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Master's thesis

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

223 - Nursing

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ABSTRACT

The relevance of the study is determined by the fact that in the statistical reports of the WHO, mortality from injuries, which is very often accompanied by life-threatening bleeding, remains at a high level. However, two-thirds of injury deaths and most non-fatal injuries could have been avoided. To do this, it is necessary to promptly and correctly provide emergency care to patients with life-threatening bleeding.

Purpose of the study. Define the principles of emergency medical care for patients with bleeding in the emergency department, as well as explore the characteristics of nursing care for patients with life-threatening bleeding.

Research tasks.

1. To study the role of risk factors for bleeding among various categories of sick and healthy people.
2. To investigate the distinguishing features of various types of bleeding and prognostic factors of life-threatening bleeding.
3. To study the patterns of bleeding as a complication of another disease.
4. Investigate the most effective methods of providing emergency bleeding care and study the basic principles of bleeding prevention.

Object of study. Nursing and medical care for patients with life-threatening bleeding.

Subject of study. Factors of life-threatening bleeding and peculiarities of rendering medical care to patients with bleeding in the emergency department.

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

Scientific and practical value of the research. The results of the study deepen the theoretical knowledge of the risk factors for bleeding in trauma and various

diseases. This experimental study opens up new prospects for using the acquired knowledge to develop algorithms for the provision of medical care for bleeding.

Conclusions:

1. In the course of the study, the main risk factors for the development of bleeding were identified.

2. In practice, the distinctive features of various types of bleeding and prognostic factors of life-threatening bleeding have been investigated.

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 investigated.

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

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INTRODUCTION

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

Bleeding from large 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 claw will end in death.

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 (OK), blood flows from an open wound, traumatic shock may develop; the patient may have cold clammy sweat, dizziness after injury; a very fast pulse (fast heart rate); dyspnea; confusion, decreased attention; weakness. This can lead to the death of the patient.

With internal bleeding (IC), there may be abdominal pain, bloating; Blood in your stool (black, maroon, or bright red) or very dark stool blood in urine (red, pink, tea-colored); vaginal bleeding (worse than usual or after menopause); Blood in vomit (looks bright red or brown, like coffee)

A decrease in blood pressure (BP) (arterial hypotension) and shock with bleeding are especially dangerous. With long-term, small in volume, internal bleeding, iron deficiency anemia (decreased hemoglobin).

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

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

Office experts assess the severity of the burden of injury: In the WHO European Region, injuries kill about 800 000 people each year (8.3% of all deaths in the Region). which averages 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 promptly and correctly provide emergency care to patients with life-threatening bleeding.

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

Purpose of the study. Define the principles of emergency medical care for patients with bleeding in the emergency department, as well as explore the characteristics of nursing care for patients with life-threatening bleeding.

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

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Scientific and practical value of the research. The results of the study deepen the theoretical knowledge of the risk factors for bleeding in trauma and various diseases. This experimental 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 obtained data in medical institutions, as well as among relatives and friends of patients with a risk of bleeding, contributes to the widespread involvement of various methods for the prevention and treatment of life-threatening bleeding and saving the lives of patients.

CHAPTER 1

BLEEDING, PECULIARITIES OF PROVIDING MEDICAL CARE FOR LIFE-THREATENING BLEEDING (LITERATURE REVIEW)

Bleeding (hemorrhage) - 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 can be the result of trauma or damage to 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 is 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 (IC) are metrorrhagia (uterine), melena (intestinal), internal hemopericardium, hemothorax, hemoperitoneum, hemarthrosis (respectively, into the cavity of the heart shirt, into the pleural cavity, into the abdominal and articular cavities).

The causes of bleeding can be divided into two groups: traumatic [37, 38] and pathological. Most often, bleeding 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, hemorrhages are distinguished:

Internal bleeding - this type of bleeding is characterized by the 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 from the arteries. It can be recognized by the bright red color of blood, the stream of which flows continuously and pulsates in time with the heartbeat. If large arteries are affected, blood gushes like a "fountain".

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

Capillary bleeding (CC) - blood flows out of the capillaries. The most common and easy 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 - blood flows from the tissues of the parenchymal organs (liver, spleen, kidneys, pancreas, etc.). It is difficult to stop bleeding of this type, 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 trauma. Any bleeding (except capillary) is potentially life-threatening, the level of danger depends on the volume of blood that has been poured out. If the amount of blood lost is more than 1000 ml, then the blood loss is considered severe, more than 2500 ml - the blood loss is fatal. Light blood loss is called when the volume of blood lost is less than 500 ml.

1.1. Classification of bleeding

What can cause bleeding? Here it is pertinent to note that there are also two fundamentally different types of them, based on the factor whether a normal vessel is damaged or a pathological condition has arisen against the background of 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 (with bone fracture, injury, bruise). The latter occur in various extreme situations: road traffic accidents, railway and plane crashes, falls from a height, fights involving piercing and cutting objects, gunshot wounds. There are also industrial and domestic injuries.

Vascular diseases, including tumors (purulent tissue lesions involving blood vessels, atherosclerosis, hemangiosarcoma).

