State educational institution of higher professional education "Orenburg State Medical Academy of the Ministry of health and social development of the Russian Federation

MANUAL

for medical students

**"BLEEDING. ACUTE BLOOD LOSS»**

Orenburg-2010

Manual compiled by the departments of the hospital and surgery Faculty of SEI HPE Orenburg State Medical Academy of the Ministry of health and social development.

Authors:

Professor Tarassenko V.s.

Professor Nuzov B.g.

The manual outlines the current understanding about how to stop bleeding in surgery, methods of diagnosis and treatment of acute blood loss and its complications. Dana classification of modern plasma substitutional solutions, indications, methods of introduction.

Recommended for publishing by the Publications Board OrGMA

Orenburg: SEI HPE OrGMA 2010 g. 62 s.

Publisher: General Department

License 021239 from 22.08.97 g.

Signed print

Paper size a-4, Edition 300 copies.

Tel. 77-24-59 OrGMA

**Relevance of the topic.**

Bleeding of any etiology and localization pose a direct threat to the lives and call for urgent action to stop it. The timely and quality emergency care under these terrible conditions, transport of injured and sick life depends.

Bleeding and hemostasis issues is one of the most important aspects of medical professionals in practical activities which the encounter with different kinds of bleeding in emergency situations, various diseases and representing an immediate threat to life. In this regard, it is vitally important to speed decision-making, knowledge and possessions of the emergency algorithm. However, you must bear in mind legal responsibility in assisting at bleedings.

Types of bleeding.

Causes of bleeding are varied. The most common is the direct blood vessel injury: injection, cut, razmozzhenija, stretching, separation-in fractures. Can be a source of bleeding varikozny site for varicose veins of lower extremities, nose, rotoglotka, esophagus, stomach, intestines, rectum, trachea, bronchi, lungs, liver, spleen, uterus and its appendages, kidney, urinary bladder. Often bleeding due a change in the composition of the blood (sepsis, jaundice, blood diseases).

Classification of bleeding

1. Source: Blood

Venous

Capillary

Parenhimatosnoe

2. By the nature of the damage to the vessel:

Vessel injury

High permeability

Corrosion of the vessel (arrozija)

3. On the nature of the manifestations:

Explicit

Hidden

4. In relation to the external Wednesday:

Exterior

Internal

Mixed

5. Time: primary

Secondary

A) Early

B) Later

Arterial bleeding in the case of stab wounds wound is in the projection of the Neurovascular bundle, izlivajushhajasja blood Scarlet colour, pulsating stream of beats. Bleeding alone does not stop. The tempo of the blood loss is large, quickly leads to death. However, with deep wounds, with a narrow wound channel tortuous pulsating jets may or may not be, but there is a bruise, imbibicija the surrounding muscles, subcutaneous tissue. If there are torn, crushed wounds otryvah limbs arterial bleeding may stop on its own due to spasm of the muscle shell vessel vvorachivanija inside intima of the vessel, providing large amounts of tissue thromboplastin.

At venous bleeding blood temno-vishnevaya derives even squirt. Bleeding when damaged main veins were no less, and sometimes more dangerous than arterial, because:

-faster cause pressure drops in the mouths of hollow veins, accompanied by a decline in the strength of heart contractions (reflex Bain-Bridge);

-can cause air embolism (veins of the neck);

-Vienna, having a weak muscle wrap loosely and tempo spazmirujutsja blood loss is not reduced.

At a bleeding from a subcutaneous veins limbs paced blood loss is low, there is no risk of air embolism, the propensity to spadeniju veins and a tendency to self-stop bleeding.

When capillary bleeding blood is allocated evenly across the surface of the wound. Such bleeding usually stops on its own.

Bleeding when damaged liver, spleen, kidneys, lungs, pancreas alone does not stop, called parenhimatoznymi.

Massive capillary bleeding accompanied by fractures. Vnutrikostnye vessels, fixed in gaversovyh bone, does not spadajutsja, the bleeding stops for forming hematomas.

Mixed called bleeding if there are simultaneously injured arteries, veins and parenhimatosis body.

2. On the nature of the damage to the vessel wall

A. vessel injury (bleeding through the gap)

Hemorrhagia per rexin

    B . As a result of increased permeability of the vascular wall (bleeding through propotevanie) Hemorrhagia per diapedesin

As a result of the destruction of the vessel pathological process (arrozivnoe bleeding) Hemorrhagia per diabrosin.

3. Division depending on where the outpouring of blood:

External bleeding is the allocation of the blood through the skin wound or external mucous external Wednesday.

Nosebleeds- epitaxis;

Royal Robin- menorragia , mensis

aciklicheskoe- metrorragia;

Bleeding Gemorroidalnoe- haemorrhoe.

When hidden external bleeding blood accumulates in the first cavity, communicating with external Wednesday, and then allocated to the outside, often in a modified form.

These include: stomach, intestinal, clearance in the tracheobronchial tree, urinary tract.

Internal bleeding-blood pours into the body cavities:

In the cranial cavity- haemorrhagia cerebri;

In the joint cavity- haemartrosis;

In the cavity plevralnuu- haemothorax;

The abdominal cavity is the haemoperitoneum;

Pericardial cavity- haemopericardium.

Limited accumulation of blood in the tissues-bruise, she formed in thicker tissues (liver, brain), fascial cases limbs. In soft tissues-tissue, muscle-the impregnation (imbibicija) blood. Loose fabric, propityvajas blood, can accommodate a significant quantity, retroperitoneal tissue (kidney trauma, pelvic bones) to 2.5-3 l, diaphysis fracture a hip to 1 l.

Bleeding in the patient's body are a variant of internal bleeding: petechiae, ecchymosis, strips of haemorrhage, bruise.

4. at the time of bleeding are divided into:-primary-develop immediately after the damage of the vessel;

-early secondary-in the first hours or days after the injury due to squeezing a blood clot or slipping ligatures with receptacle;

-recent secondary occur a few days after the trauma caused by purulent or arrozii wall receptacle.

**Temporary stop external bleeding**

In capillary and venous bleeding of subcutaneous veins should:

1. Create a sublime position of extremity

2. Apply pressure (tight) bandage.

When arterial bleeding, you must:

1. Give the limb elevated position

2. run the finger pressure vessel to the bone

3. Apply a hemostatic tourniquet.

The ability to exercise the finger pressure different arteries is necessary for any physician specialty, since the delay in time could cost the affected life!

You should learn how to instantly find the point and press artery (students can recommend this technique on each other) with the disappearance of pulse distal to the tightness.

Carotid artery is pressed against the sleepy bugorku ( tuberculum caroticum) transverse process 6 cervical vertebra near the middle of the inner edge of the sternocleidomastoid muscle, push down and inwards posteriorly (fig. 1).

Temporal artery pressed ahead the tragus of the ear to the temporal bone.

Facial artery is pressed against bleeding lower jaw masseter muscle ahead or in the middle of the jaws.

Subclavian artery pressed to 1 edge in the field of tubercle Lisfranka from the outer edge of the sternocleidomastoid muscle in the collarbone in the direction from top to bottom and outwards (fig. 2).

Podkrylcovaja artery is pressed against the head of the humerus at the front edge of the hairy armpit (fig. 3).

Brachial artery is pressed against the inner surface of the humerus (Figure 4).

Radiation and anconeus artery Nestle in the bottom third of the forearm.

The femoral artery is pressed against the horizontal branch under the pubic bone ligament pupartovoj (fig. 5).

Abdominal aorta can be pressed to the spine through the front abdominal wall in the navel area (fig. 6).

This technique is effective at slim and physically not very developed patients. It is applied when injuries iliac arteries, profuzhnykh postpartum uterine bleeding. Implementation of this technique may be accompanied by abdominal trauma and even abdominal organs.

Posterior tibial artery nestles behind the medial malleolus. Back artery of the foot is pressed against the middle distance between the lateral and medial ankles, i.e. in the projection of the first mezhpalcevogo period.

The finger pressure gives you the ability to instantly stop the bleeding, but physically strong man will not be able to pressure more than 10-15 minutes. In this regard, at the stage of first aid, there is a need to use other ways to temporarily stop the bleeding, such as imposition of Haemostatic harness or harness twists (fig. 7).

Blending technique of Haemostatic harness:

1. A tourniquet placed above the 4-5 see. to avoid interference while performing primary surgical wounds processing (PHO). A tourniquet is not superimposed on the joints, brush and foot.

Figure. 8. Overlay krovoostanavlivajushhih harnesses on different segments of the limbs.

2. Under tourniquet fit lining (shirt, gauze, cloth, towel, etc.)

3. A limb attached to the exalted position.

4. A tourniquet is imposed not more than 2:00 in summer and winter-not more than 1-1, 5:00! To bundle attached tag with time his overdub (hour and minutes).

If after a specified time, the victim is not taken to the hospital, you must:

1. Squeeze the finger artery

2. loosen or remove the tourniquet on 10-15 min.

3. to apply a tourniquet

4. Release the finger pressure.

**The signs properly superposed harness:**

1. stop the bleeding wound

2. the absence of a pulse

3. Pallor limb

Blue said about wrong superimposed wiring.

Basic mistakes when applying blood harness:

1. fitting the harness without sufficient grounds

2. Away from the wound

3. fitting the harness on the naked body

4. Weak or strong strapping a harness.

Complications associated with the overlay harness:

1, This shock (crash-syndrome) occurs when removing the harness and all accumulated nedookislennye products, mioliza (Myoglobin) appear at the bloodstream, causing a dramatic shift in the KHS acidic side (acidosis). Mioliza products are causing a sharp fall in vascular tone, and Myoglobin in renal bone mineral precipitate causes them to blockade, causing acute renal failure (ARF). Pathogenesis of turniketnogo shock identical to the pathogenesis of the syndrome and sdavljenia syndrome long compression pozicionoj.

If in the process of transportation restricts tow limb more than two hours, the maintainer should weaken or dissolve the tourniquet on 10-15 minutes to make the finger squeeze arteries and again apply a tourniquet. When delivering care the victim is placed in intensive care or intensive care unit (PETE) and carry out the following activities:

a) above harness perform futljarnuju novokainovuju blockade;

b) catheterization of the bladder;

b) intravenous infusion therapy solutions of saline solutions in volume 40-50 mL/kg patient with enhanced diurezom;

g) PHO wounds and final stop bleeding;

h) optionally (phenomena of accumulation of endogenous intoxication-SEI) perform extracorporal methods of detoxication: plasmapheresis, hemosorption, hyperbaric oxygen therapy;

(e)) with the progression of irreversible ischemia-produce amputation of a limb.

2. Wound anaerobic infection, growing in ideal conditions: availability of entrance gate-Rana, nutritious Wednesday-razmozzhennye fabrics, constant body temperature in a dramatically reduced oxygen delivery. Great risk of anaerobic infections in wounds contaminated land, manure, faeces.

3. Neuralgia, paresis, paralysis associated with ischemic damage nerves.

4. Thrombosis and embolism-when squeezing ateroskleroticheski modified arteries possible detachment (flotation) intima, development of thrombosis and gangrene.

