangerous, it is called vascular shock or collapse. It occurs with acute severe blood loss .

The above-described consequences are life-threatening for the patient and develop very quickly after bleeding.



Blood performs a huge number of functions, among them the most important are maintaining the balance of the internal environment of the body, as well as ensuring the connection of organs and tissues with each other

by transferring various biologically active substances. Thus, billions of body cells exchange information and, as a result, can work smoothly. Bleeding to some extent violates the constancy of the internal environment of the body and the functions of all its organs.

Often, blood loss does not directly threaten the patient's life; this is observed in many diseases. In such cases, blood loss is chronic and mild. The replacement of outflowing blood occurs by the synthesis of plasma proteins by the liver and cellular elements by the bone marrow. Bleeding becomes an important diagnostic sign for recognizing the disease.

Signs of bleeding

General

Patient complaints:

Weakness, unmotivated drowsiness;

Dizziness;

Thirst;

Feeling of palpitations and shortness of breath.

The external symptoms of blood loss that are observed with any type of bleeding are as follows:

Pale skin and mucous membranes;

Cold sweat;

Increased heart rate;

Dyspnea;

Disorders of urination up to the complete absence of urine;

drop in blood pressure;

Frequent weak pulse;

Violations of consciousness up to its loss.

Local

External effusion of blood

The main local symptom is the presence of a wound on the surface of the skin or mucous membrane and a visible outflow of blood from it. However,

the nature of bleeding is different and is directly dependent on the type of vessel.

Capillary is manifested by the fact that the blood is collected in large drops, oozing from the entire surface of the wound. Its loss per unit of time is usually small. Its color is red.

Signs of venous bleeding: blood can bleed out fairly quickly when a large vein is injured or several at once, it drains from the wound in strips. Its color is dark red, sometimes burgundy. If the large veins of the upper body are damaged, intermittent discharge of blood from the wound may be observed (however, *the rhythm is synchronized not with the pulse, but with respiration*).

Signs of arterial bleeding: blood pours out from the injury site in pulsating shocks - "fountains" (their *frequency and rhythm coincide with heartbeats and pulse*), its color is bright scarlet, red. The loss of blood per unit of time is usually rapid and significant.

Manifestations of occult bleeding

From the lungs - blood is excreted with a cough (a symptom of hemoptysis), it is frothy, the color is bright red.

From the stomach - brown color (hydrochloric acid of gastric juice reacts with blood, the latter changes color). There may be clots.

From the intestines - feces acquire a dark brown or black color and a viscous, viscous consistency (tar-like stools).

From the kidneys and urinary tract - urine becomes red (from a brick shade to brown with "rags" - clots and pieces of tissue).

From the uterus and genitals - the blood is red, often in the discharge there are pieces of the mucous membrane.

From the rectum - scarlet blood drops can be found on the feces.

Signs of internal bleeding

There is no outflow of blood into the environment. There are general symptoms of blood loss.

Local manifestations will depend on the site of damage to the vessel and in which body cavity the blood accumulates.

In the ventricles of the brain - loss of consciousness or confusion, local disturbances in motor functions and / or sensitivity, coma.

In the pleural cavity - chest pain, shortness of breath.

In the abdominal cavity - abdominal pain, vomiting and nausea, muscle tension of the abdominal wall.

In the cavity of the joint - its swelling, pain on palpation and active movements.

Can the body deal with bleeding?

Nature has provided for such a possibility that the fragile and delicate living tissues of the body will be injured during a long life. This means that a mechanism is needed to resist the outflow of blood from damaged vessels. And people have it. The composition of blood plasma, that is, the liquid part that does not contain cells, contains biologically active substances - special proteins. Together they make up the blood coagulation system. It is assisted by special blood cells called platelets. The result of complex multi-stage blood coagulation processes is the formation of a blood clot - a small clot that clogs the affected vessel.

In laboratory practice, there are special indicators that show the state of the blood coagulation system:

Duration of bleeding- An indicator of the duration of blood outpouring from a small standard injury inflicted with a special stylet on a finger or earlobe.

Blood clotting time - shows how long it takes for blood to clot and form a clot. It is carried out in test tubes.

The norm of bleeding duration is three minutes, blood clotting time is 2-5 minutes (according to Sukharev), 8-12 minutes (according to Lee White).

Often, the injury or damage to the vessel by the pathological process is too extensive and the natural mechanisms for stopping bleeding cannot cope,

or the person simply does not have time to wait due to the threat to life. Without being a specialist, it is difficult to assess the condition of the victim, and the treatment tactics will be different depending on the cause.

Therefore, a patient with severe bleeding from a vein or artery is subject to urgent delivery to a medical facility. Before that, he must be given emergency care. To do this, you need to stop the bleeding.

1.2. Medical care for bleeding

The most dangerous damage in the human body is damage to blood vessels, leading to bleeding. About 5 liters of blood circulate in the human body, the loss of more than half is considered life-threatening.

With internal bleeding, the amount and intensity of blood flow are not visible, while a person without a medical education will not be able to determine which organ is damaged. But with external bleeding, anyone who knows the basics of first aid for bleeding can provide first aid [7, 13].

Types of external bleeding:

1. *Capillary* - they are quite common and are the safest. They occur when the upper layer of the circulatory system, the capillaries, is damaged. With such an injury, the blood flows slowly and gently, which helps it quickly clot and clog the wound. Such wounds heal quickly and do not pose a mortal danger. Infection occurs only in 0.01% of cases [19, 22].

Capillary bleeding is stopped by simply applying an adhesive plaster or bandage to the damaged skin. From folk methods, plantain and strawberry leaves, as well as coltsfoot, are suitable. As a mild pain reliever, mint or lemon balm leaves can be used.

2. *Venous* - a more severe type of bleeding, in which the vessels that carry the spent blood to the heart from all organs are damaged. Venous blood is dark in color and viscous and thick in characteristics, due to which it comes out slowly and evenly.

But even in this case, you should not panic, because with the right first aid, the blood stops easily.

To do this, apply a pressure bandage to the problem area, which may consist of a dressing bag, a bandage, and in their absence, a piece of tissue.

3. *Arterial* bleeding is dangerous, because bright red, liquid blood flows through the vessels-arteries leading from the heart, which is why it runs from

the wound in a gushing stream in the rhythm of the heartbeat. As a result of this, rapid and profuse blood loss, vasospasm and, as a result, loss of consciousness occur.

It takes about 1-2 minutes to save a person. During this time, the blood flow must be stopped, which, in principle, is not so difficult. To begin with, you can simply strongly pinch the arteries above the wound with your fingers.

However, it is possible to hold the wound with tense fingers for a short time, so it is better *to apply a tourniquet* if an arm or leg is injured. To do this, the place above the wound is pulled over with a tourniquet or a long rope, belt, strip of fabric. Place a piece of paper under the tourniquet, on which you need to indicate the exact time of application.

If before this time, the patient has not come under the supervision of doctors, then it is necessary to loosen and move the tourniquet higher every 1.5 - 2 hours in order to avoid tissue death.

Another effective method is *constriction of a limb*. To do this, the limb is tightly bent at the joint (elbow, hip or knee), placing a pelota under the bend - a dense but non-rigid object, such as an unwound bandage. After that, the limb is fixed with a belt or rope.

In case of bleeding accompanied by a fracture, the previous methods are not suitable. You can only apply a very tight pressure bandage.

Rules for applying bandage bandages:

the victim must take a comfortable position;

you can give painkillers;

monitor the reaction of the victim, distract, soothe, talk to him;

bandage from the periphery to the center;

the area of the dressing should exceed the area of the wound surface;

each next circle of the bandage should overlap the previous one by half.

These are the simple rules for providing first aid for bleeding [14-18, 21, 23].

CHAPTER 2

OBJECT AND METHODS OF INVESTIGATION

to study the peculiarities of nursing care and emergency care for patients with bleeding in the emergency department it is necessary to define the principles of providing emergency medical care to patients with bleeding in the emergency department, as well as to investigate the features of nursing care for patients with life-threatening bleeding, and to study the patterns of bleeding as a complication of another disease, and to investigate the most effective methods of emergency care (ER) in case of bleeding and learn the basic principles of bleeding prevention .

To perform these tasks, we used methods [20]: analysis of reviews [3] of data from scientific studies in this field, epidemiological [26], clinical, which includes observation, comparison, measurement, and statistical [21, 23, 24, 25] .

Therefore, a study of the scientific literature was conducted [3], which discusses the basic principles of bleeding classification, the main clinical symptoms of external and internal bleeding, the principles of emergency medical care for patients with bleeding, the basic principles of bleeding prevention.

A modern scientific review answers a clearly formulated topical issue, reflects scientific directions, searches in a certain period using certain research methods. Such an article presents systematically obtained data from pooled studies, and if they are homogeneous, meta-analysis is possible.

All specialists suffer from the limitations of their knowledge, which goes hand in hand with specialization - the deepening of knowledge in their field [13] . All physicians and nurses working in broad fields, such as internal medicine, family medicine, are faced with an overwhelming amount of information relevant to their work. Therefore, all doctors and nurses need to generalize the results of scientific research [59, 60] .

The method that allows you to study the prevalence of pathology among the population is called the epidemiological method . This is a set of methodological techniques based on an analysis of the distribution of diseases in space and time and designed to identify prevention problems, causes, conditions (risk factors) and mechanisms for the formation of morbidity in order to justify measures to prevent diseases and evaluate their effectiveness. [26] .

Within the framework of the epidemiological method, four groups of methodological methods are combined: 1) descriptive and evaluative; 2) analytical; 3) experimental; 4) prognostic.

Descriptive-evaluative (descriptive) methodological techniques allow, on a quantitative basis, to identify diseases that are characterized by the greatest epidemiological, social and economic significance. At this stage of the work, data from the official registration of morbidity are used. Epidemiological significance is determined by the levels of morbidity in the population. Social significance is assessed by a set of negative phenomena that have arisen in society in connection with the spread of a particular disease. Economic importance indicates the costs incurred by society as a result of disease and the implementation of prevention and control measures. In some cases, to prove the significance of the disease, in addition to official registration data, it is advisable to conduct a cross-sectional study. A cross-sectional study is understood as a one-time determination in a population of people of any sign indicating the prevalence of a particular disease.