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

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

Ailments affecting various organs. Leakage of blood from the lungs can cause tuberculosis, cancer; from the rectum - tumors, hemorrhoids, cracks; from the digestive tract - stomach and intestinal ulcers, polyps, diverticula, tumors; from the uterus - endometriosis, polyps, inflammation, neoplasms.

What is the risk of bleeding for a person?

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

However, besides 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, the oxygen contained, becomes ineffective and can help little. This condition is very dangerous, it is called vascular shock or collapse. It occurs with acute severe blood loss.

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

Blood performs a huge number of functions, among which it is very important to maintain the balance of the internal environment of the body, as well as to ensure 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 harmoniously. Bleeding, to one degree or another, disrupts 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, the blood loss is chronic and mild. Replacement of outflowing blood occurs through the synthesis of plasma proteins by the liver and bone marrow - cellular elements. Bleeding becomes an important diagnostic feature for recognizing ailment.

Signs of bleeding

Are common

Patient complaints:

Weakness, unmotivated drowsiness;

Dizziness;

Thirst;

Feeling of palpitations and shortness of breath.

External symptoms of blood loss, which are observed with any type of bleeding, are as follows:

Pallor of the skin and mucous membranes;

Cold sweat;

Increased heart rate;

Dyspnea;

Disorders of urination up to a complete lack of urine;

Drop in blood pressure;

Fast, weak pulse;

Impairment of consciousness up to its loss.

Local

External outpouring of blood

The main local symptom is the presence of a wound on the surface of the skin or mucous membrane and a visible bleeding from it. However, the nature of bleeding is different and is in direct proportion to the type of vessel.

Capillary is manifested by the fact that 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 flow out quite quickly when a large vein is injured or several at once, it flows from the wound in strips. Its color is dark red, sometimes burgundy. If large veins in the upper body are damaged, there may be intermittent bleeding from the wound (however, the rhythm is not synchronized with the pulse, but with respiration).

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

Manifestations of latent bleeding

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

From the stomach - the color is brown (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 (tarry stools).

From the kidneys and urinary tract - the 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 there are pieces of mucous membrane in the secretions.

From the rectum - red blood drops can be found in the feces.

Signs of internal bleeding

There is no bleeding 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 of motor functions and / or sensitivity, coma.

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

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

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

Can the body cope with bleeding?

Nature has provided such a possibility that 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. As part of blood plasma, that is, the liquid part that does not contain cells, there are biologically active substances - special proteins. Together, they make up the blood coagulation system. It is helped by special blood cells - platelets. The result of complex multistage blood clotting 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 the effusion of blood from a small standard injury inflicted with a special stylet on a finger or earlobe.

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

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

Often, trauma or damage to a vessel by a pathological process is too extensive and the natural mechanisms for stopping bleeding do not cope, or a 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 must be urgently taken to a hospital. Before that, he must be given emergency assistance. 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 circulates 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 medical education will not be able to determine which organ is damaged. But with external bleeding, first aid can be provided by anyone who knows the basics of first aid for bleeding [7, 13].

Types of external bleeding:

1. Capillary - they are quite common and are the safest. They arise when the upper layer of the circulatory system is damaged - the capillaries. With such an injury, the blood flows slowly and slightly, which helps it to 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, you can use mint leaves or lemon balm.

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

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

To do this, you need to put a pressure bandage on the problem area, which can consist of a dressing bag, a bandage, and in their absence, from 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, rapid and profuse blood loss, vasospasm and eventually 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 squeeze your fingers tightly over the arteries above the wound.

However, it is not possible to hold the wound for long with tense fingers, so it is better to apply a tourniquet if an arm or leg is injured. For this, the place above the wound is pulled over with a tourniquet or 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 every 1.5 - 2 hours it is necessary to loosen and move the tourniquet higher in order to avoid tissue death.

Another effective method is limb pinching. To do this, the limb is tightly bent at the joint (elbow, hip or knee), placing a pad under the fold - a dense but non-rigid object, such as a bandage that has not been unwound. After that, the limb is fixed with a belt or rope.

In the 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 bandages:

- the victim must take a comfortable position;
- pain reliever can be given;
- monitor the victim's reaction, distract, calm down, 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 RESEARCH

In order to study the features of nursing care and the provision of emergency care to patients with bleeding in the emergency department, it is necessary to determine the principles of providing emergency medical care to patients with bleeding in the emergency department, as well as to study the features of nursing care of patients with life-threatening bleeding, to study the patterns of bleeding, as a complication of another disease, to investigate the most effective methods of providing emergency care for bleeding and to study the basic principles of preventing bleeding.

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

Therefore, a study was carried out in the scientific literature [3], which considers the basic principles of classification of bleeding, the main clinical symptoms of external and internal bleeding, the principles of providing emergency medical care to patients with bleeding, the basic principles of preventing bleeding.

A modern scientific review answers a clearly formulated topical question, reflects scientific directions, searches in a certain period using certain research methods. In such an article, the data obtained systematically in the generalized studies are presented, and if they are homogeneous, a 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 doctors and nurses working in broad fields, such as therapy, family medicine, are faced with an overwhelming amount of information relevant to their work. Therefore, all doctors and nurses need to summarize 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 the analysis of the distribution of diseases in space and time and designed to identify prevention problems, causes, conditions (risk factors) and mechanisms of morbidity formation in order to substantiate measures for the prevention of diseases and assess their effectiveness [26].