5. Mad limbs under the harness at the cold time of the year.

Temporarily stopping bleeding maximum bending or razgibaniem in the joints (fig. 9)

forearm and lower leg with bleeding from the radial artery and the arteries of the foot (front, back tough leg) on the surface of the sgibatelnuju joint (kubitalnuju, podkolennuju area) placed gauze roll diameter of 5-7 cm, limb the maximum bend in the the foot and secured with a bandage.

First aid phase it is possible to temporarily stopping bleeding overlay Haemostatic clamps available in laying an ambulance with mandatory interim (transport) limb immobilization to prevent his release (PIC. 10).

Temporarily stopping bleeding can be achieved with a damaged main veins of extremities by tamponade wounds.

When internal and hidden temporarily stopping bleeding is usually impossible, except for hemorrhage from esophageal flebjektazij, which uses a probe Blackmore-Sengstakena (fig. 11).

(1-tubular portion of the probe in esophagus, 2-cylinder, 3 esophageal-gastric balloon).

**Final methods stop bleeding.**

And) mechanical ways to:

1. Compression bandage-with external capillary bleeding and damage of subcutaneous veins.

2. Tamponade wound wipes, bristles at the capillary, venous external bleedings, provided that the source of the bleeding is not found, there is a diffuse bleeding due to a violation of the coagulation system. Usually used tampon Mikulic (fig. 12).

(1-gauze bag, 2-strand, prishitaja to the bottom of the bag to retrieve it, 3-tampons, filling the bag)

Hemostatic effect of tamponade may be supplemented by overlaying wound stitches.

3. vascular Ligation in the wound is the main method of mechanical haemostasis (fig. 13).

4. vascular Ligation for "-runs when wounding major arteries:

-impossibility of dressings receptacle in the wound-artery has declined and is not visible in the wound;

-risk of bleeding arrozivnogo.

5. Imposition of vascular seam (fig. 14)

connection artery taking Carrel (end-to-end) or performing temporary prosthetics silicone tubes (from the system for transfusion) or special alloprotezami or autovenoj (fig. 15).

6. Rubbing wax filled bones at a bleeding from bone fragments.

**Physical methods**

**final stop bleeding**

And local application of cold) is any form of trauma apply ice packs because Vasospasm observed committing clots in the wound. When gastric bleeding stomach is washed with cold water.

B) topical application of hot water (t 50-55 c) also gives effective Vasospasm and causes coagulation proteins blood streamed.

In) Diathermocoagulation (electrocoagulation). The method is based on the thermal effects of alternating electric current generated by the special apparatus when passing through the fabric (fig. 16).

The disadvantage is the formation of necrosis in the thickness 1-2 mm. Through coagulation (scab), violates the regeneration.

G) laser scalpel. The method is based on photocoagulation (t-8000-10 000). Advantages of laser scalpel versus electrocoagulation is:

the lower layer thickness necrosis (up to 1 mm.) of cutting line;

-pronounced antiseptic effect due to the UV range.

D) Plasma scalpel. The method is based on coagulation bleeding vessels plasma Jet (sizzling hot helium at t 11 000-15 000 degrees) advantages are:

-Higher temperature effects;

-Possibility of 4 mm diameter veins coagulation, arteries-1 mm.

-More than a thin layer of necrosis ( -0.5 0.3 mm) along the lines of the cut that to a lesser extent violated the regeneration of wounds.

-No harmful for staff.

**Chemical methods**

**final stop bleeding**

Chemical ways to stop bleeding is the local use of chemicals, coagulating proteins (10% AgNO3, skin as protection from germs, 4 3%H2O2).

**Biological methods**

**final stop bleeding**

And biological ways) local hemostasis

-Solutions adrenomimetikov (0.1% adrenaline-1.0; 1% mezaton 1.0 ml 5%, ephedrine-2.0 ml) locally in the wound with tampons, napkins.

B) Wound covering containing the Thrombin, adsorbable filling materials-represent a plate or a sponge of collagen modified cellulose or gelatin-impregnated with trombinom. Apply topically to stop parenchymatous bleeding. Uses: Spongostan, gemostatical sponge, (England), Serdzhisel (England), Tachocomb (Denmark).

In) Biological tamponade. Many of the biological tissue, rich fabric tromboplastinom, can be used to tamponade wounds and cavities with parenhimatoznom and capillary bleeding. The abdomen is most commonly used, peritoneum on the limbs and the chest cavity is skeletal muscle, usually on the supply of vascular "leg".

**General biological methods for hemostasis.**

But) blood transfusions. Currently, whole blood transfusions may be used to deal with hypocoagulation, only as an emergency measure. Military-field surgery at the stage of providing medical care in civilian medicine only in exceptional cases when there is no blood transfusion recipient is allowed odnogruppnoj (affected) with any blood type with Hemostatic blood donor universal goal "-group 0 (1) Rh-negative in the dose of not more than 500 ml., except for children (instruction for transfusion of blood and blood components. MINISTRY OF HEALTH of the RUSSIAN FEDERATION 25.11.2002). Is currently being only transfusions of blood components.

Reinfusion of blood involves the aspiration it from operating wounds or cavities (chest, abdomen) sterile suction into a sterile container with subsequent laundering of erythrocytes and returning them to the recipient during operation or within the term not exceeding 6:00 after the beginning of the collection. Blood izlivshajasja in serous cavities (knife-cut injuries, trauma to the spleen, ectopic pregnancy) is subject to reinfusion in period not exceeding 12:00 (with greater duration increases the risk of infection). Application of intraoperative reinfusion shown only in circumstances where the estimated blood loss exceeds 20% of the Bcc.

Contraindicated intraoperative reinfusion of blood in its bacterial pollution, ingestion of amniotic fluid, with injured liver, hollow organs (digestive tract).

Izlivshajasja in the blood is different in its composition from the circulating blood. It reduced the content of platelets, Fibrinogen, 2.3-diphosphoglycerate, high level of free hemoglobin, there are degdadacii products fibrinoguena (PDF).

Filtering the blood streamed through 8 layers of gauze are currently not permitted! (Order No. 363 of 25.11.2002 g).

Special devices for carrying out collection and laundering of intraoperative blood foregone during the operation.

B) Trombocitarnaja weight, obtained from whole blood by centrifugation (plasmapheresis) is used as a hemostatic. Transfusion of thrombocyte mass effectively only when violations of blood clotting, due to thrombocytopenia.

Fresh and antigemofilnaya) plasma (PTS and AGW).

Contain proteins-coagulation factors, collapsing in the early hours during normal storage of blood and plasma. These drugs are generic sources of plasma coagulation factors and coagulation disorders are used any Genesis.

G) Cryoprecipitate. Is a specific drug for correction when k gemofilijah. It contains a concentrate of antihemophilic globulin (AGG)- Vw, coagulation factor deficiency which is observed at gemofilijah and one dose contains up to 1 oz. of Fibrinogen.

Kriprecipitat is the tool of choice when you want the introduction of large amounts of PTS, but high DVD volume limits infusion: 3-4 doses of Cryoprecipitate

in its effect replaced 1 liter PTS.

D) Etamsylate (Dicinon) 12.5%-2.0 ml.-angioprotectornoe tool introduced in/in 2 ml. every 6:00 Its effect is associated with an increase in platelets in the bloodstream, normalization of permeability of the vascular wall, improvement of Microcirculation, thromboplastin formation.

E) protease inhibitors. When bleeding is observed activation in the anticoagulation (fibrinolytic) system. Specific inhibitors of fibrinolysis are: e-Aminocaproic acid 5%-100 ml. in/in drip; contrycal, trasilol (enter on 30-60th U/in the physical solution, gordoks (100000 IU), in/in).

F) chloride (gluconate) calcium 10%-10 ml/Ca Ion is 1V clotting factor. However, it is used to prevent citratnoj intoxication through transfusions of blood and blood components, canned citratnymi solutions. Enter 10% 10 ml chloride (glukonata) Sa for every 500 ml. perelitogo preparation of blood.

W) Zhelatinol-400 ml. Is 8% solution of gelatin, containing significant amounts of calcium ions.

And) Ascorbic acid 5%-1.0 ml. regulates the permeability of capillaries, is a powerful antioxidant.

To 1% Vikasol)-1.0 ml. Is a synthetic water-soluble analogue of vitamin k that the liver becomes in prothrombin.

L) Protamine sulphate 1%-1.0 ml. Is a specific inhibitor of exogenous heparin. To neutralize 100 UNITS of heparin is needed in/with the introduction of 1%-0.1 ml protamine sulfate.

M)-Uterotonicheskie drugs causing uterine contractions, thus contributing to stop uterine bleeding: oxytocin, 1. (5 UNITS), pituitrin 1 ml. (5 UNITS) are the hormones of the posterior pituitary are in/drip in saline solution. When uterine artistic methods used (0.02% ergometrine-1.0 ml., metilargometrin-(0.02%-1.0 ml).

**CLINIC AND TREATMENT OF ACUTE BLOOD LOSS**

Under the acute blood loss caused by syndrome understand the loss of a certain amount of blood for a minor (hours) period of time, which causes the clinical manifestations of violations in the work of organs and systems. Under the acute massive blood loss understand blood loss, accompanied by a fall in systolic hell sharp weakness, sometimes loss of consciousness, shortness of breath, abandoned and peripheral veins and sharp paleness of skin, oliguria.

**Ways to evaluate the severity of blood loss.**

There are many ways to assess the severity of acute massive blood loss, either directly or indirectly reflect its scope.

According to the clinical picture of blood syndrome

(Vorobjovs A.i. et al., 2001)

|  |  |
| --- | --- |
| Sign | The severity of |
| (I) | (II) | (III) | (IV) |
| Blood loss volume (ML) | < 750 | 750-1000 | 1500-2000 | > 2000 |
| The amount of blood loss (% CBV) | < 15 | 15-30 | 30-40 | > 40 |
| HEART RATE (beats per min.) | < 100 | 100-120 | 120-140 | > 140 |
| HELL | norm | norm | reduced | reduced |
| Pulse pressure | Standard or enhanced | reduced | reduced | reduced |
| ChDD in minutes. | 14-20 (norm) | 20-30 | 30-40 | > 40 |
| Hourly diuresis (ML) | > 30 | 20-30 | 5-20 | Missing |
| The Condition Of The CENTRAL NERVOUS SYSTEM | Easy arousal | arousal | block | Precoma, coma |

Estimated blood loss volume can be mounted on shock Algovera index (the ratio of the pulse to sistolicheskomu ad), which normally is equal to 0.5-0.6. As the index increases the amount of blood loss.

Index of Algovera blood loss volume in% BCC

0.7-0.8 10-15

0.9-1.2 20-25

1.3-1.4 30-35

1.5 and over 40-50 and more.