Analytical methodological techniques consist in formulating and testing hypotheses about the causes that led to the spread of morbidity. As a result of analytical work, it is necessary to identify the causes and conditions (risk factors) that led to morbidity, to reveal the mechanism of the influence of causes on morbidity, and also to find such variables in the causes that can be influenced by available anti-epidemic measures.

To study the main clinical symptoms of external and internal bleeding, the principles of providing emergency medical care to patients with bleeding, the basic principles of bleeding prevention were used to clinical research methods, such as observation, comparison, measurement.

Observation - descriptive research method, which consists in a purposeful and organized perception and registration behavior studied object. Observation is an organized, purposeful, fixed perception of mental phenomena with the aim of studying them under certain conditions. Together with introspection observation is considered the oldest method and is often used in clinical settings [8, 45].

Scientific observation has become widely used since the end XIX century, in areas where the fixation of the characteristics of human behavior in various conditions is of particular importance, - in clinical, social, educational psychology, developmental psychology, and from the beginning XX century - in labor psychology.

Surveillance is used where intervention experimenter disrupt the process of human interaction with the environment. This method is indispensable when it is necessary to obtain a complete picture of what is happening and reflect the behavior of individuals in its entirety.

Observation is a purposeful, organized and in a certain way fixed perception of the object under study. The results of fixing the observation data are called the description of the object's behavior. Surveillance is used when it is either impossible or inadmissible to interfere with the natural course of the process.

It can be: direct and indirect, in external and internal, included (which can be open and closed) and not included, direct and indirect, with solid and selective (according to certain parameters), field (in everyday life) and laboratory.

By systematic distinguish: non-systematic observation [23], in which it is necessary to create a generalized picture of the behavior of an individual or a

group of individuals under certain conditions and the goal is not to fix causal dependencies and give strict descriptions of phenomena; systematic observation, carried out according to a certain plan and in which the researcher registers the features of behavior and classifies the conditions of the external environment.

Non-systematic observation is carried out in the course of field research (used in ethnopsychology, developmental psychology, social psychology). Result: creation of a generalized picture of the behavior of an individual or a group under certain conditions.

Systematic monitoring is carried out according to a specific plan. Result: registration of behavioral features (variables) and classification of environmental conditions.

The statistical method of research is necessary for any research for the processing of digital data.

The object of study in applied statistics is statistical data obtained as a result of observations or experiments.

Statistical data is a set of objects (observations, cases) and features (variables) that characterize them [4, 9].

CHAPTER 3

MAIN RISK FACTORS FOR BLEEDING ASSOCIATED WITH AND COMPLICATING THE MAJOR DISEASE

In the course of scientific research, we have observed various types of bleeding, each of which has its own specific risk factors .

Very often, life-threatening bleeding is a complication of the underlying disease.

3.1. In the event gastrointestinal bleeding with liver disease

Chronic liver diseases are a serious socio-economic, clinical and epidemiological problem of public health in all countries of the world. According to the World Health Organization, there are more than 2 billion people in the world who have signs of a current or completed infection with the hepatitis B virus, including more than 400 million chronic carriers of the virus, more than 170 million patients with chronic hepatitis C, more than 500 thousand cases are detected annually. cases of primary liver carcinoma (Radchenko V.G., Shabrov A.V., 2000).

In recent years, there has been a steady increase in the incidence of viral hepatitis and, accordingly, cirrhosis of the liver. Chronic liver diseases lead to permanent disability and, consequently, to huge socio-economic damage. One of the most dangerous conditions in portal hypertension is gastrointestinal bleeding, which complicates the course of the disease in 40% of patients, and the recurrence rate of bleeding reaches 90%. Mortality in the first bleeding from varicose veins (VRV) of the esophagus and stomach is 60% (Burroughs A.K., 1993; Paquet K.-J., 1983, Andreev G.N. et al. 1991; Borisov A.E., 1989). Such a high risk of this complication and low survival determine the need to follow therapeutic tactics for esophagogastric bleeding of portal origin, which

should be based on knowledge of the pathogenesis of their occurrence and a differentiated approach to the treatment of this category of patients.

Most authors agree that patients with a high risk of bleeding should undergo primary prevention, but the problem of identifying this group of patients and choosing the most reliable way to prevent the first bleeding remains unresolved. Currently, in order to prevent recurrence of bleeding, endoscopic interventions are becoming more common. Risk factors for bleeding are abnormal liver function, the degree of varicose veins and the detection of reddish dots on the surface of varicose veins. With the first bleeding from varicose veins of the esophagus and stomach, the mortality rate is 20%. They depend on the massiveness of bleeding and the functional state of the liver.

With compensated cirrhosis of the liver, the mortality of patients with the first bleeding remains within 15%, while with decompensated cirrhosis it increases to 70%. The prevalence of varicose changes and their localization also affect mortality rates. With combined localization of varicose veins in the esophagus and fundus of the stomach and with isolated varicose veins of the fundus of the stomach, the frequency of deaths (55 and 78%, respectively) exceeds that with isolated localization of varicose veins in the esophagus (24%). Patients who successfully endured the first episode of bleeding from varicose veins of the esophagus and stomach are at high risk of repeated episodes of bleeding.

3.2. Risk of bleeding during antithrombotic therapy

In the elderly, many common diseases of the cardiovascular system, such as coronary heart disease, atrial fibrillation, heart defects, arterial hypertension, and vascular atherosclerosis, are accompanied by a high risk of intravascular thrombosis and require antithrombotic therapy.

This raises a number of questions related to the appointment of this therapy to patients of the older age group, since drug hypocoagulation with drugs such as Warfarin requires regular monitoring of the International Normalized Ratio (INR), assessment and determination of the risk of hemorrhagic danger.

Concomitant diseases and their therapy can affect the hypocoagulant effect of Warfarin, thereby increasing the possibility of bleeding. In this regard, in elderly patients, it is necessary to assess the degree of overall risk, namely the benefit / risk ratio. These patients are known to be more difficult to visit polyclinics to determine INR, cognitive decline can lead to reduced compliance and inability to assess drug and food interactions.

However, recent studies on the use of hypocoagulant therapy in the elderly revealed no significant effect of age, gender, social status, mobility, indications for anticoagulant therapy on the final result of treatment [27, 29,].

Bleeding is one of the most common complications of warfarin treatment. Before starting therapy, it is extremely important for the practitioner to assess the potential benefit of preventing thrombosis and the potential harm from a possible hemorrhagic manifestation.

Minor bleeding. In most cases, the manifestations of bleeding are not clinically significant, but patients respond to nosebleeds, bruising, and prolonged bleeding from cuts, such as shaving. Patients need to be aware of these manifestations and that they are normal during anticoagulant therapy. It should be noted that menorrhagia as a serious clinical problem is quite

rare.

More serious problems. Serious problems may require medical attention. Such situations mainly occur at high rates of INR.

Spontaneous bruising or bleeding that is difficult to stop, overt hematuria, any signs of gastrointestinal bleeding, or hemoptysis require urgent investigation. In most cases, in addition to an increase in INR, the underlying cause of bleeding is a concomitant pathology.

For example, a patient with recurrent hemoptysis may have hereditary telangiectasia. In this regard, in cases of repeated bleeding, a deeper examination of the patient should be assumed. Equally important is the interaction of Warfarin with other drugs.

Patients should be aware that not only are aspirin and non-steroidal anti-inflammatory drugs especially dangerous when combined with warfarin, but supposedly harmless drugs such as paracetamol can affect bleeding tendency. In such cases, all concomitant therapy should be carefully reviewed, especially those drugs that the patient may be taking without medical prescription.

Bleeding frequency. The likelihood of serious bleeding, in which patients enter the intensive care unit, may be exaggerated. The annual incidence of deaths as a result of the use of Warfarin was estimated at the level of 1%. However, these figures are based on outdated, hard-to-proven data. A more realistic figure for the last 10-15 years is about 0.2%, which is associated with an overall improvement in the control of ongoing hypocoagulation. It should be noted that accurate registration of bleeding episodes and severity is complicated by different methodological approaches to their classification. For example, some investigators have rated bleeding in hospital admissions who received up to 4 units of blood as "minor". Undoubtedly, the most serious of the "significant" bleeding are intracranial hemorrhages. A review of observational and experimental studies showed an annual rate of 0-4.8% for fatal and 2.4-8.1% for "significant" bleeding. Minor bleeding events are

much more common, with about 15% of patients experiencing at least one such episode per year [27, 33, 34].

risk factors for bleeding. Age is the main factor that increases the risk of bleeding. It is known that for every decade of life after the age of forty, the risk of all and major bleeding increases by 32 and 46%, respectively.

Previous studies have correlated bleeding with an increase in INR target. However, some of them presented results in both INR and prothrombin time, which contributed to difficulties in data interpretation. The actual assessment of possible bleeding, based on the degree of coagulation suppression, should be based on the determination of the INR.

A group of Italian researchers followed up 2745 patients treated with anticoagulant therapy for a total of 2011 patient-years. The results of the study indicate a lower incidence of bleeding, with an overall value of 7.6 per 100 patient-years. The confirmed rate of fatal outcomes, major and minor bleeding was 0.25, 1.1 and 6.2 per 100 patient-years, respectively.

This analysis also confirmed the dependence of the risk of bleeding on age, concomitant damage to peripheral and cerebral arteries, and also revealed a significant increase in risk during the first 90 days of therapy. In addition, it has been shown that with INR values more than 4.5, the relative risk of bleeding is 7.9 (95% CI 5.4-11.5, p) Before prescribing oral anticoagulants, the following questions should be answered:

- Are there direct indications (eg atrial fibrillation)?
- Is there a high risk of bleeding or serious contraindications to anticoagulant use?
- Is there a risk of bleeding with concomitant therapy?
- Are there difficulties in adhering to a medication regimen or visiting a polyclinic for INR control?
- Is regular evaluation of the patient available to identify additional risk factors for bleeding?