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

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

Analytical methodological techniques consist in the formulation and testing of 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 the morbidity, to reveal the mechanism of the influence of the causes on the morbidity, and also to find in the causes such variables that can be influenced by the available anti-epidemic measures.

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

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

Scientific observation began to be widely used, starting from the end of the 19th century, in areas where 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 of the 20th century - in labor psychology.

Observation is used where the intervention of the experimenter will disrupt the process of human interaction with the environment. This method is indispensable when it is necessary to get a holistic picture of what is happening and reflect the behavior of individuals in full.

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

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

By systematicity, they 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 in certain conditions and the goal is not to fix causal dependencies and give strict descriptions of phenomena; systematic observation, carried out according to a specific plan and in which the researcher registers behavioral features and classifies environmental conditions.

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

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

A statistical research method is necessary for any research to carry out digital data processing.

The object of research 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 COMBINED WITH AND COMPLICATING THE MAIN DISEASE

In the course of scientific research, we have observed different 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. The occurrence of esophageal-gastric bleeding in liver diseases

Chronic liver diseases are a serious socio-economic and clinical-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 with signs of 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 people are diagnosed annually. cases of primary liver carcinoma (Radchenko V.G., Shabrov A.V., 2000).

In recent years, a steady increase in the incidence of viral hepatitis and, accordingly, cirrhosis of the liver has been especially observed. Chronic liver disease leads to permanent disability and, accordingly, to enormous socio-economic damage. One of the most dangerous conditions in portal hypertension is gastroesophageal bleeding, which complicates the course of the disease in 40% of patients, and the frequency of bleeding recurrence reaches 90%. Mortality at 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 rate determine the need to follow therapeutic tactics for esophageal-gastric bleeding of portal genesis, 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 need to 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, endoscopic interventions are becoming more widespread in order to prevent recurrence of bleeding. Risk factors for bleeding are liver dysfunction, the degree of varicose veins, and the detection of reddish dots on the surface of varicose veins. At the first bleeding from varicose veins of the esophagus and stomach, the mortality rate is 20%. They depend on the severity of bleeding and the functional state of the liver.

With compensated cirrhosis of the liver, the lethality 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 the mortality rates. With the 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 have safely undergone the first episode of bleeding from varicose veins of the esophagus and stomach are at high risk of recurrent bleeding episodes.

3.2. The risk of bleeding during antithrombotic therapy

In elderly people, many common diseases of the cardiovascular system, such as ischemic heart disease, atrial fibrillation, heart defects, arterial hypertension, vascular atherosclerosis are accompanied by a high risk of intravascular thrombus formation and require anti-thrombotic therapy.

At the same time, a number of questions arise related to the appointment of this therapy to patients of the older age group, since drug hypocoagulation with the help of

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 general risk, namely the benefit / risk ratio. It is known that it is more difficult for these patients to visit polyclinics in order to determine the INR; a decrease in cognitive functions can lead to a decrease in compliance and the inability to assess interactions with drugs and food.

Nevertheless, recent studies of the use of hypocoagulant therapy in the elderly have revealed the absence of a 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 evaluate the potential benefits of preventing blood clots and the potential harm from possible hemorrhagic manifestations.

Minor bleeding. Most cases 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 is rare as a serious clinical problem.

More serious problems. If serious problems arise, medical attention may be required. Such situations mainly arise with high INR values.

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

For example, in a patient with recurrent hemoptysis, hereditary telangiectasia may be detected. In this regard, in cases of repeated bleeding, a deeper examination of the patient should be assumed. No less 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 that presumably non-dangerous drugs such as paracetamol can affect bleeding tendencies. In such cases, it is necessary to carefully check all concomitant therapy, especially those drugs that the patient can take without a doctor's prescription.

Bleeding frequency. The likelihood of serious bleeding in which patients are admitted to the intensive care unit may be exaggerated. The annual deaths as a result of the use of Warfarin were estimated at 1%. However, these figures are based on outdated, hard-to-prove data. A more realistic indicator for the last 10-15 years is about 0.2%, which is associated with an overall improvement in control over the hypocoagulation performed. It should be noted that the accurate registration of episodes and the severity of bleeding is complicated by different methodological approaches to their classification. For example, some researchers assessed bleeding episodes in hospital admissions who received up to 4 units of blood transfusion as "minor". Intracranial hemorrhage is by far the most serious "significant" bleeding. 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 is 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 a major factor in increasing the risk of bleeding. It is known that for every decade of life after forty years, the risk of all and major bleeding increases, respectively, by 32 and 46%.

Previous studies have shown that bleeding is associated with an increase in the INR target. However, some of them presented results both in INR and in terms of

prothrombin time, which contributed to the emergence of difficulties in data interpretation. The actual assessment of possible bleeding, based on the degree of suppression of coagulation, should be based on the determination of the INR.