On indicators of "red blood"

|  |  |
| --- | --- |
| Indicator | The degree of blood loss |
| moderate | average | heavy |
| The amount of blood loss,% BCC | < 20 | 20-30 | > 30 |
| Number of erythrocytes × 1012/l | > 3.5 | 2.5 -3.5 | < 2.5 |
| Hemoglobin, g/l | > 100 | 80-100 | < 80 |
| Hematocrit,% | > 30 | 25-30 | < 25 |

**Diagram of the pathogenesis of blood loss.**

1 phase-Adaptive. Regardless of the type of bleeding (blood, venous, capillary, parenhimatosnoe), a reduction in venous return to the heart. This reduces diastolic filling and stroke volume, weakening the strength of heart contraction and the syndrome of the small release. Clinically this expresses itself in the short-term decline in ad. Include compensatory mechanisms sympathoadrenal system: Vascular track released adrenaline, noradrenaline. Hemodynamic response manifested by reduced capacity of the venous system, mainly the portal circulation system that provides compensation for 10-15% deficit BCC practically without changes in cardiac output and hell. Increased levels of Catecholamines in the 2-3 times increases cardiac output due to moderate tachycardia and regional diljatacii vessels of the heart, brain, lungs, that reduces the amount of total peripheral resistance vessels (CSO).

stage 2-the centralization of blood circulation. In case of exceeding the volume of blood loss 15-20% Bcc, venomotornyj compensation mechanism proves insufficient, the flow to the heart is reduced, resulting in a more pronounced reaction of sympathoadrenal system and implemented mechanisms to fluid retention in the body. Most carried out the inclusion of aldosteronovogo mechanism and antidiuretic hormone. Centralization occurs. Vasoactive substances affecting the peripheral vessels, increases resistance to blood flow at the level of the Microcirculatory bed, accompanied by increases in the round.

Increasing resistance on entering the capillaries causes a decrease transkapilljarnogo pressure and the emergence of another compensatory mechanism-gidremicheskoj reaction is excessive flow of fluid from the interstitial space a capillary network. Gidremicheskaja compensation for blood loss continues 48-72 hours. During this time, the vascular track can be up to two or more litres of liquid.

The positive effects of centralization of circulation leveled developing shortage of microcirculation and functional insufficiency "peripheral" but vital organs (kidneys, liver, lungs) due to severe artery bypass grafting blood flow. There was a reduction in stroke volume of the heart (SLD), minute release is maintained at normal level by tachycardia. ROUND increases dramatically. Systolic, diastolic increases steadily HELL and reflects the degree of increase of vascular tone. As a result, human peripheral blood circulation notes paleness, positive symptom of "white spots"-when more pressing pallor 10 seconds. Reduced skin temperature, it is a pale, cold, dry. Consciousness is retained, however, raises concern, anxiety, excitement, thirst, increased ChDD. Diuresis reduced to 20-30 ml/hour. Indicators red blood yet to go beyond the normal range.

stage 3-hemorrhagic shock. Blood loss increases up to 30-50% of BCC and prolonged period of circulatory decompensation develops centralization-hemorrhagic shock occurring in two phases: reversible and irreversible.

At the stage of reversible shock occurs and increases arterial hypotension to 60-70 mm Hg. Early primary sign of decompensation is the reduction of DVDS.

For reversible shock characterized by reduced all of hemodynamics, except for minute ejection, remaining at normal levels!

This reversible shock and different from irreversible.

First shock CSO promoted and then catastrophically. Increasing tachycardia (140-160 beats/min). Skin pale, cold with akrocianozom and zapustevshimi superficial veins. ChDD reaches 40-50 in minutes, there is an anuria. ECG-signs of myocardial ischemia.

Arise and clinically increasing symptoms of the first stage of the DIC (coagulation stage), confirmed by laboratory tests. Shortened the clotting time and activated partial thromboplastin time. Improvement of adhesive and there properties of platelets leads to hypercoagulation syndrome that Vasospasm entails mikrotrombov, contributing to tissue hypoxia. With the progression of the process of developing the second phase-k.

It should be noted that the giperkoaguljacionnaja phase of the DVS-sindroma quickly and easily occurs in persons with impaired hemostasis status (obliteriruty proper receptacles, oncopathology, chronic infection and intoxication).

Irreversible shock different depth of violations for a period of decompensation over 12:00 and progression of multiple organ failure. The dire condition of the patient, there is no consciousness arise tonico-clauniceskie convulsions.

Summing up, it should be noted that key parts of pathogenesis are loss of volume of circulating blood, malfunction of the hemostatic system, reduction of oxygen vectors, the development of metabolic acidosis, the blockade microcirculation, development of multiple organ dysfunction syndrome.

**Clinic of acute blood loss**

Well known triad of symptoms: acute blood loss

-Low blood pressure;

-Frequent thready pulse;

-Cold, pale moist skin.

Assessment of the patient's condition should be comprehensive and include all State organs and systems.

Changes in the central nervous system (CNS) are quite specific: the excitement and euphoria, inadequate assessment of their condition in the stage of centralization. Under the decentralization of blood circulation there is lethargy, sputannosti consciousness, sometimes hypoxic coma.

With the skin and mucous membranes there is pallor that testifies to expressed peripheral spasm.

On the dorsum of the hands and feet visible bluish, spavshiesja Vienna-symptom of "empty vessels". With the development of decentralization of circulation sheets become marble color and grey-sinjushnuju. The skin is cold, moist.

**The parameters of Central hemodynamics.**

An increase in heart rate (HR) in acute blood loss is one of the main effects of activation of the sympathoadrenal system. Maximum cardiac output can be achieved when HR 120-130 UD. in mines. If you exceed these figures, cardiac output decreases due to incomplete filling with blood the heart Chambers.

Tachycardia over 100 beats/min. indicates the maximum voltage adaptation mechanisms and the need to take urgent measures to stop the bleeding and filling the Bcc. HEART RATE more than 120 beats/min. reveals the breakdown of compensation of Central hemodynamics.

Blood pressure (BP) is an integral indicator depending on the Bcc, total peripheral vascular resistance and cardiac work. Under centralization circulation HELL remains normal, until the stage of decentralization, whereby an increase in the deficit of the BCC is accompanied by a fall in hell. Falling ad-late clinical sign of acute blood loss, indicative of circulatory decompensation.

Central venous pressure (CVP)-pressure in the upper hollow Vienna and right atrium. It depends on the right ventricular contractility and the size of venous return to the heart. Normal values of DVDS are Valdmanu 60-120 mm. waters. Church. (see fig.).

Decrease DVD demonstrates the lack of Bcc, and improve-right heart overloaded and their weaknesses. Decrease DVD in acute blood loss ahead of time, lowering the levels of HELL and is an early sign of developing circulatory decompensation.

At slightly reduced rates of CVP (30-50 mm. VOD. St.) use the reception Sykes (1975)-Jet are pouring in central Vienna 200 ml. plazmozameshhajushhego. Against the backdrop of an infusion it is observed the ad and DVDS. However, if there is deficiency of Bcc, after infusions these both will return to the original. If severe blood loss even Jet plazmozamenitelei does not lead to a marked increase of CVP. Filling the BEC is held until the CVP has stabilised at the level of the normal indicators.

**Hourly diuresis.**

In acute blood loss hourly diuresis characterizes the State of organ blood flow to the kidneys. By reducing the HELL below 70 mm. the Republic of Tajikistan. Church. stops filtering primary urine (70 mm Hg is called filtration pressure of the kidneys). Renal parenchyma is very sensitive to hypoxia action prevented. Normal kidney bloodstream is about 20% of the cardiac output. In acute blood loss

initially develops prerenal and then renal form of acute renal failure (ARF). Hourly diuresis normally is 30-50 ml/hour.

Indicators of hourly diuresis in acute blood loss reveals severity of Microcirculatory disorders and the effectiveness of interventions to address them.

**"Red blood".**

In acute blood loss critical dimensions of hemodilution is considered clinically significant drops in hemoglobin below 80 g/l, 3.0 x 10:12 erythrocyte, hematocrit below 30%, which requires filling in erythrocytes (transfusion er. mass). Amid spending infusion therapy fast hemodilution nominated problem maintaining the oncotic pressure of blood, a drop which is accompanied by the development of generalized edema syndrome and syndrome of "lung shock."

**Coagulation of the violation.**

The earliest submission about coagulation violations can be obtained when performing venipuncture and blood in a vial for laboratory research-thrombosis of blood in a needle and the rapid formation of a clot in a test tube.

Signs of hypercoagulation syndrome and various phases of the DVS-sindroma (Vorobiev et al., 2001)

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Giperkoaguljacionnyj syndrome | Giperkoaguljacionnaja phase DIC-syndrome | Gipokoaguljacionnaja phase DIC-syndrome |
| Venipuncture  | Blood in veins puncture trombiruet needle | Blood in veins puncture trombiruet needle | Blood is not trombiruet the needle |
| Education clot in vitro | In vitro clot is formed, but loose | In vitro clot is formed but soon splits | Clot in vitro is not formed, but loose |
| Coagulation time of whole blood | shortened | shortened | Oblong |
| Platelets whole blood | Rule or increase | norm | Content is reduced |
| ACTV | shortened | shortened | Oblong |
| Thrombin time | shortened | shortened | Oblong |
| Antithrombin (III) | norm | reduced | Reduced |
| PDF | No | define | Significant growth |
| Organ pathology | No | Thrombosis of the veins, initial signs of multiple organ failure | Multiple organ failure, bleeding |

In the body of the patient (affected) are included physiological mechanisms to combat blood loss:

-muscle calm;

-stop external activity of glands, kidneys, stomach, intestines;

-increased cardiac output;

-impact of oxygen in tissues;

-reducing blood viscosity;

-peripheral vasoconstriction.

Principles of treatment of acute blood loss.

An algorithm for treatment of acute blood loss consists of the following tasks:

1. establishing the causes and nature of bleeding

2. haemorrhage control

3. Determination of the degree of blood loss and development programs fill its

4. limitation of oxygen patient needs (rest, optimum temperature, humid inhalation of oxygen), infusion-transfusion therapy

5. correction of coagulation violations

6. restoration of Microcirculation

7. restoration of oxygen transport functions of blood

8. The monitoring of the effectiveness of treatment

9. Diagnostics and treatment of complications.

1, 2. Pre-hospital medical personnel immediately! executes the temporary hemostasis and the fastest delivery in the nearest HEALTH FACILITY, which has a surgical service. When internal (hidden) bleeding a patient need as quickly as possible to deliver in hospitals. Transportation must be effected in a prone position, preferably in/with the introduction of plazmozamenitelei and oxygen through nasal catheters.

3.4. Upon delivery to the hospital carried out defining the degree of blood loss and in mild blood loss in the front run laboratory and instrumental examinations for diagnosis. With moderate and severe blood loss patient is transported to the operating room for the final stop of bleeding or in intensive care, diagnostic and therapeutic interventions. After the surgery, the patient is taken to the resuscitation or intensive care, continue ventilation (ALV) to full fill the Bcc, only then executes extubation and translation to breath. At the same time constantly humidified oxygen is fed, the patient covered with a blanket, I am warmed by. To control urine output requires setting the urinary catheter.

To stabilize the Central hemodynamics crucial compensation deficit Bcc. For this purpose are:

-Saline solutions-kristalloidnye plazmozameniteli;

-Colloidal plazmozameniteli;

-Drugs and blood components (er. weight, plasma, etc.).