Excessive hypocoagulation. Excessive hypocoagulation without bleeding or with slight bleeding is eliminated by dose reduction or temporary discontinuation of the drug. The risk of bleeding is significantly reduced with

a decrease in INR from 3.0-4.5 to 2.0-3.0. If clinically significant bleeding occurs, 2.5 mg of vitamin K1 may be needed. In patients with artificial valves, the indications for the use of vitamin K1 should be strictly evaluated due to the risk of possible hypercoagulability caused by it. In addition to vitamin K1, to suppress unwanted hypocoagulation, concentrates of the prothrombin group of blood coagulation factors, fresh frozen plasma at the rate of 15 ml / kg, and also recombinant factor VIIa are used.

The main side effect of aspirin is the possibility of serious stomach bleeding. Its risk is related to the dose of the drug. Currently, there is no consensus on the optimal dosage of aspirin in order to prevent cerebrovascular accidents in atrial fibrillation. A meta-analysis of controlled trials of aspirin showed that an average dose of 273 mg/day increased the absolute risk of hemorrhagic stroke by up to 12 events per 10,000 people. This relatively small increase is comparable to a reduction in the risk of myocardial infarction (up to 137 complications per 10,000 people) and ischemic disorders (up to 39 complications per 10,000 people). However, in one study in patients with well-controlled hypertension, aspirin 75 mg prevented 1.5 myocardial infarctions per 1000 patients per year and did not cause additional hemorrhagic complications, which is an additional benefit from pressure reduction.

Although there was no increase in fatal complications from bleeding (seven out of ten patients taking aspirin compared to eight in the placebo group), there was a 1.8% increase in non-fatal major bleeding events (129 complications in patients taking aspirin compared to 70 in the placebo group). placebo group) and minor bleeding (156 and 87, respectively).

Risk of bleeding. The main risk factors for bleeding while receiving anticoagulant treatment include advanced age (over 75 years), intensity of hypocoagulation (INR over 4.0-4.5), cerebrovascular disease, and concomitant use of drugs that affect hemostasis (aspirin or non-steroidal anti-inflammatory drugs) .

In general, the elderly are hypersensitive to the anticoagulant effects of warfarin and require a lower average daily dose to reach the INR therapeutic window. For example, patients over 75 years of age require less than half the dose of warfarin compared to patients under 35 years of age to achieve the same level of hypocoagulation [34, 35].

Since there is an exponential risk of bleeding with a linear increase in hypocoagulant exposure, there is a significant increase in the risk of bleeding with excessive hypocoagulation. For example, the annual risk of bleeding increases from 1.6% in older people not treated with anticoagulants (based on the Sixty-Plus study) to 5% (relative risk 3) at an INR of 2.5 to 50% (relative risk 30) at INR 4.0.

In another study, the total number of bleeding complications was 39% in a group of 31 patients with an INR of 7.0 compared with 13% in a group of patients with a stable INR (odds ratio 5.4, 95% CI 2.1-13.9). It should be noted that an additional risk of bleeding is determined by concomitant antibiotic therapy for four weeks.

Risk factors for bleeding while taking warfarin include:

- age over 75;**
- uncontrolled hypertension (systolic blood pressure over 180 mmHg and diastolic blood pressure over 100 mmHg);**
- acute or chronic alcohol abuse, liver disease;**
- violation of the regimen of taking the drug or the schedule of visiting the clinic;**
- recent bleeding from the gastrointestinal tract or hemorrhagic stroke;**
- tendency to bleeding as a result of coagulation defects, thrombocytopenia;**
- INR instability or INR over 3.0.**

Polypharmacy is known to be widespread these days, leading to undesirable drug interactions. Typical interactions of drug exposure include changes in absorption and metabolism in the liver.

Patients should be warned about the risk of interaction with warfarin therapy. Cognitive deterioration in some older patients may mean that they are not aware that certain drugs may interact with anticoagulants and they do not inform their healthcare providers of concomitant therapy.

Also, older people are less likely to visit the clinic for INR control, which in turn has a negative impact on maintaining a stable INR. Many diseases related to cerebrovascular accident and thromboembolism are more common in elderly patients. They are at increased risk, and appropriate hypocoagulant therapy can reduce morbidity and mortality [35, 36, 40].

To successfully address this problem, a thorough evaluation of patients must be carried out to ensure that the risk of bleeding in this patient population does not outweigh the benefits of hypocoagulation.

3.3 . Uterine bleeding

In medicine, uterine bleeding is usually called dysfunctional uterine bleeding, which is pathological, abundant blood discharge from the uterus [12, 13].

They are one of the most striking manifestations of hormonal dysfunction in women. Therefore, the main cause of uterine bleeding most often lies in the violation of the production of female sex hormones. This pathology can be in any woman, at any age, so uterine bleeding is classified according to age as follows: Uterine bleeding at the age of 12-18 years - during puberty or juvenile age.

During the reproductive age of 18-45 years.

In menopause 45-55 years, when the function of the ovaries fades away. Symptoms or signs of uterine bleeding are expressed either by a significant discharge of blood during menstruation, or an increase in the duration of menstruation, as well as acyclic bleeding or metrorrhagia, when there is no menstruation for 6 to 8 or more weeks, and then bleeding of varying intensity develops.

At any age, a characteristic symptom of bleeding in a woman is prolonged heavy discharge lasting more than a week with signs of anemia, confirmed by a blood test and the following symptoms:

Weakness, fatigue, dizziness, headaches, poor skin, hypotension - low blood pressure

What does abundant discharge mean is when a tampon is filled in an hour or a pad is completely wet, if you have to change pads even at night. Sometimes a woman is not able to go to work, cannot do household chores, and most of the time she is forced to lie down and rest.

In addition to intensity, during bleeding, the discharge is distinguished by the presence of a significant number of blood clots.

Bleeding is also considered bleeding after intercourse. If menstruation lasts more than a week with significant pain in the lower abdomen and back pain.

Causes of uterine bleeding [12]

Consider the causes of dysfunctional uterine bleeding depending on the age of the woman, since at different periods of a woman's life, the risk factors for bleeding are different. Uterine bleeding at the age of 12-18 years

In this period, uterine bleeding appears in almost 20% of all gynecological pathologies in girls, this is due to a violation of the formation of hormonal regulation for a number of reasons:

Provoking factors are mental or physical trauma

Hypovitaminosis, malnutrition

Violations of the functions of the adrenal cortex and thyroid gland

Various serious childhood infectious diseases also affect the occurrence of signs of uterine bleeding in pubertal girls - influenza, chronic tonsillitis, chickenpox, measles

If a girl was born to a mother with a complicated pregnancy and pathological childbirth.

Rarely, but there are cases when bleeding disorders or tuberculosis of the female genital organs are the cause of bleeding.

Causes of uterine bleeding in women of reproductive age In childbearing age, this pathology among all gynecological diseases is only 5% of cases.

As a rule, uterine bleeding is accompanied by ovarian dysfunction, the causes of which are a number of provoking factors:

Stressful situations, chronic neuropsychic stress, overwork

Occupational hazard, living in cities with developed chemical and metallurgical industries

Changing of the climate

Various inflammatory and infectious diseases of the female reproductive system, which lead to thickening of the ovarian capsule, and also reduce the sensitivity of their tissues to gonadotropins, as well as:

Chronic endometritis, uterine endometriosis, fibroids, polyps and malignant neoplasms of the cervix and uterus itself, ovarian tumors

Surgical or medical termination of pregnancy, miscarriage, ectopic pregnancy

The use of drugs that cause dysfunction of the hypothalamus-pituitary system.

Uterine bleeding of menopause This is the most common pathology that occurs in premenopausal women - 15% of all gynecological diseases in this age category.

This is due to a natural decrease in gonadotropins secreted by the pituitary gland, therefore, during menopause, the release of hormones occurs irregularly, disrupting the cycle of ovulation, the development of the corpus luteum, and folliculogenesis.

Especially often, uterine bleeding accompanies menopausal syndrome - in 30% of cases, when the signs of menopause are significantly pronounced and intense in women.

With a progesterone deficiency characteristic of the menopause, hyperestrogenism and proliferation of the endometrium develop.

Common causes of uterine bleeding:

Thyroid dysfunction - with diseases such as hyperthyroidism and hypothyroidism, the risk of symptoms of uterine bleeding increases.

Violation of the hormonal background. This is the most common cause of uterine bleeding in young girls and women over 45 years of age. With a normal hormonal background, when the balance between progesterone and estrogen is optimal, blood loss during menstruation is usually minimal. When this imbalance is disturbed, uterine bleeding occurs.

Diseases of the circulatory system. With a decrease in the level of platelets, as well as with other blood diseases, bleeding in women is also possible.

Myoma of the uterus. Especially severe bleeding opens in women with internal uterine myoma, when the only way out is surgery.

Adenomyosis. This disease is characterized by the fusion of the inner and muscular layers of the uterus, menstruation with adenomyosis becomes painful, prolonged and plentiful, since the menstruating area grows significantly.

Polyps. These are benign formations that often occur in women of childbearing age. With a significant number or size of them, their removal is indicated, since they are the cause of uterine bleeding and painful menstruation.

Ectopic pregnancy, miscarriage, premature detachment of the placenta. These complications during pregnancy have recently been quite common in women. With any bloody discharge during pregnancy, a woman should immediately call an ambulance, since bleeding can threaten the life of not only the baby, but also the expectant mother.

Malignant neoplasms of the genital organs. This is the most serious cause of possible bleeding, and regardless of the location of the tumor - the uterus, cervix, ovaries, with any bleeding, a woman should first of all exclude cancer, since in our time oncological tension increases every year, and no longer has clear age limits , oncology occurs in both very young women and in women during menopause.