A group of Italian researchers followed up 2,745 patients receiving 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 the 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 of more than 4.5, the relative risk of bleeding is 7.9 (95% CI 5.4-11.5, p. Before prescribing oral anticoagulants, it is necessary to answer the following questions:

- Are there direct indications (eg atrial fibrillation)?
- Is there a high risk of bleeding or a serious contraindication to anticoagulation?
- Is there a risk of bleeding with concomitant therapy?
- Are there any difficulties in adhering to the drug intake regimen or visiting a polyclinic to monitor INR?
- Is routine patient screening available to identify additional risk factors for bleeding?

Excessive hypocoagulation. Excessive hypocoagulation without bleeding or with slight bleeding is eliminated by reducing the dose or temporarily stopping the drug. The risk of bleeding decreases significantly with a decrease in INR from 3.0-4.5 to 2.0-3.0. If clinically significant bleeding occurs, it may be necessary to give 2.5 mg of vitamin K1. Patients with artificial valves should be rigorously evaluated for vitamin K1 indications due to the risk of possible hypercoagulability. In addition to

vitamin K1, concentrates of the prothrombin group of coagulation factors, fresh frozen plasma at the rate of 15 ml / kg, as well as recombinant factor VII a are used to suppress unwanted hypocoagulation.

The main side effect of aspirin is the possibility of severe gastric 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 accident in atrial fibrillation. A meta-analysis of controlled trials of aspirin use showed that an average dosage of 273 mg / day increased the absolute risk of hemorrhagic stroke to 12 complications per 10,000 people. This relatively small increase is comparable to the reduction in the risk of myocardial infarction (up to 137 complications per 10 thousand people) and ischemic disorders (up to 39 complications per 10 thousand people). However, in one study in patients with well-controlled hypertension, 75 mg aspirin prevented 1.5 myocardial infarctions per 1000 patients per year and did not cause additional hemorrhagic complications, which is the additional benefit of lowering blood pressure.

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

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

In general, older adults are hypersensitive to the anticoagulant effects of warfarin and require a lower average daily dose to achieve the INR therapeutic window. For example, patients over 75 years of age need less than half the dose of

Warfarin compared to patients under 35 years of age to obtain 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 adults who have not been treated with anticoagulants (based on the Sixty-Plus study) to 5% (relative risk 3) with an INR of 2.5 to 50% (relative risk 30) with an INR of 4.0.

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

Factors that increase the risk of bleeding while taking warfarin include:

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

It is known that polypharmacy is widespread these days, which leads to unwanted drug interactions. Typical drug interactions include changes in digestibility and metabolic processes in the liver.

Patients should be warned of the risk of drug interactions with warfarin therapy. Cognitive impairment in some older patients may mean that they are not aware that

some drugs may interact with anticoagulants and that they do not inform their healthcare providers about concomitant therapy.

Also, older people are less likely to visit a polyclinic to monitor INR, 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 tackle this problem, patients must be carefully evaluated to ensure that the risk of bleeding in this patient population does not outweigh the benefits of hypocoagulation.

3.3. Uterine bleeding

Uterine bleeding in medicine is usually called dysfunctional uterine bleeding - it is pathological profuse bleeding from the uterus [12, 13].

They are one of the most striking manifestations of hormonal dysfunctions 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, therefore uterine bleeding is classified by age criterion 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 the climacteric period 45-55 years, when the function of the ovaries fades. Symptoms or signs of uterine bleeding are expressed either by significant bleeding during menstruation, or by 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 profuse discharge, lasting more than a week with signs of anemia, confirmed by a blood test and the following symptoms:

Weakness, increased fatigue, dizziness, headaches, skin poverty, hypotonia - low blood pressure

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

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

Bleeding is also considered to be the discharge of blood after intercourse. If your period lasts more than a week with significant pain in the lower abdomen and lower back pain.

Causes of Uterine Bleeding [12]

Consider the causes of dysfunctional uterine bleeding depending on the woman's age, 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

During 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:

The provoking factors are mental or physical trauma

Hypovitaminosis, malnutrition

Dysfunctions of the adrenal cortex and thyroid gland

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

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

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

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, which are caused by a number of provoking factors:

Stressful situations, chronic neuropsychic stress, overwork

Occupational hazard, living in cities with a developed chemical and metallurgical industry

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

Surgical or medical termination of pregnancy, miscarriages, ectopic pregnancy

The use of drugs that cause dysfunctions of the hypothalamus-pituitary gland.

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

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, development of the corpus luteum, folliculogenesis.

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

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

Common causes of uterine bleeding include:

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

Hormonal imbalance. 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 is also possible in women.

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

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

Polyps. These are benign lesions that often occur in women of childbearing age. If their number or size is significant, their removal is indicated, since they are both the cause of uterine bleeding and soreness of menstruation.

Ectopic pregnancy, miscarriage, premature placental abruption. These complications during pregnancy have recently been quite frequent in women. In case of 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 reason for possible bleeding, and regardless of the location of the tumor - the uterus, cervix, ovaries, for any bleeding, a woman should first of all exclude cancer, since nowadays oncological tension increases every year, and no longer has clear age boundaries , Oncology occurs both in 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. Especially the risk of bleeding increases after the simultaneous use of both contraceptives and anticoagulants (aspirin). Breakthrough bleeding may be minor, at the beginning of the use of hormonal contraceptives, as an adaptation to the drug. In these cases, the dosage should be revised 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 the 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 premenopausal period, at the slightest suspicion of starting 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, adequate and timely treatment can be initiated.