Infusion-transfusion program fill the BCC (Vorobjovs A.i. et al. 2001 year)

|  |  |
| --- | --- |
| Volume blood loss | Transfusion Wednesday |
| ml | % The BCC | Saul. R-ry | ColoIDA | LQ 10% | PTS | Eritrocity | Trombocity |
| < 750 | < 15 | 2000 | - | - | - | - | - |
| 750-1500 | 15-30 | 1500-2000 | 600-800 | - | - | - | - |
| 1500-2000 | 30-40 | 1500-2000 | 800-1200 | 100-200 | 1000-1500 | According to the testimony of | - |
| > 2000 | > 40 | 1500-2000 | 1200-1500 | 200-300 | 1500-2000 | 400-600 | 4-6 doses |

Currently, the use of blood as the main therapeutic drug in acute blood loss, the principle of reparation "drop by drop" universally recognized as not true!

As kristalloidnyh plazmozamenitelei used: isotonic solution of sodium chloride, Ringera, Ringer-Locke, Ringer-acetate, laktosol, disol, trisol, hlosol, kvartasol, Hartmann, Henksa, Euro-Collins, etc.

When using salt solutions as core replacement drugs, it turned out that they quickly (through 1.5-2:00) leave the vascular track. In this regard, they should be imposed in large amounts (up to 300% of the volume of blood), which can lead to overloading of the right heart and the development of edema syndrome. The same applies to the 5% solution of glucose, which quickly leaves the vascular track, easily penetrates the tissue and cellular barriers, causing intersticialnuu and intracellular gipergidrataciju. Therefore, at present, in acute blood loss to make up for BCC glucose solutions should not apply!

More effective drugs to make up for the deficit of the BCC are colloidal (hemodynamic) plazmozameniteli on the basis of gelatin (zhelatinol, 4% gelofusin, modezhel), dextran (poligliukin, reopoligliukin, reomakrodeks, rondeks, reohem, hemodeks, neorondeks), gidrooksijetilkrahmala (refortan, infukol, voljuven, stabizol,

volekam, HAES-steril 6%, 6% gemohes, steril Haes-10%, gemohes 10%), polyethylene glycol (polioksidin).

Colloidal plazmozameniteli longer held in sossoudistom line and found more widespread use for correction of hypovolemia.

Volume of infusion-transfusion therapy in acute blood loss should significantly (up to 2-3 volumes) exceed the blood itself.

After a quick and sometimes a Jet injected dose 3 plazmozamenitelei colloidal (1200-1500 ml) fresh frozen plasma (PTS). It is unacceptable to thaw it at room temperature, because a slow thawing inactivated coagulation factors, fibrin falls, which clogs the filter system for transfusion. Thawing of plasma is performed in a water bath at constant temperature + 38° c. Defrost frozen plasma should be transparent, slightly opaliscirujushhej. Transfusion is carried out through the filter system after three conduct a biological sample.

Erythrocyte transfusion mass shows only when clinically relevant signs of deficiency kislorodonositelja that develop only if massive blood loss (30% or more of the Bcc, which is about 1500 ml).

5. in addition to the completion of the CENTRE needed correction of coagulation and blood rheology. To this end, primarily used FFP (PTS) and heparin nefrakcionirovannyj and it low molecular weight analogs (clexane, fraksiparin, "FRAGMIN").

**The basic principles of treatment of disseminated intravascular coagulation syndrome in any of the stages:**

1. Triggered by DWS is giperkoaguljacionnyj syndrome with the activation of the coagulation system, continued in all subsequent stages, a required component of treatment should be direct anticoagulants (heparin) and Antithrombin sh (at-III) contained in the PTS.

The combined use of heparin and PTS is the basis of modern tactics of treatment of DIC-syndrome as a phase of hypercoagulable State and phase gipokoagulyatsii.

2. with regard to the developing potrebljajushhihsja coagulation factors deficiency arises the need for substitution treatment. The drug, which in a balanced way, contains all the necessary components is PTS.

3. As a consequence of Platelet Activation of hemostasis, leading with sladzhirovaniju uniform of blood necessary to apply dezagregantnyh and rheological preparations.

4. the application of therapeutic plasmapheresis to remove products from the vascular bed, the disintegration of the fibrinolysis of platelets and other blood cells.

Under hypercoagulation after careful and reliable hemostasis heparin is injected in one dose of 5-10 thousand. U, and then continue it in/with the introduction of a daily dose of 30-40 thousand. U fractional every 3-4 hours or continuously at speeds 400-500 dispenser units/hour. Every 4:00 control blood coagulation (PETIT, INR, APTT) which must be above the norm in the 1.5-2 times.

The stage of introduction to k only minimum doses of heparin (25-35 u/kg-1.25-2.5 thousand UNITS) in combination with PTS (only intravenously or in a container with the plasma). Introduction of subcutaneous heparin may be ineffective due to the breakdown of microcirculation and slowing its absorption. Such a minor dose heparin does not cause increase of bleeding, but effectively activate AL-sh, tearing the pathogenetic chain DIC-syndrome.

In this connection, it should be noted that you cannot use in acute blood loss low molecular weight heparins (LMWH)) (clexane, fraksiparin, "FRAGMIN") because they only introduced subcutaneously.

As cupping DIC-syndrome moving towards the introduction of subcutaneous heparin (or LMWH) in a daily dose of 10 thousand. U (2.5 thousand units 4 times). Duration of heparin should not exceed 7-10 days, because long-term use of heparin is depleting reserves at-w and causes thrombocytopenia.

Infusion PTS are effective at all stages of DIC-syndrome and its misleading struino 600-800 ml., followed by every 6-8 hours 300-400 ml. until full normalization of clinical and laboratory variables.

Protease inhibitors block not only fibrinolysis, but significantly inhibit blood clotting, which involves using them at all stages of DIC in doses of 100000-500000 u/SUT. (contrycal, trasilol, gordoks, iniprol, calol, zimofren, etc.).

To restore microcirculation and rheological properties of blood used reopoligliukin, trental, ksantinol-nikotinat, Pentoxifylline.

**Correction of cardiovascular insufficiency.**

Due to the decreased cardiac output during severe blood loss, suffered by perfusion coronary vessels and growing weakness of the heart muscle. This raises the need to hold kardiostimulirujushhej therapy. The main indicator, which allows you to specify the ratio of infusion and the need for stimulation of cardiac activity, is DVD: level below 20 mm. water pillar reveals nekorregirovannoj hypovolemia and raising up to 120-150 mm. water pillar: venous overflow channel on cardiac weakness.

Effective kardiotonicheskim product in this situation is dopamine (dopamine, dopamine Administration) injected in doses of 2-10 mg/kg/min. It has a predominantly in-adrainomimeticescoe action:

-increases strength of cardiac contractions;

-expanding peripheral vessels (particularly coronary, mezenterialnye, kidney).

In high doses (20 µg/kg. m and more) he has a-adrainomimeticescoe effect, causing severe tachycardia and vascular spasm.

Improve myocardial contractility glukokortikoida, entered in a dose of 30-50 mg of hydrocortisone on 1 kg of weight of the patient one or twice with an interval of 4-6 hours. They decrease round and improve microcirculation.

The use of cardiac glycosides shown in connection with their positive inotrope and batmotropnym effects at normal doses (korgljukon, strofantin). It should be noted that against the background of acute cardiac insufficiency acute blood loss, their effect is considerably lower than dopamine and glucocorticoids.

In acute blood loss the use of simpatomimeticakih drugs (adrenaline, noradrenaline, mezaton) is invalid due to the fact that develops deepening vascular spasm, further improvement of the round and the development of metabolic acidosis. Their use as an emergency measure, justified only in the terminal stage of shock.

You must maintain a minimum level of HELL, equal to 90/40 mm. the Republic of Tajikistan. Church. Further stabilization of hemodynamics should be on their own after filling the CENTRE within a few hours.

To restore the functioning of the microcirculation, after adequate replenishment of Bcc, is often used neuroleptic droperidol (0.25%-0.5-1.0 ml).

**The recommended pattern in acute blood loss:**

1. External bleeding perform temporary or final stopping bleeding.

2. Ensure adequate oxygen supply (nasal catheters, mask the spontaneous or IVL).

3. evaluation of hemodynamics (pulse, ad), ChDD, level of consciousness and, on the basis of the severity of blood loss.

4. Punktirovat (starting with the ulna) and kateterizirovat Vienna with blood in test tubes for determining clinical analysis of blood, blood group and rhesus factor conditioning, coagulation system (prothrombin, INR, APTT, Fibrinogen, clotting time).

5. Jet salt solutions in volume of 1-2 litres at a speed of 100 ml/min to raise HELL and its stabilization at a level not lower than 60 mm Hg. (systolic).

6. bladder Catheterization.

7. Transfusion of colloidal solutions and PTS.

8. In the absence of stabilization of hemodynamics, increasing workload, pallor produce Al transfusion. mass.

9. all warmed up to plow solutions t + 37 grad.

10. Ratio of PTS and erythrocytes perelivaemyh should be 3:1. With adequate oxygen delivery, achieving systolic HELL 90 mm Hg. in the face of injury, with reliable gemostaze BCC (absence of bleeding) should reduce the intensity of transfusion therapy.

11. platelet Transfusions during their shows decline less than 9 100:10/l, but only when you see petehij.

12. If a patient to the development of massive blood loss was the uniform of blood deficiency (anaemia), their filling should be carried out simultaneously with the transfusion of colloidal solutions.

13. Al transfusions. mass or PTS with a speed more than 1 dose (200-250 ml per 5 min) shows the introduction of 10%-5.0 -10.0 chloride solution (glukonata) of calcium for every 2 doses listed components for leveling citratnoj intoxication and hypocalcemia.

14. Periodic monitoring of (1-2 times a day) koagulogramma, ECG, KHS, platelets.

**The main clinical criteria of adequacy of therapy:**

1. stabilization indicators DVDS at a safe level-HELL 90 mm. the Republic of Tajikistan. calendar, pulse less than 120 beats/min. or their normalization. Value DVDS must be positive, but do not exceed 120 mm. water column.

2. stabilization of respiratory function-not more than 30 ChDD in minutes.

3. restoration of diuresis is not less than 30-40 ml/min.

4. Elimination of Microcirculatory violations-the disappearance of a symptom of "white spots", warming the skin, restoring normal color skin and mucous membranes.

**Laboratory indicators of the adequacy of treatment of acute blood loss:**

1. indicators of coagulation diagram:

-Clotting time-5-7 min (normal)

-Platelets at least 150:10 -9/l

-ACTV within normal limits (40-45 s)

-Thrombin time is within the normal range (14-16 s)

-Antithrombin sh-within normal limits

-PDF remain positive, but with a tendency to extinction

2. hemoglobin not less than 70-80 g/l, nt 30-35%

3. Total protein plasma not less than 60 g/l

4 indicators of blood gas composition:

-Partial voltage oxygen in arterial blood (RO2A)-not less than 95-100 mm Hg.