Breakthrough uterine bleeding. This reason is directly related to the use of intrauterine contraceptives - spirals or the use of hormonal contraceptives. The risk of bleeding especially increases after the simultaneous use of both contraceptives and anticoagulants (aspirin). Breakthrough bleeding may be minor when hormonal contraceptives are started as an adaptation to the drug. In these cases, the dosage should be reviewed or the drug should be

discontinued, if this does not help, then another cause of uterine bleeding should be sought.

Also, blood loss occurs against the background of damage to the uterus by an intrauterine device, and it should be removed as soon as possible. If something unusual happens during menstruation, in the middle of the cycle, during pregnancy or the premenopausal period, with the slightest suspicion of incipient bleeding, a woman should immediately contact her gynecologist for advice, examination and establishment of the true cause of uterine bleeding, since only knowing the exact diagnosis can begin adequate and timely treatment.

For emergency symptomatic treatment of uterine bleeding, experts recommend the following hemostatic drugs: etamsylate, vikasol, dicynone, aminocaproic acid, calcium preparations.

3.4 . Risk of gastrointestinal bleeding

Bleeding is possible in any part of the gastrointestinal tract, from the mouth to the anus. A characteristic symptom is the presence of blood in the stool or vomit.

Bleeding is hidden, in this case it is detected only with the help of tests. Bleeding from the organs of the digestive tract can exacerbate diseases accompanied by increased bleeding.

With gastrointestinal bleeding, vomiting of blood (hematemesis), the appearance of black feces (melena) and the release of scarlet blood from the rectum are possible.

Black feces indicate bleeding from the high parts of the digestive tract - the stomach or duodenum. It is a consequence of exposure to the blood of stomach acid and bacteria, which lasted for several hours before defecation.

The excretion of 60 ml of blood can lead to the appearance of black feces. After a single heavy bleeding, black stools persist for a week, but this does not necessarily indicate that the bleeding continues.

With prolonged bleeding, symptoms of anemia may appear: fatigue, unnatural pallor, chest pain , dizziness . Diagnostic value is the measurement of blood pressure in the supine and sitting or standing positions. Even with moderate anemia in an upright position, the pressure decreases.

Significant blood loss is indicated by symptoms such as an increase in heart rate, a decrease in blood pressure , and a decrease in urination. The patient has cold clammy hands and feet. Reduced oxygen delivery to the brain caused by blood loss can lead to confusion, disorientation, drowsiness, and even shock .

Patients suffering from coronary artery disease may suddenly develop symptoms of angina pectoris (chest pain) or myocardial infarction . Blood loss exacerbates the manifestation of other diseases. In patients with liver disease, bleeding into the intestines can cause the accumulation of toxins,

which in turn leads to new symptoms, such as impaired consciousness - hepatic encephalopathy .

60-80% of gastrointestinal bleeding is the result of peptic ulcer disease. In addition, bleeding can be complicated by gastritis, duodenitis, polyps, diverticula, bowel disease (acute ulcerative or ulcerative necrotic enteritis, ulcerative colitis, Crohn's disease), cancer at any location in the gastrointestinal tract.

Particularly severe bleeding occurs from the veins of the esophagus with portal hypertension. Severe bleeding can also occur with hemorrhoids. The cause of gastrointestinal bleeding can be thrombocytopenic purpura, hemophilia, leukemia, lymphogranulomatosis . 29], as well as in systemic diseases: atherosclerosis, hypertension.

After a significant loss of blood, measuring hematocrit (this is one of the methods of blood testing) usually reveals a low number of red blood cells in the blood. The doctor needs to know what symptoms preceded the development of bleeding - this helps to determine its cause. If abdominal pain improves after eating or taking an antacid, a peptic ulcer may be suspected ; however, ulcerative bleeding is not always accompanied by pain . Bleeding from the stomach can cause drugs that damage the stomach lining, such as aspirin .

If a patient with gastrointestinal bleeding suffers from lack of appetite or has lost weight for no apparent reason, then he may have a malignant tumor. If swallowing is difficult, a malignant tumor or narrowing of the lumen of the esophagus can be assumed. Very severe vomiting just before bleeding raises the suspicion of rupture of the esophagus , but in about half of patients vomiting does not occur. Constipation or diarrhea along with bleeding or occult blood in the stool can be caused by a malignant tumor or polyp in the lower intestine, especially in patients over 45 years of age. Fresh blood on the surface of the feces is a symptom of hemorrhoids or a rectal disease such as cancer .

The patient is examined to identify the source of bleeding. For example, during a rectal examination, the doctor checks for hemorrhoids, anal fissures, or tumors. Further studies are prescribed depending on where, according to the doctor, the source of bleeding is localized: in the upper gastrointestinal tract (this is the esophagus, stomach and duodenum) or in its lower part (it includes the lower part of the small intestine, colon and rectum, anus)

Most often, the search for the source of bleeding begins with the upper part of the gastrointestinal tract. A special probe is inserted into the stomach through the nose and the liquid is sucked off. If the contents of the stomach resemble coffee grounds (due to partial digestion of the blood), most likely the bleeding is not heavy or has stopped. A continuous discharge of bright red blood indicates ongoing heavy bleeding.

Next, the doctor, using a flexible endoscope - a flexible fiber-optic medical instrument, examines the esophagus, stomach and duodenum. If gastritis or ulcers are not found in the stomach or duodenum, then a biopsy is done to examine the tissue under a microscope. This helps determine if bleeding is due to *Helicobacter pylorus*. This infection is successfully treated with antibiotics.

In the lower gastrointestinal tract, the doctor looks for polyps and malignant tumors. For this purpose, an X-ray examination is carried out after the introduction of a suspension of barium through the rectum or an endoscope is used. The doctor can examine the lower intestine from the inside using an anoscope, a flexible sigmoidoscope, or a colonoscope.

If these diagnostic methods do not reveal the source of bleeding, then angiography is done (X-ray examination after the administration of a radiopaque substance) or scanning after the administration of erythrocytes labeled with a radionuclide. These methods are especially effective when deciding whether a vascular shunt (connection of blood vessels) is the cause of the bleeding.

List of diagnostic methods: clinical blood test (general) , angiography , esophagogastroduodenoscopy (EGDS) , sigmoidoscopy , colonoscopy , fecal occult blood test

With a large loss of blood, it becomes necessary to transfuse it. Red blood cells (RBCs only) are usually used instead of whole blood to avoid overloading the circulatory system with fluid. After the volume of blood is restored, the patient is carefully monitored to notice the appearance of signs of ongoing bleeding in time: an increase in heart rate, a decrease in blood pressure, or bleeding from the mouth or anus.

Bleeding from varicose veins of the lower esophagus is treated in several ways. One of them is as follows: a balloon catheter is inserted through the mouth into the esophagus and the balloon is inflated, which puts pressure on the bleeding area. Another method is to inject an irritant chemical into the blood vessel, which causes inflammation and fibrosis of the veins.

Bleeding into the stomach can often be stopped with the help of endoscopic procedures: this is cauterization of the vessel - the source of bleeding - with an electric current or the introduction of a substance that causes blood to clot in this vessel. If these procedures are ineffective, decide on surgical treatment.

Bleeding from the lower intestine usually does not require emergency treatment. If necessary, an endoscopic procedure or operation is performed.

3.5. Risk of pulmonary hemorrhage

Pulmonary bleeding is the outflow of blood from the pulmonary or bronchial vessels, accompanied by the release of blood from the respiratory tract.

Pulmonary bleeding can occur with non-specific inflammatory processes in the lungs or bronchi, tuberculosis and lung cancer, aneurysms, in the pulmonary circulation, pulmonary endometriosis, in the presence of foreign bodies in the lungs and bronchi, pulmonary embolism, fungal and parasitic diseases of the lungs, wounds and injuries chest, mitral valve disease and a number of other diseases.

A small admixture of blood in the sputum is usually determined in the first days after lung surgery, incl. after lung biopsy.

Most often, bleeding occurs from bronchial arteries, which are overdeveloped and aneurysmally changed in the area of chronic inflammation. In the case of acute destructive lesions of the lung tissue, as well as wounds and injuries of the chest, the source of bleeding is usually the pulmonary arteries and veins. The occurrence of pulmonary hemorrhage is promoted by hypertension in the pulmonary circulation, a violation of blood clotting.

Blood from the respiratory tract is usually coughed up. Its quantity can be different - from streaks of blood in the sputum (hemoptysis) to profuse bleeding in a continuous stream. In some cases, hemoptysis is a harbinger of heavy bleeding from the lungs. The blood excreted from the respiratory tract is liquid, without clots, frothy, has an alkaline reaction. In patients with heavy bleeding in the lower parts of the lungs, various wet rales can be heard .

Diagnosis is based on characteristic clinical signs and history. The localization of the source of bleeding can be established by x-ray examination (according to the nature of lung damage), more precisely - by tracheobronchoscopy . If the source of bleeding cannot be identified using

these methods, they resort to catheterization of the bronchial arteries and bronchial arteriography.

The differential diagnosis for pulmonary bleeding is carried out primarily with gastric and esophageal bleeding. With gastric bleeding, the blood released with vomit may resemble coffee grounds in appearance, has an acidic reaction, which it retains even when aspirated.

With fresh bleeding from varicose veins, the esophagus and the blood in the vomit may look little changed, but usually it has a dark color and is not foamy.

Pulmonary bleeding must also be differentiated from bleeding from eroded vessels of the mucous membrane of the mouth, nose and pharynx; the source of such bleeding is identified during examination of the oral cavity, pharyngo- and rhinoscopy.

All patients with pulmonary hemorrhage should be admitted to the pulmonary or thoracic department. First aid options for LC are very limited. Therapeutic measures should be aimed primarily at preventing obstruction of the bronchi with blood clots, and in case of respiratory failure, at restoring airway patency.