For emergency symptomatic treatment of uterine bleeding, experts recommend the following hemostatic drugs: etamzilate, vicasol, dicinone, 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 feces or vomit.

Bleeding is hidden, in this case it is detected only with the help of tests. Bleeding from the digestive tract can aggravate bleeding disorders.

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 the result of exposure of the blood to stomach acid and bacteria for several hours before a bowel movement.

The discharge of 60 ml of blood can lead to the appearance of black stool. After a single severe bleeding, black stool persists 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 pains, dizziness. Measurement of blood pressure in the supine and sitting or standing positions is of diagnostic value. Even with moderate anemia in the upright position, the pressure decreases.

Significant blood loss is indicated by symptoms such as increased heart rate, low blood pressure, and decreased urine output. 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 with coronary artery disease may suddenly develop symptoms of angina (chest pain) or myocardial infarction. Blood loss aggravates the manifestation of other diseases. In patients with liver disease, bleeding into the intestines can cause a build-up 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, gastritis, duodenitis, polyps, diverticula, intestinal diseases (acute ulcerative or necrotizing enteritis, ulcerative colitis, Crohn's disease), cancer at any location in the gastrointestinal tract can be complicated by bleeding.

Especially severe bleeding occurs from the veins of the esophagus with portal hypertension.

Also, heavy bleeding can occur with hemorrhoids.

The cause of gastrointestinal bleeding can be thrombocytopenic purpura, hemophilia, leukemia, lymphogranulomatosis.

The development of bleeding is possible against the background of the use of drugs (antiplatelet agents and anticoagulants [27, 29]), as well as in systemic diseases: atherosclerosis, hypertension.

After significant blood loss, hematocrit measurement (this is one of the methods for examining blood), as a rule, reveals a low content of red blood cells in the blood. The doctor needs to know what symptoms preceded the development of bleeding to help determine the cause. If abdominal pain improves after eating or an antacid, a peptic ulcer may be suspected; however, bleeding from ulcers is not always painful. Medicines that damage the lining of the stomach, such as aspirin, can cause bleeding from the stomach.

If a patient with gastrointestinal bleeding is deprived 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 esophagus can be assumed. Very severe vomiting immediately before bleeding makes one suspect a rupture of the esophagus, but vomiting does not occur in about half of patients. 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 feces is a symptom of hemorrhoids or a rectal disorder such as cancer.

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

Most often, the search for the source of bleeding begins in the upper part of the gastrointestinal tract. A special probe is inserted into the stomach through the nose and the liquid is aspirated. If the contents of the stomach resemble coffee grounds

(due to partial digestion of blood), the bleeding is likely to be minor or has stopped. Continuous discharge of bright red blood indicates ongoing heavy bleeding.

Next, the doctor examines the esophagus, stomach and duodenum using a flexible endoscope - a flexible fiber-optic medical instrument. If gastritis or ulcers are not found in the stomach or duodenum, a biopsy is done to examine the tissue under a microscope. This helps to determine if the bleeding is due to the influence of the pyloric helicobacter. 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. Your doctor can examine the lower intestine from the inside using an anoscope, flexible sigmoidoscope, or colonoscope.

If these diagnostic methods do not reveal the source of bleeding, then angiography (X-ray examination after the introduction of a radiopaque substance) or scanning after the injection of erythrocytes labeled with a radionuclide is done. These methods are especially effective when you need to decide if a shunt (vascular connection) is causing 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. RBCs (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 in order to notice the appearance of signs of ongoing bleeding in time: an increase in pulse rate, a decrease in blood pressure or bleeding from the mouth or anus.

Bleeding from varicose veins in 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 way is to inject an irritating chemical into the vessel — the source of the bleeding — that 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 a 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 prove to be ineffective, they decide on the issue of surgical treatment.

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

3.5. Risk of pulmonary hemorrhage

Pulmonary hemorrhage - 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 nonspecific inflammatory processes in the lungs or bronchi, tuberculosis and lung cancer, aneurysms, in the pulmonary circulation system, pulmonary endometriosis, in the presence of foreign bodies in the lungs and bronchi, pulmonary embolism, fungal and parasitic lung diseases, wounds and injuries chest, mitral valve defects and a number of other diseases.

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

Most often, bleeding occurs from the bronchial arteries, which are overdeveloped and aneurysmically altered in the area of the chronic inflammatory process. In the case of acute destructive lesions of the lung tissue, as well as in 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, impaired blood clotting.

Airway blood is usually excreted with coughing. Its amount can be different - from streaks of blood in sputum (hemoptysis) to profuse bleeding in a continuous stream. In some cases, hemoptysis is a harbinger of profuse bleeding from the lungs. The blood secreted from the respiratory tract is liquid, without clots, foamy, and has an alkaline reaction. In patients with profuse bleeding in the lower parts of the lungs, you can hear different-sized moist rales.