-Partial oxygen pressure Po2 in venous blood (V)-not less than 40 mm Hg.

-Capillary blood Saturation at least 90%

Oxygen extraction coefficient no more 30-40%

It should be emphasized that the full treatment of acute massive blood loss should be conducted under conditions of resuscitation and intensive therapy!

**Complications of acute blood loss**

Complications of blood loss attributable to gipovolemiei, hypotonia, hypoxia. According to Zhiznevskogo J.a. (1994), with involvement in the pathological process of two systems of bodies of the lethality is 30-40%, 70-90%, three, four and more-100%.

Adult respiratory distress syndrome (ARDS) develops due to not only the acute blood loss, but also the large volume infusion kristalloidnyh drugs. Morphological feature is progressive interstitial edema, resulting in disruption of alveolar-capillary diffusion of gases, increase vascular resistance small circle and pulmonary artery blood flow with the development of severe hypoxia. Developing this complication in 1-7 24 hours after blood loss.

Clinically ARDS (shock lung) manifested increasing symptoms of respiratory and circulatory hypoxia. Physical and radiological signs resemble development melkoochagovoj first, and then the drain of pneumonia. Treatment of this complication is carried out only in the context of resuscitation Department with ventilator with a positive end-expiratory pressure (PEEP), limiting the infusion, use of diuretics and high doses of glucocorticoids.

Acute renal failure (ARF) develops due to Vasospasm buds on gipovolemia reaction of hemolysis and violations in the hemostasis system. Clinically SPD manifested in oligo-, anurii, азотемии, giperkaliemii, increasing metabolic azidoze. To prevent the development of SPD normalization is essential system peripheral circulation and microcirculation.

Acute liver failure if blood loss is extremely rare, but can develop when initially reduced detoxication, belkovosinteticheskoj functions (chronic hepatitis, cirrhosis). "Relative" are more likely to develop liver failure against the backdrop of increased needs in detoxification metabolism products and psychotic disorders, hypocoagulation, lability of vascular tone. While there has been an increase in the content of serum transaminases (ALT, AST), gipoproteinemia, hypoalbuminemia.

Acute coronary syndrome and myocardial infarction develops as a result of thrombosis of the coronary arteries on the background of hypercoagulation syndrome and hypotension. The greatest risk of this complication occurs in elderly and senile age suffering from atherosclerosis.

Acute disorders of cerebral circulation by type of ischemic stroke in elderly patients on the background of the hypotonia. Particularly strong likelihood at sharp drops, hell. In terms of prevention of strokes important resistant stabilization of HELL at a safe level, and in patients with stroke in history-the application of rheological actions.

**BLOOD SUBSTITUTES**

Blood substitutes (gemokorrektory)-medical solutions, designed to replace or normalize blood lost functions. Modern classification of products based on their functional properties and mechanism of therapeutic action.

1. Hemodynamic blood substitutes, derivatives:

-gelatin (gelofusine, zhelatinol, modezhel)

-dextran (poligliukin, reopoligliukin, reomakrodez, reohem, rondeks, neorondeks, hemodeks)

-(hydroxyethyl starch stabisol, refortan, infukol, voljuven, volekam, PPC, Haes-steril 6% 10% 6% gemohes; 10%)

-polyethylene glycol (polioksidin).

2. Detoxifying blood substitutes, derivatives

-low-molecular-weight polivinilpiralidona (neogemodez,

gljukoneodez)

-low-molecular polyvinyl alcohol (polidez)

3. Preparations for parenteral nutrition

-amino acid mixture (aminosol CE, aminosteril, aminoplasmal, 10% of the world hepatitis Alliance is revamping aminoplasmal, wolfersdorf, infezol, aminosteril n, vaminolakt WORLD HEPATITIS ALLIANCE is REVAMPING, gepasol, gepatamin, aminosteril KE Nefro, neframin)

-fat emulsions (infuzolipid, lipofundin, intralipid, lipovenoz)

-carbohydrates and alcohols (glucose, fructose, ethanol)

4. Regulators vodno-salt and acid-base status:

-Salt solutions (Ringera, Ringer-acetate, laktosol, acesol, disol, trisol, hlosol, kvartasol, jonosteril, a solution of sodium bicarbonate)

-c osmodioretiki (mannitol, a urea, mannitol)

5. Blood substitutes with oxygen transfer function

-hemoglobin solutions (gelenpol)

-perfluorocarbon emulsions (perfluorane)

6. Infusion antigipoksanta

-fumorata solutions (mafusol, polioksifumarin)

-solutions succinate (reamberin)

7. Blood substitutes an integrated action (polifer, poligljusol)

1. Hemodynamic blood substitutes are intended to normalize the Central and peripheral hemodynamics in the treatment and prevention of absolute or relative hypovolemia that occurs when different kinds of shocks, ensuring infusion-transfusion correction in surgical interventions.

These medications have volemicheskim (surround) is the ratio of input volume BCC growth Wednesday, expressed as a percentage. Volemicheskij effect, above 100% indicates the flow of fluid from the extracellular sector vascular track. BCC growth in these situations is more pronounced, however, to prevent dehydration of the interstitial space must be parallel to the introduction of izoosmoljarnyh salt solutions. The highest coefficient volemicheskij have dekstrana (poligliukin-120%, reopoligliukin-140% for 4-6 hours), hydroxyethyl starch derivatives (GEMOHES and Refortan plus-145% within the first hour, then 100% 4:00 duration).

Preparations of gelatine have lower odds (volemicheskij zhelatinol-60%-100%). gelofuzin

Reologicheskij effect of products consists of the mechanism of the effects on relative viscosity of the blood, the colloid-osmotic pressure of plasma, red blood cells and juvenile gemodiljuciju. Hemodynamic blood substitutes having a viscosity lower than blood, improve its fluidity.

Colloid-osmotic pressure (the CODE), created by plasma proteins (albuminom), is the primary regulator of the transkapilljarnogo Exchange. With the introduction of the dekstranov having CODE higher than plasma creates prerequisites for entering the fluid from the interstitium into the vascular track, thereby increasing blood flow.

All intravenously entered solutions lead to hemodilution. Every 500 ml. hemodynamic studies of blood substitutes, imposed during 15 min, lower hematocrit at 4-6%. To adequate hemodynamic enough 30% hematocrit, hemoglobin-80-90 g/l these properties used when conducting blood hemodynamic pre-and intraoperative hemodilution with autoblood banking and reservations jeksfuziej. For controlled preferred gelofusine hemodilution and BSE.

In connection with the development of anaphylactic reactions to blood products, must be compulsory holding of a biological sample for portability, which involves very slow introduction of small volumes: an introduction 3-5 drops krovezamenitelja-break 5 min., then 30 drops-break 5 min, then holding the infusion.

It should be emphasized that hemodynamic heavy shimmer with blood substitutes pace (struino), detoxification more slowly, for parenteral nutrition is very slow.

Zhelatinol-8% solution of hydrolysed gelatin in food 9% sodium chloride solution. The molecular weight of 20000, pH 6.8-7.4, kidneys displayed. Dose in the treatment gipovolemicheskoogo a shock up to 1500 ml/day. Not recommended for use in obstetric practice due to the fact that causes the release of interleukins to stimulate endothelial inflammatory changes in pregnant women with severe pre-eclampsia, sepsis, pulmonary embolism.

Gelofusine-4% solution sukcinilirovannogo gelatin is made from the cartilage of cattle by the method of thermal degradation. He in effect exceeds the known drugs dekstranov-reregistered poligjukin. The CODE is 33 mm Hg, equivalent to human albumin, factor of volemicheskij within the first hour after the introduction is 145%, then remains at 100% 4-5 hours. Its use does not cause dehydration of the interstitial space. Bcc and venous return increases, increases tissue perfusion. It has no effect on primary and secondary hemostasis links, so the maximum daily dose is large enough, especially when massive blood loss, reaching 10-15 l/day. Up to 75% of its report the news.

Contraindicated in gipervolemii gelofuzina introduction, allergies to gelatin.

Hemodynamic blood substitutes, derivatives of dextran.

All dekstranam is inherent to good volemicheskij effect (120% and 140% poligliukina reopoligliukina), fast and long obemozameshhajushhee effect. They adversely affect primary and secondary hemostasis. Reopoligliukin causing juvenile erythrocytes, improves microcirculation.

In pregnant women with preeclampsia may be dangerous, because they change the activity of the USH and enhance fibrinolysis.

Hemodynamic blood substitutes derived hydroxyethyl starch (HES)

BSE is a natural polysaccharide obtained from amilopektinovogo starch and consisting of polymeric glucose residues. Structural similarity of glycogen and HES minimizes adverse reactions when you use PPC solutions. Long obemozameshhajushhee effect of BSE is caused by secondary effect, manifested by cleavage of large molecules into smaller, due to the latest supported higher oncotic pressure. Effect of BSE on reimbursement of intravascular fluid volume based on the expressed ability to bind water.

Drugs HES improves the flow properties of blood and microcirculation, maintain a normal level of perfusion that helps restore the capillary permeability. In gipovolemicheskom shocked HES reduces the incidence of pulmonary edema, and affecting the clotting processes applies with the threat of DIC-syndrome. In vnutrisosudistom space HES splits endogenous amilazami, accumulation occurs mainly in the cells of the RES, liver, spleen, lungs, kidneys, metabolites are excreted kidneys.

Via 12:00 after the introduction of BSE indicated the maximum increase in the activity of amylase in serum with subsequent reduction to 72 hours. Tranzitornaya giperamilazemija clinically is harmless, but can lead to diagnostic errors (pancreatitis).

The main indications for use preparations based on BSE-prevention and treatment of gipovolemicheskih States. The maximum daily dose of 20 mL/kg.

Contra-indications for the introduction of BSE:

-water intoxication and hypervolemia

-bleeding

-hemorrhagic Diathesis

-expressed human blood coagulability

-Asthma heart failure

-severe liver disease (deficiency)

-thrombocytopenia

-gipofibrinogenemia

-renal failure

-individual intolerance to starch.

Adverse reactions and complications:

-anaphylactic reactions (rare)

-in the long-term use-itchy skin

-neuralgia (nausea, sometimes vomiting)

-increase of the parotid salivary glands.

2. Blood substitutes dezintoksikacionnogo actions.

These blood substitutes presented molecular polivinilpirrolidonom (neogemodez, kompensan, neokompensan, periston-n) and polyvinyl alcohol (polidez), which provide binding, neutralization and rapid removal of toxins. They possess a viscous, dezagregantnym and diuretic effects.

Gemodes has been banned for use in clinical practice (circular of the Federal service on surveillance in healthcare and social development no. 1100-OL/05 from 24.05.2005).

3. Preparations for parenteral nutrition.

Parenteral nutrition is applied in cases where the patient receiving nutrients enterally excluded. Distinguish 2 types of parenteral nutrition: 1) full and 2) partial (elbow reduced).

Indications for parenteralnomu food:

1. Impossibility of supply through the mouth and the introduction of nazogastralnogo (nazointestinalnogo) probe: damage to the oropharynx, esophagus, stomach, injuries, Burns, etc.