The patient is given a sitting or semi-sitting position with an inclination towards the lung, from which bleeding is expected; in this position, the risk of aspiration of blood into the opposite lung is reduced. The persistent cough observed in LC should not be completely suppressed so as not to prevent the coughing up of blood poured into the bronchi and not create conditions for the occurrence of aspiration pneumonia.

If bronchial patency is not restored by coughing, blood is aspirated through a catheter or, more effectively, through a bronchoscope .

Bronchospasm associated with bronchial obstruction is stopped by the introduction of m-anticholinergics (atropine sulfate, 0.5-1 *ml* of a 0.1% solution subcutaneously) and β -agonists (alupent, salbutamol, berotek

inhalation). In case of asphyxia, emergency tracheal intubation, blood suction and artificial lung ventilation are indicated .

Simultaneously with measures to prevent bronchial obstruction and restore their patency, hemostatic therapy is carried out. In LC without hemodynamic disturbance, protease inhibitors are administered intravenously (kontrykal 10,000-20,000 IU or Gordox 100,000 IU) and fibrinolysis (aminocaproic acid - up to 100 *ml* of a 5% solution).

In order to prevent thrombosis and embolism , treatment with cogrical, gordox and aminocaproic acid should be carried out under the control of thromboelastogram and coagulogram.

If it is impossible to determine the parameters of the blood coagulation system, it is more advisable to prescribe hemophobin (2-3 teaspoons inside), etamsylate (2-4 *ml* of a 12.5% solution intravenously or intramuscularly), fibrinogen (2 *g* each in isotonic sodium chloride solution intravenously). Intravenous administration of calcium chloride or calcium gluconate, application of tourniquets to limbs in LC are less effective.

In case of bleeding from the system of bronchial arteries, it is advisable to reduce blood pressure (if it is normal or elevated), maintaining systolic blood pressure at a level of at least 80-90 *mm Hg. Art* . For this purpose, pentamin is administered in 3 *ml* of a 5% solution intramuscularly, benzohexonium in 0.5-1 *ml* of a 2.5% solution subcutaneously or intramuscularly; Arfonad can be used intravenously under constant control of blood pressure.

Pulmonary hemorrhage causing posthemorrhagic anemia is an indication for RBC replacement transfusion (transfusion of canned blood should be avoided).

To eliminate hypovolemia that occurred after a large blood loss, it is recommended to administer native plasma, polyglucin, rheopolyglucin or gelatinol.

In the absence of a hemostatic effect from drug methods, bronchoscopy is indicated , during which the bronchus of the bleeding segment is occluded. If bronchoscopy fails, bronchial arteriography can be performed followed by endovascular occlusion of the bronchial arteries. These methods make it possible to stop LC in most patients. However, often with LC there is a need for surgical intervention on the lungs.

CHAPTER 4

CLINICAL MANIFESTATIONS OF EXTERNAL AND INTERNAL BLEEDING OBSERVED IN THE EMERGENCY DEPARTMENT

4.1. Distinguishing features of different types of bleeding

In the course of scientific research, we have observed various types of bleeding, each of which has its own distinctive features.

The nature of bleeding can be traumatic, which is caused by damage to blood vessels, as well as non-traumatic, which is caused by the destruction of blood vessels when exposed to one or another disease process. The types of lesions determine, respectively, the types of bleeding, the first aid in which is decisive in the efficiency of its provision, which is reflected in the consequences of the influence of the pathological process on the entire body.

As we have already indicated, damage to a particular type of vessel determines the corresponding type of bleeding.

Arterial bleeding. The pouring blood is bright red in color, a distinctive feature lies in the intensity of the pulsation of the jet. Arterial bleeding is characterized by intense blood loss. The blood is bright red (scarlet) in color, beats with a pulsating jet under great pressure. In case of damage to large vessels (aorta, femoral artery, etc.), blood loss that is incompatible with life can occur within a few minutes.

Venous bleeding. In this case, the blood is darker in color, it is released abundantly and continuously. The blood is dark cherry in color, flows slowly, evenly and in a continuous stream. This bleeding is less intense than arterial, and therefore less likely to lead to irreversible blood loss. However, it must be borne in mind that if, for example, the veins of the neck and chest are injured, air may enter into their lumen at the time of entry. Air bubbles entering the heart with blood flow can cause an air embolism and cause death.

Capillary bleeding. The release of blood occurs evenly, along the entire surface of the lesion. Capillary bleeding is observed with superficial wounds, shallow skin cuts, abrasions. Blood from the wound flows slowly through the capillaries, and with normal clotting, bleeding stops on its own.

Mixed bleeding. It is characterized by a combination of the above types of bleeding, which is important for deep lesions. Mixed bleeding occurs with simultaneous injury of arteries and veins, most often with damage to parenchymal organs (liver, spleen, kidneys) with a developed network of arterial and venous vessels.

Common symptoms of acute blood loss

With acute blood loss, the victim has an extremely pale appearance, while his body is covered with cold and sticky sweat. There is lethargy, dizziness. The victim is thirsty, dry mouth. His pulse is characterized by a frequency with a small filling at the same time.

If blood flows out of the wound or natural openings of the body, then such bleeding is called external; if they accumulate in the body cavities, it is called internal.

Bleeding into the pleural or abdominal cavity, the heart shirt is sometimes secretive, their diagnosis is often difficult, and they may not be recognized in a timely manner.

Internal bleeding is observed with penetrating wounds, as a result of exposure to cold or firearms, as well as with closed injuries of internal organs due to a strong blow, falling from a height, compression of the body, exposure to a blast wave, and more. There are arterial, venous, capillary and mixed bleeding.

CHAPTER 5

A TECHNIQUE TO STOP LIFE-THREACKING BLEEDING IN AN OPEN WOUND SURFACE

5.1. Features of assistance with external bleeding

Distinguish temporary and final stop of bleeding.

A temporary stop of bleeding is used in the provision of first medical and first medical aid. It can be achieved by pressing the damaged vessel in the wound or along the length, sharply bending and fixing the limb in this position, applying a pressure bandage, giving an elevated (elevated) position to the superficial part of the body, applying a hemostatic tourniquet (twisting) and clamping the vessel while leaving it in wound.

Pressing the vessel throughout is carried out by squeezing the bleeding vessel above the site of bleeding when an artery is injured and below - when a vein is injured. Pressing with a finger to the underlying bone formations is carried out with the help of large arterial or venous vessels, when it is necessary to immediately stop the bleeding and gain time to prepare for stopping the bleeding in other ways that allow the victim to be transported. In addition, finger pressing of a bleeding vessel requires considerable effort, even a physically strong person can perform this procedure for no more than 15-20 minutes.

For each large arterial vessel, there are typical places where it is digitally pressed. However, stopping bleeding with digital pressure should be replaced as soon as possible by pressing the bleeding vessel in the wound with tight tamponade, clamping it with a clamp or applying a tourniquet.

If finger pressure of a bleeding vessel can be performed in a mutually assisted manner, then tight tamponade of the wound should be performed only by a doctor. A tampon that has tightly filled the wound must be fixed on top with a pressure bandage. In some cases, tamponade of a bleeding wound

can be a means of not only temporary, but also the final stop of bleeding. It should be remembered that tight tamponade is contraindicated for injuries in the popliteal fossa, as it often leads to gangrene of the extremities.

The imposition of a bleeding clamp (Kocher) on a bleeding vessel, with the capture of underlying tissues, is carried out in a dressing room or operating room. After applying the clamp, the skin around the wound should be treated with iodine, and an aseptic dressing should be applied.

The fastest way to temporarily stop arterial bleeding is to apply a hemostatic tourniquet. This manipulation is indicated only for massive arterial (not venous) bleeding from the vessels of the extremities. In the absence of an elastic rubber band, you can and should use the material at hand: rubber tube, belt, towel, rope. The tourniquet is applied above (centrally) the site of bleeding and as close as possible to the wound.

The harness is applied as follows:

- the place of the proposed application of the tourniquet is wrapped with a towel, a piece of cloth, several layers of a bandage;
- the tourniquet is stretched and 2-3 turns are made around the limb along the specified substrate, the ends of the tourniquet are fixed either with a chain and hook, or tightened with a knot;
- the limb must be tightened until the bleeding stops completely;
- the time of applying the tourniquet must be indicated in a note attached to the victim's clothing, as well as honey. Documents accompanying the victim.

With a properly applied tourniquet, bleeding from the wound stops and the peripheral pulse on the limb is not determined by palpation. You should know that the tourniquet can be kept for no more than 2 hours on the lower limb and no more than 1.5 hours on the shoulder. In the cold season, these periods are reduced. A longer stay of the limb under the tourniquet can lead to its necrosis. It is strictly forbidden to apply bandages over the tourniquet. The tourniquet should lie so that it is conspicuous.

After applying a tourniquet, the victim must be immediately transported to a medical facility for the final stop of bleeding. If the evacuation is delayed, then after the critical time has elapsed, the presence of the tourniquet for partial recovery of bleeding must be removed or loosened for 10-15 minutes, and then applied again slightly above or below the place where it was located. For the period of release of the limb from the tourniquet, arterial bleeding is prevented by finger pressure of the artery throughout. Sometimes the procedure for loosening and applying the tourniquet has to be repeated: in winter every 30 minutes, in summer after 50-6 minutes.

To stop arterial bleeding, you can use the so-called twist from improvised means. When applying a twist, the material used should be loosely tied at the required level and form a loop. Insert the stick into the loop and, rotating it, twist it until the bleeding stops. After that, the specified stick is fixed. It must be remembered that the application of a twist is a rather painful procedure; to prevent infringement of the skin during twisting and reduce pain, some kind of dense pad is placed under the knot. All the rules for applying a twist are similar to the rules for applying a tourniquet.