Diagnosis is based on characteristic clinical signs and history. The localization of the source of bleeding can be established by X-ray examination (by the nature of the lesion of the lungs), more precisely - by tracheobronchoscopy. If the source of bleeding cannot be identified with the help of these methods, catheterization of the bronchial arteries and bronchial arteriography are resorted to.

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

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

Pulmonary bleeding must also be differentiated with bleeding from eroded vessels of the mucous membrane of the mouth, nose and throat; the source of such bleeding is revealed by examining the oral cavity, pharyngo- and rhinoscopy.

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

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 PC should not be completely suppressed, so as not to interfere with the coughing up

of blood that has poured into the bronchi and not to 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.

The concomitant obstruction of the bronchi bronchospasm is stopped by the administration of m-anticholinergics (atropine sulfate, 0.5-1 ml of a 0.1% solution subcutaneously) and β -adrenergic agonists (alupent, salbutamol, inhalation berotek). In case of asphyxiation, emergency tracheal intubation, blood suction and artificial ventilation are indicated.

Simultaneously with measures to prevent obstruction of the bronchi and restore their patency, hemostatic therapy is carried out. With LK without hemodynamic disturbance, protease inhibitors (contrikal 10,000–20,000 units each or gordox 100,000 units) and fibrinolysis (aminocaproic acid — up to 100 ml of a 5% solution) are injected intravenously.

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

If it is impossible to determine the indicators of the blood coagulation system, it is more expedient to prescribe hemophobin (2-3 teaspoons by mouth), etamzilate (2-4 ml of a 12.5% solution intravenously or intramuscularly), fibrinogen (2 g in isotonic sodium chloride solution intravenously). Intravenous administration of calcium chloride or gluconate, the imposition of tourniquets on the extremities with LA are less effective.

In the case of bleeding from the bronchial artery system, it is advisable to lower 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, pentamine is administered in 3 ml of 5% solution intramuscularly, benzohexonium in 0.5-1 ml of a 2.5% solution

subcutaneously or intramuscularly; intravenous drip under constant control of blood pressure, you can use arfonade.

Pulmonary hemorrhage causing post-hemorrhagic anemia is an indication for replacement transfusion of erythrocyte mass (canned blood transfusion should be avoided).

To eliminate hypovolemia that has arisen after large blood loss, it is recommended to introduce native plasma, polyglucin, rheopolyglucin or gelatinol.

In the absence of a hemostatic effect from medical methods, bronchoscopy is indicated, during which the bronchus of the bleeding segment is occluded. In case of ineffectiveness of bronchoscopy, bronchial arteriography can be performed, followed by endovascular occlusion of the bronchial arteries. These methods make it possible to stop LK in most patients. However, often with LK, 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. Distinctive signs 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 the vessels, as well as non-traumatic, which is caused by the destruction of blood vessels when they are exposed to one or another painful process. The types of lesions determine, respectively, the types of bleeding, for which first aid is decisive in the promptness 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 blood vessels determines the corresponding type of bleeding.

Arterial bleeding. The outflowing blood is bright red, a distinctive feature is 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 in a pulsating stream under high pressure. In case of damage to large vessels (aorta, femoral artery, etc.), blood loss can occur within a few minutes, incompatible with life.

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 out 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 when injured, for example, the veins of the neck and chest, air can enter their lumen at the time of entry. Air bubbles entering the heart with the blood stream can cause 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 flows from the wound slowly through the capillaries, and with normal clotting, the 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

In acute blood loss, the victim has an extremely pale appearance, while his body is covered with cold and sticky sweat. Lethargy and dizziness are noted. The victim is thirsty, dry mouth. His pulse is characterized by a frequency with a simultaneous low filling.

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

Bleeding into the pleural or abdominal cavity, cardiac shirt is sometimes secret, 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 weapons 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. Distinguish between arterial, venous, capillary and mixed bleeding.

CHAPTER 5

TECHNIQUE FOR STOPPING LIFE-HAZARDOUS BLEEDING IN AN OPEN WOUND SURFACE

5.1. Features of assisting with external bleeding

Distinguish between temporary and final cessation of bleeding.

Temporary stopping 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, by sharp bending and fixing the limb in this position, applying a pressure bandage, giving an elevated (elevated) position of the surface part of the body, applying a hemostatic tourniquet (twisting) and clamping on the vessel, leaving it in wound.

Pressing the vessel throughout is carried out by squeezing the bleeding vessel above the bleeding site when the artery is injured and below - when the 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 required to immediately stop bleeding and gain time to prepare for stopping bleeding by other methods that allow transportation of the victim. In addition, finger pressure on a bleeding vessel requires significant efforts, even a physically strong person can perform this procedure for no more than 15-20 minutes.

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

If finger pressing of a bleeding vessel can be performed in mutual aid, then a tight wound tamponade should be performed only by a doctor. A tampon that has tightly filled the wound must be fixed from above with a pressure bandage. In some cases, tamponade of a bleeding wound can be a means of not only temporary, but also

a 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 the 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 the application of a tourniquet. This manipulation is indicated only for massive arterial (non-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: a rubber tube, belt, towel, rope. The tourniquet is applied above (central) the bleeding site and as close to the wound as possible.