2. Serious violations of the gastrointestinal tract, accompanied by malabsorbziei (uncontrollable vomiting, diarrhea, intestinal occlusion).

3. The need to temporarily disable the intestine after abdominal operations.

4. Pronounced malnutrition (marasmus p-sh).

5. Impossibility of adequate nutrition naturally due to sharply increased demand (polytrauma, Burns, sepsis, etc.).

Contraindications to parenteralnomu nutrition are decompensation functions of vital organs and systems (shock, cardiac, respiratory distress, gipovolemia, dehydration, hyper-, violations of the BRAID).

To calculate energy needs come from that alone man requires 30 kcal/kg per day (patient with average weight of 70 kg must be 2100 kcal). This takes into account the corresponding coefficients depending on physical activity (F), body temperature (TF-thermal factor), factor (disease) OP.

Energy consumption = 30 x F x TF x OP. For example, at normal temperature (37 degrees) TF = 1.0. With the increase of every degree of TF increases by 0.1 and when 40 degrees it will be equal to 1.4.

OP in sepsis is equal to-1.3, in polytrauma-1.5, a deep burn-1.7.

Need for amino acids ranged from 1.0 to 2.0 g/SUT. expressed protein catabolism.

The solutions of amino acids without electrolytes include: vamin 14.18; 10% solution intrafuzina. The solutions of amino acids with electrolytes include: 10% aminoplazmol e, 10% bezuglevodnyj aminosteril KE, wolfersdorf, 14 infezol 40.

When liver failure apply 10% world hepatitis Alliance is revamping aminoplazmal aminosteril (N) -World hepatitis Alliance is revamping, gepasol, gepasteril. They contain essential amino acids (Leucine, isoleucine, valine, methionine, phenylalanine, tryptophan), as well as arginine, for linking ammonia.

When kidney failure apply aminosteril KE-nefro consisting of 8 essential amino acids and Histidine to uremia.

Fat emulsions contain soybean oil, which is the source of dlinnocepochnyh triglycerides and supplying the organism essential fatty acids, particularly linoleic and linolenic are precursors to prostaglandins and participating in building a cell membranes.

Fat emulsions, you cannot enter along with electrolytes, as broken emulsion stability that leads to fat embolism. Infusion rate should be 10 USD/min. in the first hour of its introduction, then increase to 30 USD/min. For every 500 ml. emulsion introduces 5000 IU heparin.

Solutions based on carbohydrates.

Solutions of carbohydrates (glucose) are not only energy, but also involved in the synthesis of amino acids in the formation of glycoproteins, glycopeptides must glucuronic acid. For parenteral nutrition used concentrated solutions of glucose (10, 20, 40%) with the obligatory introduction of insulin at a rate of 1 IU per 4 oz. dry matter.

Moreover, it is not recommended to their introduction in peripheral veins because of phlebitis development opportunities!

Under stress, hypoxia, diabetes mellitus, glucose uptake is impaired accordingly recommended the exchange of sugar (fructose, invertoza, xylitol), speed the introduction of which shall be 0.125 g/kg per hour.

In recent years, widespread use of so-called got "all in one"-a three-component blend «Oliklinomel # 7-1000 e "firm" Baxter AG Switzerland. Peremeshannoe the contents of three plastic containers containing one 20% lipid emulsion in the second 40% glucose solution with calcium, in the third 10% solution of amino acids with electrolytes in the amount of 1000-2500 ml. administered intravenously slowly at a speed of 1.5 mL/kg per hour.

4. Regulators of water-salt balance and acid-base status.

With a view to the regulation of water-salt Exchange using saline solutions and osmotic diuretics. They fill the interstitial fluid deficit, regulate the osmotic pressure of plasma volume lenses correct intravascular fluid and its electrolyte composition.

Allot solutions with gipoosmoljarnym effect (disol, acesol) that after intravenous fast perhodjat in intersticij and compensate hypertonic dehydration.

Solutions with izoosmoljarnym effect (Ringera, Ringer-acetate) are used for correction of izotonicescoy dehydration.

Solutions with giperosmoljarnym effect (10% sodium chloride) in hypotonic dehydration after their introduction of water from the extracellular space enters the vascular sector.

Depending on the number of ions in the solution are distinguished monoionnye solutions (sodium chloride), poliionnye solutions (Ringer, trisol).

For the correction of metabolic acidosis applied solutions media reserve alkalinity (bicarbonate of sodium acetate, lactate, fumarate).

Isotonic solution of sodium chloride (saline solution) is one of the first to be used as the krovezamenitelja. It penetrates through the vascular membranes, quickly (through the 20-30 min.) leaves the vascular track, causing tissue hydration. Saline solution is well combined with all blood components and blood substitutes, a day is introduced before the 2000 ml. If necessary, the volume can be increased.

Ringer's solution composition:

-sodium chloride-8 g

potassium chloride 0.3 g

-calcium chloride-0.33 g

-water for injection to 1000 ml.

It's more physiological, because salt composition closer to the plasma than saline solution, compatible with all blood substitutes, the duration of circulation in sossoudistom line 30-60 min.

Acesol (modification of ringer's solution) composition:

-sodium chloride-5 g

-potassium chloride-1 g

-sodium acetate-2 g

water for injection-1000 ml.

Ringer-lactate (solution Hartmann) composition:

sodium chloride 6 g

potassium chloride 0.3 g

-calcium chloride-0.2 g

-sodium lactate-3.1 g

water for injection-1000 ml.

The plaster has buffer properties due to lactate, which through the inclusion of metabolism turns into sodium bicarbonate.

Laktasol composition:

sodium-chloride 6.2 g

-calcium chloride-0.3 g

-magnesium chloride-0.1 g

-sodium lactate 3.36 g-

-sodium bicarbonate-0.3 g

water for injection-1000 ml.

Widely used for correction of acid-base condition.

Trisol composition:

sodium chloride 5.0 g

-potassium chloride-1.0 g

-sodium bicarbonate-4.0 g

water for injection-1000 ml.

Is used as one of the substitutes solution Ringer for correction of metabolic acidosis, as it contains sodium bicarbonate.

Kvartasol composition:

sodium chloride 4.75 g

-potassium chloride-1.5 g

-sodium bicarbonate-1.0 g

-sodium acetate-2.6 g

water for injection-1000 ml.

Kvartasol contraindicated giperkaliemii and metabolic декомпенсированном in alkaloze.

C osmodioretiki (mannitol, sorbitol).

Mannitol-shestiatomnogo alcohol solution mannita, actively excreted kidneys. When Jet introduction 15% mannitol solution has a powerful diuretic effect due to increased plasma osmotic and decrease in reabsorbtion water. Shows when a saved the kidney for the treatment of acute Brain swelling in detoxification method of forced diuresis.

Sorbitol is used primarily for parenteral nutrition.

5. Blood substitutes with oxygen transfer function.

This group is made up of solutions of the modified fluorocarbon emulsion and haemoglobin. They have clear advantages over jeritrocitsoderzhashhimi blood components because there is no need to determine blood groups and rhesus conditioning, sample productions on compatibility, excluded hemolytic complication (shock transfer diseases). They are able to penetrate into the smallest capillaries that are "closed" for red blood cells and deliver oxygen to all tissues. Use of these drugs would reduce the use of donor blood.

Perfluorane-vector blood gases of artificial origin on the basis of perftororganicheskih compounds. The transmission function of its high ability to dissolve oxygen. At the expense of submicron emulsion particle size (0.07 µm.) is a good supply of oxygen to the tissue sections with the depletion of the vascular network.

Perfluorane has a multifunctional action:

-improves gas exchange and metabolism at the level of tissues;

-increases oxygen transport in the blood;

-improves blood flow in microcirculation;

-Restores the Central hemodynamics;

-has a protektivnym effect on myocardium;

-Sorption and diuretic properties.

Indications:

-acute and chronic hypovolemia when various shocks (trauma, bleeding, Burns, infectious and toxic, traumatic brain injury, gipovolemia);

-violations of cerebral circulation;

-septic condition;

fat embolism and much more.

Local application is used for various lavage of cavities at purulent-inflammatory conditions (peritonitis, pleural empyema, abscesses, purulent wounds, etc.).

Regional application for perfusion of limbs in trauma, critical ischemia (obliteriruty endarteriit, arteriosclerosis, thrombosis of arteries).

Dose drug-based 5-30 mL/kg body weight, the maximum dose in heavy conditions up to 100 mL/kg.

Contraindications:

-Hemophilia

-connective tissue diseases

-allergies

-pregnancy.

6. Infusion antigipoksanta.

These drugs represented solutions fumarate (mafusol) and succinate (reamberin).

Mafusol-domestic blood substitute, contains sodium fumarovokislogo 14 g/l, salts of sodium, potassium, magnesium.

The advantage of this drug in comparison with lactate and acetate is that it is metabolized with severe oxygen deficiency with the generation of energy by the mitochondria in the cells.

Mafusol provides multidisciplinary action:

-Restores the cellular energy formulation processes;

-eliminates metabolic acidosis;

-stabilizes the electrolyte composition of plasma;

-possess antiradical (antioxidant) activity.

Indications:

-hypovolemia different Genesis;

-hypoxic State;

-intoxication;

-acute disorders of cerebral blood flow by ischemic type;

-Ischemic lesion of the lower limbs.

Contraindications:

-gipergidratace;

-traumatic brain injury with intracranial hypertension.

Maintenance of the drug with a speed Cap 70-80/min. up to 3000 ml/day.

Reamberin-balanced isotonic solution with antioxidant and ensures the effects. Affects the energy potential cells, stimulates enzymatic processes Krebsa cycle, improves tissue respiration, improves the detoxification function of the liver.

Indications for use:

-hypoxia different Genesis;

-acute intoxication of various origins;

-hepatitis different etiology.

Reamberin only intravenous drip to 800 ml/day. for adults.

7. Blood substitutes complex action possess the properties of those drugs on the basis of which they are cooked.

Reogljuman combines the properties of reopoligliukina and mannitol. It should be emphasized that there is no ideal krovezamenitelja and application of a drug should be given all the indications and contraindications, patient's individual characteristics and characteristics of the course of the disease.

**BLEEDING FROM THE UPPER DIVISIONS**

**DIGESTIVE TRACT**

Acute hemorrhage of upper gastrointestinal tract is a serious complication of a large number of diseases of the esophagus, stomach and duodenal ulcers, pathology pancreat-biliary system, as well as systemic diseases of the organism. Causes of bleeding peptic ulcers duodenal ulcer, gastric ulcer, postoperative jejunum, hemorrhagic erosive gastritis, Mallory-Weiss Syndrome, varicose veins of the esophagus varices in portal hypertension, stomach tumors diverticula of esophagus, stomach, duodenum, paraesophageal hernia, diseases of the blood, etc.

J.e. Berezov and A.s. Ermolov (1976) conventionally divided the factors contributing to the development of bleeding in six main groups:

1. diseases of stomach and duodenum: hospital disease stomach and duodenal ulcers, peptic ulcers of the gastrointestinal fistulae; diverticula of stomach and duodenal ulcers; erosive gastritis, duodenit, tuberculosis, syphilis, stomach and duodenal ulcers, tumors of the stomach and duodenal ulcers, Mallory-Weiss Syndrome.