To temporarily stop bleeding at the scene, it is sometimes possible to apply a sharp (maximum) flexion of the limb, followed by its fixation in this position. This method of stopping bleeding is advisable to use in case of intensive bleeding from wounds. The maximum flexion of the limb is performed in the joint above the wound and the limb is fixed with bandages in this position. So in case of injury to the forearm and lower leg, the limb is fixed in the elbow and knee joints. In case of bleeding from the vessels of the shoulder, the arm should be brought to failure behind the back and fixed; when the thigh is injured, the leg is bent at the hip and knee joints and the thigh is fixed in a position brought to the stomach.

Often the bleeding succeeds, it will stop with a pressure bandage. Several sterile napkins are applied to the wound over which a thick roll of cotton wool or bandage is tightly bandaged.

To temporarily stop venous bleeding, in some cases it is effective to create an elevated position as a result of placing a pillow, clothing, or other suitable material under the injured limb. This position should be given after applying a pressure bandage to the wound. It is advisable to put an ice pack and a moderate load such as a sandbag on top of the bandage on the wound area.

The final stop of bleeding is carried out in the operating room, tying the vessel in the wound or throughout, stitching the bleeding area, applying a temporary shunt.

Bleeding is one of the most life-threatening complications of the body. It may be the result of trauma or damage to the arteries, veins and parenchymal organs; arrosion of a large vessel in a purulent wound or ulcer; rupture of an aneurysmically dilated artery or venous varicose vein; as well as increased fragility or permeability of the walls of blood vessels, especially in conditions of violation of the blood coagulation system.

If the doctor treats a wound on a limb, then in this case he can immediately and relatively easily control arterial bleeding and bleeding from the central end of the vein using a tourniquet or finger pressure on the vessel (for venous bleeding from the distal end of the vein, the tourniquet should be applied to the limb distal to the wound).

Then the wound, wide open by an assistant, is thoroughly drained of blood using an electric aspirator.



or gauze pads.



Before dissolving the tourniquet, fresh napkins are pressed against the entire wound surface and, gradually loosening the tourniquet,

they observe in which place of the wound they begin to be saturated with blood first of all. This will roughly show you the location of the bleeding vessel. The surgeon holds the hemostat at the ready, and the assistant quickly removes the drape from the bleeding area. If the site of bleeding is found, and the bleeding vessel itself is not visible, then the clamp is applied en masse.

After that, gradually removing the napkin from the rest of the wound, the places of other bleeding areas are established and clamps are also applied to them.

If, at the same time, heavy bleeding resumed and the doctors managed to find its source, the tourniquet should be tightened and the whole procedure should be done again until the bleeding stops completely.

Now we have to do the second stage of hemostasis - to detect and bandage the bleeding vessel itself. The fact, that the crossed vessel is reduced and as a result of this it usually sinks into the depth of the muscle mass. Therefore, the clamp applied en masse may not compress the vessel itself, but only press the muscle against it, which will temporarily stop the bleeding.

If we then apply a ligature to the entire mass of tissues captured by the clamp, the bleeding vessel itself will appear as if only tamponed by these tissues. At any moment, the muscles can shift, the lumen of the vessel will open and bleeding will resume. True, in this case, most often the blood does not flow directly into the wound, but an intermuscular hematoma forms, but a hematoma is also a very unpleasant complication.

Therefore, it is highly desirable for the surgeon to see the bleeding vessel itself and bandage it in isolation.

To this end, before removing the clamp applied en masse, the assistant should produce a sufficiently strong retraction of the muscles with two tufters, as close as possible to the area where the clamp is laid. The surgeon removes the clamp with his right hand, and with the help of a small dense tupfer, he shifts the tissues with the left hand, trying to see the vessel. Once the vessel is located, it is grasped with a clamp and tied up, or coagulated.

Unfortunately, in some cases, despite all efforts, it is not possible to isolate and ligate the vessel in isolation. Then the method of "chopping" the vessel is used. To do this, a purse-string or U-shaped suture is applied to the tissues around the bleeding vessel. In this case, the needle should be inserted deeper so that when the suture is tightened, the latter would also capture the vessel. Naturally, when applying a clamp and an en masse suture, care should be taken that nerves and other formations that cannot be ligated do not get into it.

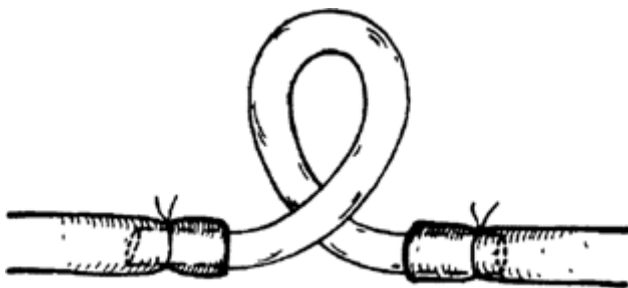
In cases where only small vessels bleed in the wound, it is usually not necessary to apply a tourniquet. The surgeon for a second presses the bleeding spot with a gauze tupfer, then quickly removes the tupfer, at this moment the assistant clearly sees the bleeding point, grabs it with tweezers and electrocoagulates. In the same way, they consistently act with the rest of the small bleeding vessels.

You have no doubt repeatedly observed that after tissue dissection, small vessels usually do not bleed immediately as a result of their spasm in response

to injury. As a rule, this period lasts a few seconds, but sometimes it drags on for a long time, especially if the surgeon adds adrenaline to the solution when performing local anesthesia. Since the spasm of small vessels sometimes lasts until the moment of suturing the wound, a hematoma may form in the patient after the operation.

Therefore, the use of local antispasmodic drugs is hardly recommended, and hemostasis must be carefully monitored before wound closure. In case of injury to the main vessel, a vascular suture must be applied to it in order to restore blood flow. Therefore, in order not to crush the wall of the vessel, only atraumatic clamps should be used to clamp it, compressing them minimally - by one or two teeth of the cremalier.

Temporary vessel replacement can be performed by inserting a polyvinyl chloride tube from a blood transfusion system into both ends of the transected artery. The tube is taken much longer than the defect in the artery, then you can make a loop out of it. Due to this, it is easier to insert the tube into the ends of the artery and temporarily fix it there with external ligatures.



It is much more difficult to cope with bleeding in the abdominal cavity or in the retroperitoneal space, especially in obese patients, when the angle of the surgical action is small and the depth of the wound is large.

When massive bleeding has begun, first of all, you need to quickly take a large napkin in your hand and blindly press it strongly against the intended area of bleeding. Usually, after several unsuccessful attempts, it is still possible, if not to stop, then at least to significantly reduce bleeding.

5.2 . Rules for imposing a tourniquet or twist.

An unskilled tourniquet is in itself a serious danger; this operation should be resorted to only as a last resort in case of very severe bleeding that cannot be stopped otherwise. Don't waste time! Severe bleeding can lead to the death of the victim in 3-5 minutes.

If the tourniquet cannot be applied immediately, in order to temporarily stop the bleeding, it is necessary to press the fingers on the vessel above the wound (Fig. 1).

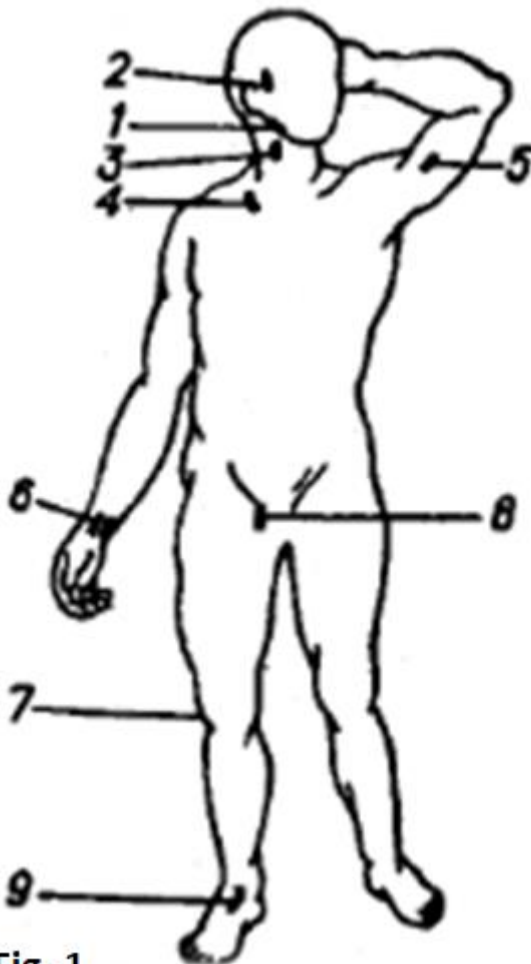


Fig. 1

Bleeding stops:

1. from the lower part of the face - by pressing the maxillary artery to the edge of the lower jaw (1);
2. on the temple and forehead - by pressing the temporal artery in front of the ear tragus (2);

3. on the head and neck - by pressing the carotid artery against the cervical vertebrae (3);
4. on the armpit and shoulder - by pressing the subclavian artery against the bone in the subclavian fossa (4);
5. on the forearm - by pressing the brachial artery in the middle of the shoulder from the inside (5);
6. on the hand and fingers - by pressing two arteries (radial and ulnar) to the lower third of the forearm near the hand (6);
7. from the lower leg - by pressing the popliteal artery (7),
8. on the thigh — by pressing the femoral artery against the pelvic bones (8);
9. on the foot - by pressing the artery on the back of the foot (9)

If a special rubber band is not at hand, the most suitable material for its manufacture is a soft rubber hose. At the place of application of the tourniquet (above the wound by 5-7 cm), in order not to pinch the skin, it is necessary to first put a dense cloth or wrap the limb with several layers of bandage. You can apply a tourniquet over a sleeve or trousers. The limb is wrapped several times with a pre-stretched tourniquet. The coils should fit tightly, without gaps and overlaps. The first turn is wound not too tight, each next - all with great tension. The imposition of coils is continued only until the bleeding stops, after which the tourniquet is tied.

The tourniquet should not be overstretched, as this may damage the nerve fibers.