The harness is applied as follows:

- the place of the alleged imposition of the tourniquet is wrapped with a towel, a piece of cloth, several layers of bandage;

- the tourniquet is stretched and made 2-3 turns around the limb along the specified substrate, the ends of the tourniquet are fixed either with a chain and a hook, or tightened with a knot;

- the limb should be overtightened until the bleeding stops completely;

- the time of application of the tourniquet must be indicated in a note attached to the victim's clothing, as well as honey. Documents accompanying the victim.

With a correctly applied tourniquet, bleeding from the wound stops and the peripheral pulse on the limb is not detected 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 a limb under a tourniquet can lead to its death. It is strictly forbidden to apply dressings over the tourniquet. The tourniquet should lie so that it catches your eye.

After the application of the tourniquet, the victim must be immediately transported to a hospital for the final stop of bleeding. If the evacuation is delayed, then after a critical time, finding the tourniquet for partial restoration of bleeding must be removed or loosened for 10-15 minutes, and then applied again slightly above or below the place where it was. For the period of releasing the limb from the tourniquet, arterial bleeding is prevented by finger pressing 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 available tools. When applying a twist, the material used should be loosely tied at the required level and form a loop. Into the loop, introducing a stick and rotating it, twist it until the bleeding stops. Then the specified stick is fixed. It must be remembered that the application of a twist is a rather painful procedure; to prevent pinching of the skin during twisting and to reduce pain, a dense pad is placed under the knot. All the rules for applying a twist are similar to those for applying a bundle.

To temporarily stop bleeding at the scene, it is sometimes possible to apply a sharp (maximum) flexion of the limb, followed by fixing it in this position. It is advisable to use this method of stopping bleeding in case of intense 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 when the forearm and lower leg are injured, 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 the position brought to the stomach.

Often it is possible to bleed, stop it with a pressure bandage. Several sterile napkins are applied to the wound, on top of which a thick roller 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 bladder and a moderate weight such as a sandbag on the wound area over the dressing.

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

Bleeding is one of the most life-threatening complications of the body. It can be the result of trauma or damage to 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 a 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 of 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 the assistant is thoroughly dried from blood using an electric aspirator or gauze napkins.

Before dissolving the tourniquet, fresh slippers are pressed to the entire wound surface and, gradually loosening the tourniquet, observe where the wound begins to soak with blood first of all. This will roughly show you the location of the bleeding vessel. The surgeon keeps the hemostatic clamp ready, and the assistant quickly removes the napkin from the bloodstream. If the place 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 has resumed and the doctors managed to find its source, the tourniquet should be tightened and the whole procedure should be repeated until a complete stop of bleeding is achieved.

Now the second stage of hemostasis has to be done - to detect and tie up the bleeding vessel itself. The fact is that the intersected vessel contracts and, as a result, usually sinks into the depth of the muscle mass. Therefore, the clamp applied en masse may not clamp 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 with these tissues. At any time, the muscles can move, the lumen of the vessel will open and bleeding will resume. True, in this case, most often the blood is not poured directly into the wound, but an intermuscular hematoma is formed, but a hematoma is also a very unpleasant complication.

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

For this purpose, before removing the clamp applied en masse, the assistant should make a sufficiently strong retraction of the muscles with two swabs, as close as possible to the area where the clamp is placed. The surgeon removes the clamp with his right hand, and with the help of a small, dense swab, he moves the tissues with his left, trying to see the vessel. After the vessel is found, it is grasped with a forceps and tied 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 "chipping" the vessel is used. To do this, a purse-string or U-shaped suture is applied to the tissue around the bleeding vessel. In this case, the needle should be inserted deeper so that when the suture is tightened, the latter would necessarily capture the vessel. Naturally, when applying

the clamp and the en masse suture, care should be taken that nerves and other formations not subject to dressing do not get into it.

In cases where only small blood vessels are bleeding in the wound, there is usually no need to apply a tourniquet. The surgeon presses the bleeding spot with a gauze pad for a second, then quickly removes the pad, at this moment the assistant clearly sees the bleeding spot, grabs it with tweezers and electrocoagulates it. In the same way, they consistently act with the rest of the small bleeding vessels.

You have undoubtedly observed more than once that after dissection of tissues, small vessels as a result of their spasm in response to trauma usually do not immediately bleed. As a rule, this period lasts a few seconds, but sometimes it takes 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 wound is sutured, a hematoma may form in the patient after the operation.

Therefore, the use of locally spasmotic drugs is hardly worth recommending, and before suturing the wound, it is necessary to carefully monitor the hemostasis. In case of injury to the main vessel, a vascular suture should be placed on it in order to restore blood flow. Therefore, in order not to crush the vessel wall for its clamping, only atraumatic clamps should be used, squeezing them minimally - by one or two ratchet teeth.

You can perform temporary prosthetics of the vessel, for which a PVC tube from the blood transfusion system is inserted 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 from it. This makes it 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 operation is small and the depth of the wound is large.

When massive bleeding begins, first of all, it is necessary 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 the bleeding.

5.2. Rules for the imposition of a tourniquet or twist.

An improperly applied tourniquet is itself a serious hazard; this operation should be resorted to only as a last resort for very severe bleeding that cannot be stopped otherwise. Don't waste your time! Heavy bleeding can lead to 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 with the fingers on the vessel above the wound (Fig. 1).