2. Common diseases of the body, accompanied by the izgyazwleniem of the stomach and duodenum: burn disease, infectious disease, chronic ulcers, acute ulcers in case of nervous system, acute ulcer diseases cardiovascular and circulatory disorders, acute ulcers with complications of drug, hormone therapy and poisoning.

3. diseases of the organs adjacent to the stomach and duodenum, causing their defeat: hiatal hernias, abscesses, penetrating in the stomach or duodenum, abdominal tumors, sprouting in the stomach and duodenum, cholecystitis.

4. diseases of the liver, spleen, Portal vein, causing portal hypertension and esophageal and gastric flebjektaziju, cirrhosis of the liver, splenic thrombosis and portal vein.

5. Vascular Disease: breaks sklerozirovannyh vessels of stomach and duodenal ulcers, aneurisms, penetrating into the stomach and duodenum, Rendu-Osler disease, nodular PERIARTHRITIS.

6. Hemorrhagic diateza and blood diseases.

The urgency of the problem of diagnosis and treatment of acute gastrointestinal bleeding (HMO), is determined primarily by the high level of postoperative lethality, which reaches 4% and in the Group of patients with severe bleeding ranges from 15 to 50% . Among patients with bleeding from the VOPT large proportion of elderly and stracheskogo age (60%), with age and accompanying pathology-hence the large number of postoperative complications. For men or meet in -3 2.5 times more often than women. The causes and frequency of bleeding from the upper gastrointestinal tract, most commonly occurring in emergency surgery are presented in table 1 (V. Saveliev, 2005).

Table 1

|  |  |
| --- | --- |
| Causes and localization of bleeding from the VOPT | Frequency |
| (I) Nature of peptic ulcer Bleeding. | 44-49% |
| 1. Stomach Ulcer and duodenal ulcer | 42-46% |
| 3. Recurrent peptic ulcer of stomach and duodenum, jejunum, after operations on the stomach | 2-3% |
| (II) Bleeding ulcer not nature. | 51-56% |
| (II) a. diseases of esophagus, stomach and duodenum: | 49-53% |
| 1. Symptomatic (so-called secondary, including acute ulcers) stress, medicinal and other origin | 12-15% |
| 2. Erosivno-hemorrhagic lesions of mucous | 7-18% |
| 3. Mallory-Weiss Syndrome | 8-11% |
| 4. Tumor (malignant, benign) | 4-7% |
| 5. Esophageal varicose veins (varices in portal hypertension) | 9-17% |
| 6. hiatal Hernia; Esophageal diverticula | <0.1% |
| 7. Burns, mechanical trauma, foreign bodies, etc.  | -0.5 0.1% |
| 8. Postoperative bleeding (after surgical and endoscopic surgical interventions) | -1.8 1.2% |
| (II) b. diseases of the liver, biliary tract and pancreas (trauma, including operating, tumors, cysts, abscesses, complications of gallstone disease, acute pancreatitis) | -0.5 0.3% |
| (II) b. diseases of the blood vessels: Two Ladiza syndrome (intramuralnye arterio-venous malformations), aortic aneurysm and/or its branches, cavernomas, disease Osler-Weber-Rendu (multiple Telangiectasia), angijektazii, psevdoksantoma, etc.)  | -1.4 0.1% |
| (II) g. blood disease: leukemia, hemophilia, a disease Verlgofa disease, Shenleina-Genoha, megaloblastic anemia, etc. | -0.9 0.3% |
| (II) d. System and other diseases: uremia, amyloidosis, breakthrough VOPT bljutribrjushnyh abscesses, etc. | -1.1 0.6% |

The clinical picture of gastrointestinal bleeding expressed symptoms characteristic for any acute blood loss, and depends on the cause, extent, speed of blood loss, as well as compensatory reactions.

The first signs of gastroduodenal hemorrhage: general weakness, dizziness, paleness of skin and mucous membranes, tachycardia, palpitations, and lowering blood pressure. In some cases, collapse may occur with a short loss of consciousness: the face becomes pale, leather covered with cold sweat, pupils dilate, lips cianotichny, pulse thready, frequently, in some cases, not soschityvaetsja.

One of the main signs of gastroduodenal bleedings is bloody vomiting (gematemezis) type of coffee grounds, which accompanies the stomach and Gastroesophageal bleeding and rarely-duodenale. In some cases it may be absent, and the blood is released from the gastrointestinal tract as degteobraznogo Chair. This most often happens when bleeding from duodenal ulcers or bleeding from stomach small, if he manages to oporozhnitsja from bloody content through gaping gatekeeper.

Hematemesis type coffee grounds due to the formation of soljanokislogo gematina in the stomach, and tarry stools (Melena)-formation in the gut of ferrous sulfate from hemoglobin (under the influence of enzymes). In some cases, haematemesis and tarry stools can be combined.

Have included minor gastroduodenal bleeding may be hidden, while not observed symptoms of blood loss, the Chair periodically appears dark in color, or hidden blood in stool, identified laboratory method.

Blood research data (the number of erythrocytes and hemoglobin content) in the first 24-48 hours from beginning of acute gastroduodenalnogo bleeding do not reflect the true magnitude of bleeding and may not constitute a criterion for the severity of the condition. In that connection, it would be necessary to take into account the indicators of hematocrit and circulating blood volume (CBV).

Leading, objective method for the diagnosis and treatment of acute gastroduodenal bleeding fibrogastroduodenoscopy is to determine the source, type, nature of bleeding and forecast its recurrence.

The testimony to the fulfilment of urgent endoscopy studies upper gastrointestinal tract is a patient of the clinic of acute gastrointestinal bleeding or suspicion on him and need for hemostasis via Endoscope. Effectiveness of research fact above, the sooner it is done: ideally within the first hour, a maximum of two, from admission to the hospital.

Indication to retry dynamically esophagogastroduodenoscopy are: the need to actively monitor the source of bleeding in the continuing risk of relapse (active control EXAMINATION); recurrence of bleeding, oedema in the hospital the patient extremely operational risk anesthesia with ulcer bleeding not ulcer etiology ("EXAMINATION on request").

Rejection of emergency endoscopic Diagnostics can be justified in continuing profuznom bleeding, especially if according to anamnesis and medical doctor available documents can assume his ulcer etiology. However, if there is a 24-hour service for urgent execution of endoscopic jezofagogastroskopii possible and such patients; It is carried out directly on the operating table and is treated as an element of pre-and intraoperative revision. Endoscopic Diagnostics not shown to patients in agonalnom condition and requiring resuscitation. Perform EXAMINATION at the extremely heavy patients with dekompensirovannymm concomitant diseases it is advisable only to the situation where "endoscopic intervention despair" is undertaken in parallel with the intensive therapy, directly to stop the continued bleeding.

When performing urgent endoscopy studies in a patient with gastroduodenalnym bleeding you must inspect all available this kind of research departments of the gastrointestinal tract.

On admission, the patient in the surgical hospital with bleeding gastroduodenalnym you must install the cause, the source of the bleeding, its localization, stopped it or continues. For this purpose it is necessary to assemble the anamnesis, clinical data, use laboratory and endoscopic methods of research. Apply the sensing of the stomach. Used, shown in the table are the most important indicators to establish the severity of the bleeding.

Table. The severity of bleeding (Gorbashko a.i., 1982).

|  |  |
| --- | --- |
| Blood loss rate | The degree of blood loss |
| light | average | heavy |
| The number of red blood cells | > 3.5 \* 1012/l | 3.5 \* 1012/l-2, 5 \* 1012/l | < 2.5 \* 1012/l |
| Hemoglobin, g/l | > 100 | 83-100 | < 83 |
| Pulse rate in 1 min. | Up to 80 | 80-100 | Above 100 |
| HELL the systolic (mmHg) | > 110 | 110-90 | < 90 |
| Hematocrit,% | > 30 | 25-30 | < 25 |
| Deficit,% of due | Up to 20 | From 20 till 30 | 30 and more |

Treatment of acute gastroduodenal bleeding is so far up to date and very difficult problem.

Pre-hospital emergency care is to create calm the patient in a horizontal position with the exception of mealtimes and fluids by mouth. In order to apply jepigastralnuju chill on haemostasis area IM 1 ml 1% solution vikasola intravenously 10 ml of 10% calcium chloride solution.

All patients with ulcer bleeding should receive hospitalization in the surgical hospital. In the hospital, depending on the patient's condition and the causes of bleeding sick goes to surgery or intensive care unit.

In the hospital, depending on the patient's condition and causes bleeding determine further treatment. Along with the establishment of the causes of bleeding, its hemostasis in endoscopy is performed a set of conservative activities whose main components are gemostatical therapy and means to stabilize hemodynamics.

X-ray study of the upper gastrointestinal tract, as a method of emergency diagnosis of CHOLELITHIASIS, put on the backburner. Basically it is used after stopping bleeding as a method of additional diagnostic morphological changes and motor-evacuation function of the gastrointestinal tract. Meanwhile, in the absence of conditions for execution of endoscopic studies and great practical skill, x-ray method allows you to obtain positive data (V. Saveliev, 2005) in 80% of cases, especially when diseases such as bleeding ulcer, tumor, varicose veins.

BLEEDING ULCER OF STOMACH AND DUODENUM

Complicated peptic ulcer and duodenal ulcers are the most common cause of acute gastroduodenal bleeding (S.i. Babichev, B.s. Briskin, 1975).

With gastroduodenal bleeding men meet in 6-7 times more often than women and are observed at 5-15% of patients with ulcers stomach and duodenal ulcer. Source of bleeding ulcers is often artery arrozirovannaja ulcerative process several rarer bleeding is mixed arteriovenoznyj nature.

In chronic kalleznyh ulcers vessels located in the unsightly scar tissue damage remain gaping, bleeding, therefore such ulcers have less tendency to spontaneous cessation than in acute ulcer. The severity of bleeding depends on the diameter of the stricken vessel. It should be remembered that a number of patients with acute ulcer bleeding ulcer etiology, ulcer history or even circumstantial evidence for gastric diseases, cannot be set. However, some patients cannot reveal that after administration of acute or roughage, some patients complained of pain in podlojecna area, heartburn, belching, discomfort in podlojecna area.

Acute gastroduodenal bleeding ulcer etiology that occur without prior history of ulcer are easier than bleeding with a long history of ulcerative kalleznymi and chronic ulcers.

Complications of peptic ulcer disease acute bleeding reaches 20%. Bleeding as a direct cause of death of patients with peptic ulcer are in first place. Acute blood loss accompanied by gipovolemiei.