The maximum time during which you can not remove the tourniquet in the warm season is 1.5-2 hours, in the cold season - 1 hour. Exceeding the specified time can lead to necrosis of the bloodless limb. After applying the tourniquet, it is necessary to take all measures for the speedy delivery of the victim to the nearest medical facility.

If the tourniquet causes severe pain, it is allowed to remove it for a while to give the victim a rest from the pain. Before this, it is necessary to firmly

press the vessel through which blood flows to the wound with your fingers. Dissolve the tourniquet should be very carefully and slowly.

Instead of a tourniquet, you can use a twist made of soft non-stretching material - a bandage, towel, tie, belt, etc. A strong loop with a circle one and a half to two times the circumference of the limb is put on with a knot upwards 5-7 cm above the wound. The skin is also as in the application of a tourniquet, they protect against pinching by the tissue. A short stick or any suitable object is threaded into or under the knot, with the help of which winding is performed. As soon as the bleeding stops, the stick is fixed so that it cannot unwind spontaneously, and the wound is closed with an aseptic bandage.

Under the twist or tourniquet, you must enclose a note indicating the exact time of their application.

CHAPTER 6
NURSING CARE
FOR SMALL EXTERNAL BLEEDING

6.1. Basic rules to follow when providing first aid

Even with minor bleeding, when providing first aid , the following rules must be observed:

- 1. it is possible to wash the wound only if caustic or toxic substances get into it**
- 2. if sand, rust, etc. got into the wound. it cannot be washed with water and solutions of medicines**
- 3. do not lubricate the wound with ointments or cover it with powder - this prevents its healing;**
- 4. when the wound is contaminated, carefully remove dirt from the skin around the wound in the direction from the edges of the wound outward; the cleaned area before applying the bandage is smeared with iodine tincture**
- 5. do not allow iodine to enter the wound;**
- 6. do not touch the wound with your hands, even if they are cleanly washed; do not remove blood clots from the wound, as this can cause severe bleeding;**
- 7. only a doctor can remove small glass fragments from the wound;**
- 8. after first aid, when the bleeding is stopped, if the loss of blood is significant, the victim should be urgently sent to the intensive care unit.**

Rules for applying a pressure bandage.

A sterile bandage, gauze or clean cloth is applied directly to the bleeding wound. If a non-sterile dressing is used, it is recommended to drop a little

tincture of iodine onto the fabric to make a spot larger than the wound. A dense roller of bandage, cotton wool or a clean handkerchief is applied over the fabric. The roller is tightly bandaged and, if necessary, continue to press on it with your hand. If possible, the bleeding limb should be elevated above the body. When the pressure bandage is in the correct position, bleeding stops and the bandage does not get wet.

Stop bleeding from a limb by flexing the joints.

To stop bleeding, it is necessary to bend the limb to the limit in the joint located above the wound.

6 . 2 . Features of medical care depending on the type of external bleeding

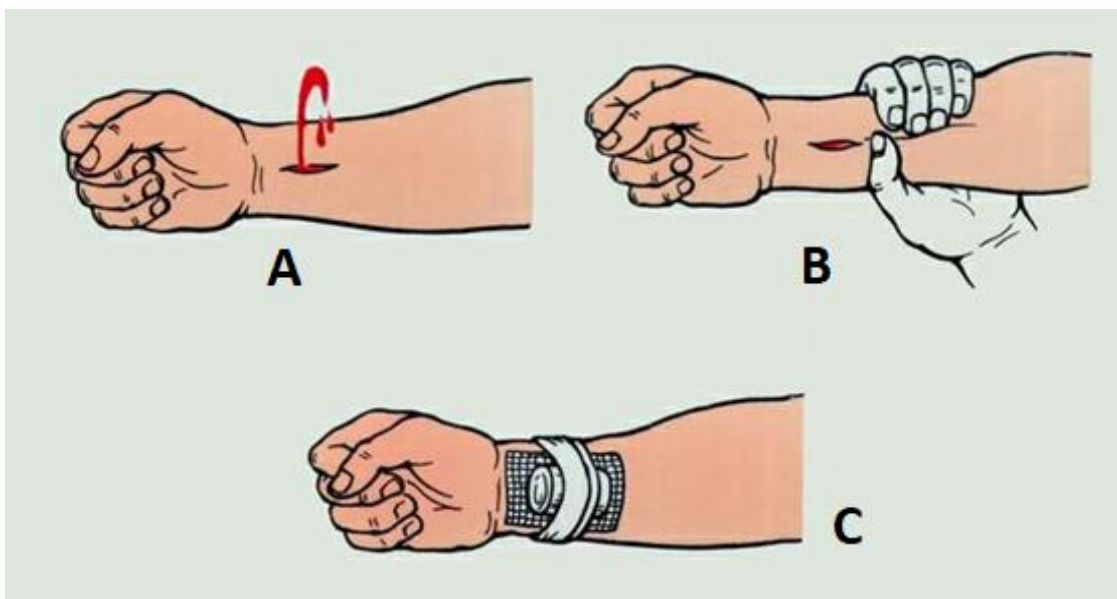
Minor , non-life-threatening bleeding should also be taken into account in our study , as these also occur in the practice of emergency departments.

The most common cause of minor bleeding is cuts to the hands or other parts of the body with glass, a knife, or other sharp objects .

Depending on which blood vessels are damaged during injury, bleeding is distinguished:

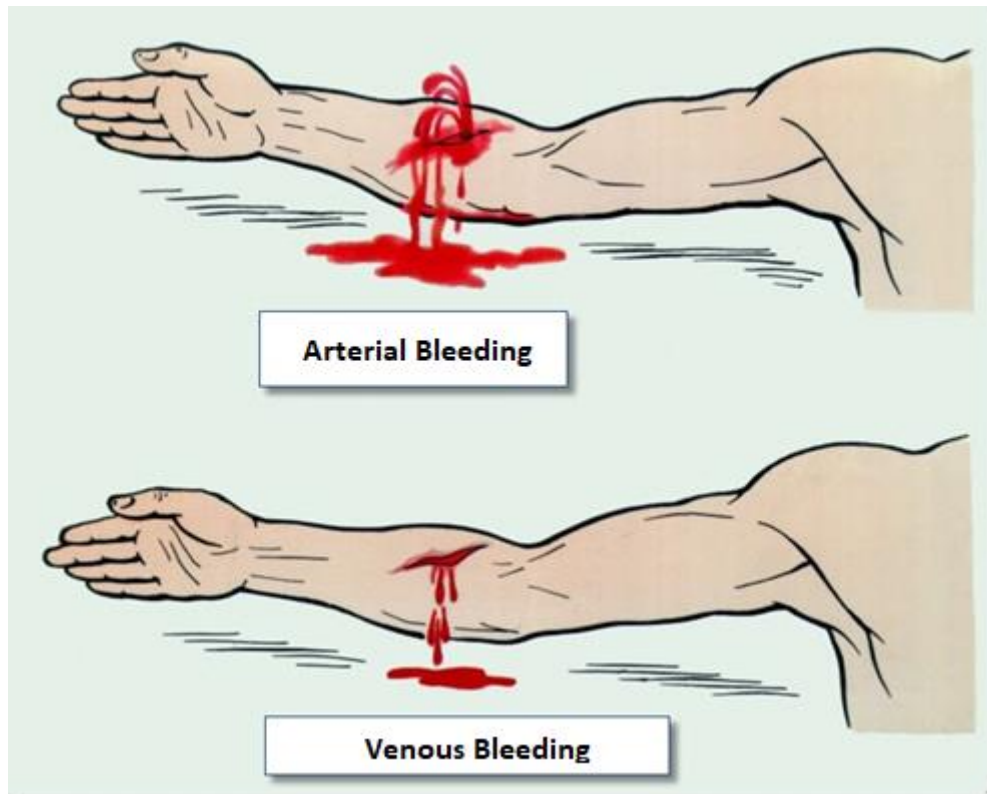
1. capillary
2. venous
3. arterial

With capillary and venous bleeding, the blood is dark, flows out in drops or a continuous stream. A way to stop capillary and venous bleeding is to apply a pressure bandage to the wound.



With arterial bleeding, blood is scarlet in color, flows out in a pulsating stream. Arterial bleeding is stopped by applying a tourniquet or complete flexion of the limb in the joint and fixing it in this position with a belt or bandage.

With arterial bleeding, scarlet blood flows out in a rapidly pulsating or gushing stream.



Stopping methods:

- 1. digital pressure of the artery above the injury site,**
- 2. tourniquet application,**
- 3. sharp bending of the limb in the joint with its fixation in this position.**

CHAPTER 7
NURSING CARE
FOR LIFE-THREATING INTERNAL BLEEDING

7.1. Features of nursing care and skilled care for life-threatening internal bleeding

The danger to the life of the patient in acute blood loss is mainly associated with the development of acute anemia, which results in the depletion of all tissues with blood, a drop in cardiac activity and a decrease in blood pressure .

The general condition of the patient and the severity of the clinical picture in this case mainly depend on the following factors:

1) the amount of blood shed. The total mass of blood in the human body is 7 % of body weight. Blood loss of 200-300 ml may have almost no effect on the condition of an adult, and the loss of 800-1000 ml of blood is life-threatening;

2) the speed of blood flow. The most dangerous is bleeding from large arteries (carotid, femoral, etc.), since in a short period of time there is a large blood loss and the body's compensatory capabilities quickly dry up;

3) age. Blood loss is especially difficult for young children and the elderly,

4) floor. It has been established that, due to physiological characteristics, blood loss is more easily tolerated by women than men;

5) the state of health before the injury. Strong, well-fed people with a healthy cardiovascular system endure blood loss more easily than weak, emaciated people with diseases of the heart and blood vessels.

Caring for a patient with a large blood loss requires special attention from the nurse. Patient will need blood and blood-substituting fluids to be transfused during and after care.

The patient is laid on his back without a pillow, and sometimes (as directed by the doctor) with a raised foot end of the bed to improve blood circulation in the brain and heart activity.