Bleeding is stopped:

1. from the lower part of the face - by pressing the jaw artery to the edge of the lower jaw (1);

2. on the temple and forehead - by pressing the temporal artery in front of the tragus of the ear (2);

3. on the head and neck - by pressing the carotid artery to the cervical vertebrae (3);

4. on the armpit and shoulder - by pressing the subclavian artery to 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 at 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 you don't have a special rubber band at hand, a soft rubber hose is the most suitable material for making it. At the place of application of the tourniquet (5-7 cm above the wound), so as not to pinch the skin, you must first put a dense cloth or wrap the limb with several layers of bandage. You can use a tourniquet over your sleeves 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 not wound too tightly, each next one is more and more tensioned. The application of the turns is continued only until the bleeding stops, after which a tourniquet is tied.

Do not over-stretch the tourniquet, 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 prompt delivery of the victim to the nearest medical facility.

If the tourniquet causes severe pain, it is allowed to temporarily remove it to give the victim a rest from the pain. Before this, it is necessary to firmly press the vessel with your fingers through which the blood flows to the wound. Dissolve the tourniquet very carefully and slowly.

Instead of a tourniquet, you can use a twist made of a soft non-stretching material - a bandage, towel, tie, belt, etc. as with the application of a tourniquet, they are protected from pinching by the fabric. A short stick or any suitable object is threaded into or under the knot, with the help of which the winding is performed. As soon as the bleeding stops, the stick is fixed so that it cannot spontaneously unwind, and the wound is closed with an aseptic bandage.

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

CHAPTER 6

NURSE CARE FOR SMALL EXTERNAL BLEEDING

6.1. Basic rules to follow when providing first aid

Even with minor bleeding, when providing first aid, you must follow the rules:

1. wash the wound only if corrosive or poisonous substances get into it
2. if sand, rust, etc. have got into the wound. it is impossible to rinse it with water and solutions of medicines
3. Do not lubricate the wound with ointments or fill it with powder - this prevents it from healing;
4. if the wound becomes dirty, carefully remove the dirt from the skin around the wound from the edges of the wound outward; the cleaned area is smeared with tincture of iodine before applying the dressing
5. Do not allow iodine to enter the wound;
6. Do not touch the wound with your hands, even if they are cleanly washed; blood clots should not be removed 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 has stopped, if the blood loss was significant, the victim should be urgently referred 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 drip a little iodine tincture onto the tissue to make a stain 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 raised above the body. With the correct position of the pressure bandage, bleeding stops and the bandage does not get wet.

Stopping bleeding from the 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 the provision of medical care depending on the type of external bleeding

In our study, it is necessary to pay attention also to small, non-life-threatening bleeding, since they also occur in the practice of emergency departments.

The most common cause of minor bleeding is cuts on the hands or other parts of the body with glass, knives, 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 in a continuous stream. The way to stop capillary and venous bleeding is to apply a pressure bandage to the wound.

With arterial bleeding, scarlet blood flows out in a pulsating stream. Arterial bleeding is stopped by applying a tourniquet or completely bending 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. finger pressing of the artery above the injury site,
2. application of a tourniquet,
3. Sharp flexion of the limb in the joint with its fixation in this position.

CHAPTER 7

NURSE CARE FOR LIFE-THREATENING INTERNAL BLEEDING

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

The danger to the life of a patient with acute blood loss is mainly associated with the development of acute anemia, as a result of which there is a 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 poured out. The total mass of blood in the human body is 7% of the 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 lot of blood loss and the compensatory capabilities of the body quickly dry up;

3) age. It is especially difficult for small children and elderly people to tolerate blood loss,

4) gender. It has been established that due to physiological characteristics, blood loss is easier for women than for men;

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

Caring for a patient with large blood loss requires special attention from the nurse.

In most cases, blood and blood-substituting fluids continue to be transfused during and after care.

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

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

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

You 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 bleeding area.

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

Hemoptysis and pulmonary hemorrhage, as a rule, are not accompanied by the phenomena of shock or collapse. The threat to life in such cases is usually associated with impaired 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 avoid blood entering the healthy lung. An ice pack is placed on the same half of the chest. With an intense cough that increases bleeding, antitussives are used. To stop bleeding, vikasol is injected intramuscularly, calcium chloride, epsilon aminocaproic acid are administered intravenously. Sometimes, with urgent bronchoscopy, it is possible to plug a bleeding vessel with a special hemostatic sponge. In some cases, the question arises of urgent surgical intervention.

- calcium lactate 0.5 g 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 tumors are externally located, 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 risk of profuse bleeding, which may require urgent hospitalization of the patient for ligation of the hypogastric vessels and blood transfusion.

CONCLUSIONS

1. In the course of the study, the main risk factors for the development of bleeding were identified.
2. In practice, the distinctive features of various types of bleeding and prognostic factors of life-threatening bleeding have been investigated.
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 investigated.
5. The basic principles of prevention of bleeding have been studied: when working with piercing and cutting tools, observe safety rules; avoid injury; in the presence of chronic diseases, often consult a doctor in order to avoid complications such as bleeding.

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