The nurse in the first hours, and sometimes the day, should measure the patient's blood pressure every hour, and in case of changes (more often with a decrease), inform the doctor about it. It is necessary to monitor the appearance of the patient (with the sudden appearance of a sharp pallor, cyanosis, also inform the doctor), control the pulse (frequency, filling, rhythm) and breathing.

Carrying out the whole complex of measures and strict implementation of doctor's prescriptions are often a decisive factor in the patient's recovery.

Need to know that with internal bleeding, thermal procedures, as well as warm heating pads, are absolutely contraindicated. Only an ice pack can be applied to the suspected area of bleeding.

Features of tactics in pulmonary hemorrhage. Hemoptysis and especially pulmonary bleeding are very serious symptoms that require an urgent determination of their cause - an X-ray examination of the chest organs, with tomography, bronchoscopy, bronchography, and sometimes angiography.

Hemoptysis and pulmonary bleeding, as a rule, are not accompanied by shock or collapse. The threat to life in such cases is usually associated with a violation of the ventilation function of the lungs, as a result of blood entering the respiratory tract. Patients are prescribed complete rest. They should be given a semi-sitting position with an inclination towards the affected lung to prevent blood from entering the healthy lung. An ice pack is placed on the same half of the chest. With intense coughing, contributing to increased bleeding, antitussives are used. To stop bleeding, vikasol is administered intramuscularly, calcium chloride, epsilon aminocaproic acid are administered intravenously. Sometimes, with urgent bronchoscopy, it is

possible to pack a bleeding vessel with a special hemostatic sponge. In some cases, the question of urgent surgical intervention arises.

Bleeding in malignant tumors. The collapse of the tumor is always accompanied by the danger of bleeding. At the slightest sign of bleeding, rest and one or more of the following agents (regardless of the location of the tumor) should be prescribed, using them in any sequence depending on the patient's condition:

calcium lactate 0.5g 3 times a day;

10% calcium chloride solution, 1 tablespoon 3 times a day;

10% sodium chloride solution, 1 tablespoon 4-5 times a day;

intravenous administration of 10-15 ml of 10% calcium chloride solution;

50 ml of 20% sodium chloride solution;

10% gelatin solution 20-50 ml subcutaneously.

When the tumors are located externally, a hemostatic sponge should be applied to the bleeding site, a pressure bandage and cold should be applied. With decaying tumors of the rectum, there is a danger of profuse bleeding, which may require urgent hospitalization of the patient for ligation of the hypogastric vessels and blood transfusion.

CONCLUSIONS

- 6. The study identified the main risk factors for bleeding.**
- 7. In practice, the distinctive features of various types of bleeding and prognostic factors for the emergence of a threat to life during bleeding have been studied.**
- 8. The regularities of the occurrence of bleeding as complications of other diseases have been studied.**
- 9. The most effective methods of providing emergency care for bleeding have been studied.**
- 10. The basic principles of bleeding prevention have been studied: when working with piercing and cutting instruments, observe safety rules; avoid injury; in the presence of chronic diseases, often consult a doctor to avoid complications in the form of bleeding.**

BIBLIOGRAPHY

1. Buyanov V.M., Nesterenko Yu.A. **First aid: A textbook for students of medical schools and colleges.** - M.: Medicine, 2000. - 222 p.
2. **Bulletin of the World Health Organization Issue 91, Number 11, November 2013, - pp. 797-896**
3. **Vlasova V. V. How to write a literature review / Vlasov V. V. // School of a young scientist No. April 4, 2013**
4. **Glantz S. Biomedical statistics / Stenton Glantz; per. from. English Yu. A. Danilov, N. E. Buzikashvili, D. V. Samoilova. – M.: Practice, 1998. – 459 p.**
5. **Dvoynikov SI. Person-oriented methods in the training of nursing staff // Nursing business. - 2003. - No. 4-5. -FROM. 18-20.**
6. **Dvoynikov SI. Quality management of medical care. Quality of nursing care // Nursing business. - 2004. - No. 3. -S. 11-13.**
7. **Dvoynikov SI. Formation of a quality system for training specialists in a medical college /SI. Dvoynikov, O.A. Smagina, T.V. Koroteeva // Nursing business. - 2005. - No. 2. - S. 10-13.**
8. **Kornilov, N.V., Adaptation processes / N.V. Kornilov, 2003.- 74p.**
9. **Kremer N.Sh. Theory of Probability and Mathematical Statistics. Textbook for high schools. - M.: UNITI - DANA, 2001. - 543 p.**
10. **Lychev V.G., Karmanov V.K., Fundamentals of nursing in therapy. - Rostov n / a: Phoenix, 2006 - 512 p.**
11. **Maknab K. A guide to first aid. - M., 2002.**
12. **Uterine bleeding. Source: <http://zdravotvet.ru/matochnye-krovotecheniya-simptomy-prichiny-vozniknoveniya/>**
13. **Mostitskaya R.M. General (family) practice nurse. - Rostov n / a: Phoenix, 2006 - 480 p.**
14. **Mylnikova L.A. Development of emergency medical care in the Russian Federation // Ambulance med. help. - 2001. - No. 3. - 3-4.**

15. Mylnikova L.A., Bagnenko F., Arkhipov V.V. New approaches to the organization of emergency medical care. *Zdravookhranenie*. - 2002. - No. I. - 20-28.

16. Nemytova L.L., Kolyasnikov O.V. Psychological training of emergency medical personnel for work in emergency situations // *Ambulance medical. help*. - 2003. - V.4, No. 3. - 42-43.

17. Normative documents on the organization of emergency medical care. // *Healthcare*. - 1999. - No. 8. - 66-127.

18. Osipov A.N. New experience in organizing emergency medical care (Chelyabinsk) // *Zdravookhranenie*. - 2002. - No. 1. - 37-40.

19. Osionov V.N. General care for patients in a therapeutic clinic: textbook for universities. M: GEOTAR-Media, 2005, -396 p.

20. Fundamentals of Nursing: Textbook edited by prof. S.I. Dvoynikova. - M.: ANMI, 2005. - 577 p.

21. Panteleeva T.A., Boykov A.A., Khanin A.Z. Fundamentals of the organization of emergency medical care: Proc. allowance. - St. Petersburg: SPbMAPO, 2001. - 32 p.

22. Sanitary rules and regulations. "Sanitary and epidemiological requirements for the quality of sterilization and disinfection of medical devices", Order No. 96 dated January 31, 2003, Ministry of Health of the Republic of Kazakhstan.

23. Slepushenko I. O. Nursing business: problems and solutions. // *Nursing*. 2005. No. 1. from. 21-23.

24. Sheshunov I.V., Pavlov V.V. Iroshnikova L.E. Management of a medical institution in the conditions of insurance medicine. - Samara: Publishing house of Samara State Medical University, 2002. - S. 21.

25. Shilnikova N.F., Karpova I.P. Methodology for evaluating the activities of nursing staff: Methodological guide.-Chita: IITs ChGMA, 2007.- 30 p.

26. Epidemiological method / El. Resource, access mode: http://gyg-epid.com/2008/11/24/jepidemiologicheski_j_metod.html

27. Blann AD, Hewitt J, Siddique F, Bareford D. Racial background is a determinant of average warfarin dose required to maintain the INR between 2.0 and 3.0. *Br J Haematol* 1999; 10:207-9.

28. Erhardtsten E, Nony P, Dechavanne M, Ffrench P, Boissel JP, Hedner U. The effect of recombinant factor VIIa (NovoSevenTM) in healthy volunteers receiving acenocoumarol to an International Normalized Ratio above 2.0. *Blood Coag Fibrin* 1998; 9:741-8.

29. Fitzmaurice DA, Hobbs FDR, Murray ET, Hodder, RL, Allan TF, Rose, PE. Oral anticoagulation management in primary care with the use of computerized decision support and near-patient testing. A randomized controlled trial. *Arch Intern Med* 2000; 160:2323-48.

30. Gupta LC, Sahu UC *Practical nursing procedure*. 2003.

31. Gurwitz JH, Goldberg RJ, Holden A, Knapic N, Ansell J. Age-related risks of long term oral anticoagulant therapy. *Arch Intern Med* 1988; 148:1733-6.

5. He J, Whelton PK, Vu B, Klag MJ. Aspirin and risk of haemorrhagic stroke. *JAMA* 1998; 280: 1930-5.

32. Haemostasis and Thrombosis Task Force of the British Society for Haematology. Guidelines on oral anticoagulation: third edition. *Br J Haematol* 1998; 101:374-87.

33. Landefeld CS, Beyth RJ. Anticoagulant related bleeding: clinical epidemiology, prediction, and prevention. *Am J Med* 1993; 95:315-28.

34. Levine MN, Hirsh J, Landefeld CS, Raskob G. Haemorrhagic complications of anticoagulant treatment. *Chest* 1992; 102:352-63S.

35. Palareti G, Leali N, Coccheri S, Poggi M, Manotti C, D'Angelo A, et al. Bleeding complications of oral anticoagulant treatment: an inception-cohort, prospective collaborative study (ISCOAT). *Lancet* 1996; 348:423-8.

36.Panneerselvan S, Baglin C, Lefort W, Baglin T. Analysis of risk factors for over-anticoagulation in patients receiving long-term warfarin. Br J Haematol 1998; 103:422-4.

37. Sethi D et al. Injuries and violence in Europe. Why do they matter and what can be done. Copenhagen, WHO Regional Office for Europe, 2006 (www.euro.who.int/InformationSources/Publications/Catalogue/20060601_1).

38.Sethi D et al. Reducing inequalities from injuries in Europe. Lancet, 2006, 367 (online publication: <http://www.thelancet.com/journals/eop>).

39.Stephanie's. Principles and practice of nursing. Vol.1. Nursing art procedures. By Sir. Nancy. 2005. P. 1-22.

40.Van der Meer FJM, Rosendaal FR, Vandenbroucke, Briet E. Bleeding complications in oral anticoagulant therapy. Arch Int Med 1993; 153:1557-62.