Under normal circumstances, circulating blood volume (CBV) and cardiac output are constants. When krovopotere activates neurohumoral mechanisms of adaptation and autoreguljatornye protection. Have the value of the magnitude and speed of blood loss. Loss of 10-15% of the mass of blood do not cause sharp violations hemodynamics. Deficiency of BCC is compensated by reducing the capacity of the vascular bed due to spasm of the capacitance vessels of the skin, abdominal organs, open, arteriovenous shunts. "Centralization of circulation" ensures the normal supply of blood to important organs (heart, brain). With the loss of more than 15% of BCC blood pressure decreases to 15-30% (up to 90-85/45-40 mm Hg).

Spasm of capacitive and arterial pressure drastically reduces tissue perfusion, resulting in cell metabolism due to lack of oxygen takes place on anaerobic type (metabolic acidosis).

Postgemorragical hypotension causes increased secretion of corticosteroids, aldosterone, antidiuretic hormone (ADH).

If the deficit is not compensated to the BCC, comes the depletion of protective mechanisms to combat gipovolemiei. Blood pressure is reduced to a critical level-50-60 mm Hg. Circulatory decompensation occurs in mikrocirkuljatornom. In paretic capillaries formed units of red blood cells, it stops blood flow, organic develop necrotic processes in organs and tissues.

To the treatment of patients with acute ulcer bleeding ulcer etiology should be treated strictly individually, taking into account the hemodynamic and Hematological indices and the degree of bleeding.

Hemorrhagic erosive gastritis

Observed in 6-17% of cases of gastroduodenal bleedings. its etiology and pathogenesis clarified insufficiently. Haemorrhagic erosive gastritis in some cases occurs for no apparent reason, sometimes accompanied by erosion lesions of the nervous system, cardiovascular disease, burn disease, prolonged use of drugs and hormonal drugs (aspirin, ACTH, hormones crust napochechnikov), as well as the poisoning of some poisons. As a rule, hemorrhagic erosive lesions of the mucous membrane of the upper gastrointestinal tract are not accompanied by intensive blood loss. Some patients pathogenetic mechanisms of development of erosive-haemorrhagic lesions and ulcers completely similar (acid-pepticheskij factor in combination with infection of Helicobacter pylori ) that defines common principles of drug therapy for these diseases. In the Group of patients with symptomatic erosivno-haemorrhagic lesions in their origins are guilty of the same factors that lead to the development of "secondary" ulcers.

Mallory-Weiss Syndrome

(CMB) manifests acute bleeding from longitudinal tearing of abdominal esophagus mucosa or Cardia. The severity of bleeding depends on the depth of the wall breaks these bodies when different may be damaged by the diameter of the vessels of the podslizistogo Plexus, as well as vessels of muscle and subseroznogo layers of the esophagus and stomach. The main reason for implementing acute esophageal mucosa breaks gastric go is the sudden increase in intra-abdominal pressure (intragastric) diskoordinaciej cardiac function and zamykatelnoj pyloric zhomov that next is implemented by repeated vomiting. Conducive factors to the development of this pathology are such background chronic diseases and conditions as chronic and acute alcohol intoxication, peptic ulcer disease, gastritis, hiatal hernia, chronic lung disease and pleura, repeated probing stomach and ESOPHAGOGASTRODUODENOSCOPY. Morphological studies in the zone wall breaks kardiojezofagealnogo transition detected thickening of the walls of the arteries of the podslizistogo layer, varicose veins podslizistyh plexus.

Mallory-Weiss Syndrome set manages to make using fibrogastroscopy. Treatment of Mallory-Weiss reaction depends on the timely diagnosis and the extent of the bleeding.

During the operation, conduct extensive gastrotomiju to determine the nature of the damage and localization of the source of the bleeding, breaks the superior individual stitches. The seams should be deep and capture the muscular layer lining of the stomach, because only one topstitching mucous cuts through tissue and increases bleeding. This operation is the most simple, reliable and secure.

Zollinger-Ellison Syndrome

In 1955 g. Zollinger and Ellison reported a combination of recurrent ulcers of the gastrointestinal tract with adenomas ostrovkovogo apparatus pancreas. For this syndrome nature next semiotic triad: 1) pepticheskoe pitting (sometimes multiple lesions of stomach, duodenum and small intestine, esophagus; 2) high acidity gastric juice; 3) pancreatic adenoma. In addition, patients quite often mentions diarrhoea or enteritis. The disease is most often found in aged 40-50 years. Under the influence of high formulation of gastrin secreted large amounts of gastric juice (from 2 to 14 litres per day), and gastric hypersecretion contributes to the izjazvleniju of the intestinal tract, with ulcers may be localized in any part of the gastrointestinal tract, from the esophagus to the anterior gut. However, about 60% of ulcers are detected in the bulb 12-duodenum (A. A. Shalimov, Viktor Sayenko, 1972).

In the syndrome Zollinger-Ellison ulcers tend to be early, despite the high probability of resection in combination with vagotomiej. They are accompanied by frequent complications is massive bleeding, multiple perforations, stenosis, diarrhoea, severe pain syndrome. Diagnosis of Zollinger-Ellison syndrome is a significant challenge. Clinically and radiographically symptoms characteristic of gastric hypersecretion: fasting in the stomach contained a large amount of liquid, there is hypertrophy of the gastric mucosal folds cutting, reduced his stomach peristalsis, expanded atonichen. When localizing an ulcer in the duodenum last expanded its motility weakened mucosal folds otechny.

Valuable data gives fibrogastroscopy, computed tomography. MRI, ultrasonography of the pancreas.

The basic method of treatment of Zollinger-Ellison Syndrome-surgery: gastric resection combined with removal of tumors of the pancreas.

     Bleeding VOPT tumors, most commonly localized in the stomach, seldom occurs in the initial stages of the development of neoplasms and in most cases is evidence of widespread disease stage. When cancer of the esophagus or stomach it usually wears parenchymal nature of small vessels of the tumor, not secure a mucous membrane. Massive bleeding happens in patients with stomach cancer, when the conditions are created for arrozii large vessel. Stomach polyps are rarely cause acute bleeding; massive bleeding more often develop when necrosis and izjazvlenii nejepitelialnyh podslizistyh tumors such as Leiomyoma, neurofibroma, etc., when HMO may be the first manifestation of the disease.

     Bleeding from varikozno expanded veins oesophagus and proximal stomach is a consequence of portal hypertension, where the violation of vnutripechenerngo circulation (cirrhosis) or blood flow in the System Portal or hepatic veins leads to the formation of functional anastomoses between the portal and kavalnoj venous systems. In the pathogenesis of hemorrhage from esophageal varices of portal hypertension value are important, the degree of expansion and thinning of the walls of the veins, pepticheskij factor (reflux esophagitis) and expressed human blood coagulation as a result of the original liver disease. Massive bleeding of vein breaks are more often hosts the Cardia and lower thoracic esophagus, however, always remember that in isolation may bleed veins proximal stomach and even the duodenum.

     Bleeding with hiatal hernia, divertikulah, Burns, mechanical trauma, foreign bodies after surgical and endoscopic surgeries. Mechanism of development of these bleeding is largely similar and mainly due to direct damage to the blood vessels mucosa or deeper layers of the digestive tract. Iatrogenic postoperative bleeding most commonly associated with technical faults (lack of intraoperative gemostaz) or inadequate maintenance of patients in the postoperative period.

     For blood diseases characterized by massive diffuse bleeding with large surface area of the digestive tract, as a manifestation of the hemorrhagic Diathesis due to breach of blood coagulation, thrombocytopenia and the defeat of the vascular wall.

Treatment

Modern approaches to the treatment of acute bleeding from the VOPT combine proactive diagnostic and therapeutic activities with differentiated determination of indication for urgent surgery.

At all kinds of bleeding from the VOPT conservative therapy, whenever possible, must begin even at the pre-hospital stage and include: complete physical rest with transporting a patient in a horizontal position; the introduction of 10 ml intravenous 10% calcium chloride solution and injection-5 ml vikasola; If necessary, infusion of plasma substitutional solutions (kristalloidy and colloids). Prohibited eating and fluid through the mouth. The patient must be transported to a medical facility as soon as possible.

All patients with bleeding ulcer, regardless of the severity of the condition must be urgently hospitalized in the surgery department.

Patients with moderate and severe degree of bleeding it is advisable to be hospitalized in the intensive care unit because of the phenomenon of hypovolemia and hemorrhagic shock even pose a threat to life. Treatment of patients with non-threatening blood loss should be carried out in parallel with the refinement of the bleeding source the most appropriate diagnostic methods.

Professional experience surgeons suggests that the majority of bleeding from the VOPT stops under the influence of a complex of conservative treatment. It is, first and foremost, belongs to gastroduodenalnym bleeding non-ulcer etiology. Modern endoscopy (not only diagnostic, but also medicinal) further strengthened the value of conservative treatment in this group of patients. Foundation treatment for acute gastrointestinal bleeding is a conservative therapy. The operation must be performed at the optimum time for the patient, when carefully vzveshany all pros and cons.

Endoscopic hemostasis. Therapeutic endoscopy in acute gastrointestinal bleeding has sufficiently high efficiency and allows the temporary hemostasis in the overwhelming number of patients and to adequately prepare them for urgent intervention, if it shown. Subsequent medical therapy provides an opportunity to prevent relapse of bleeding and moved the operation to the stage of a planned surgery. Therapeutic endoscopy may be the only justified method of treatment in patients with very high risk operation.

**Classification by Forrest (with the addition of Podshivalov Yu.v., 2006)**

Forrest I -continued bleeding.

Forrest (I) A -Jet, arterial bleeding.

Forrest (I) in-capillary diffuse.

Forrest I -intense source is not visible.

Forrest I D -fixed podtekaniem with blood clot from under him.

Forrest II -held bleeding (stopped).

Forrest (II) (A) -thrombus in vizualiziruemom Cup.

Forrest (II) (B) -fixed a clot without leak blood.

Forrest II C -clot, completely closing the source of bleeding.

Forrest II D -hemosiderin in the bottom of the sores.

Forrest III -ulcer without signs of bleeding.

Carrying out endoscopic hemostasis in primary inspection is strong with continued at the time of endoscopy studies bleeding. When the ulcer bleedings continued arrozivnoe Jet bleeding occurs in 8-10% of patients. A potential recurrence of bleeding is 80-85% of these patients. Continuing capillary bleeding as diffuse infiltration, occurs in 10-15% of patients with the risk of recurrence of bleeding up to 5%. Stopped at the time of endoscopy examination bleeding with traces of recently wrapped is also indication for therapeutic endoscopy (prevention of recurrence). Signs held bleeding is found in edges and/or bottom source: small trombirovanne vessels in the form of a dark brown or dark red stains, tightly fixed to the jazvennomu crater thrombus or clot-visible large thrombosed vessel. With this endoscopic picture of the recurrence of bleeding, according to many authors can happen at 10-50% of patients, depending on the severity of endoscopic findings.

Indications for carrying out endoscopic hemostasis in dynamic EXAMINATION is negative dynamics from the source of bleeding, where healthy previously "processed" vascular structure; new trombirovanne vessels; or developing a recurrence of bleeding.

Undertaking activities to endoscopic gemostazu not shown when there is no stigma of bleeding in the bottom and edges of the source of the latter.

The latest achievement in endoscopic diagnosis of bleeding from the VOPT is a method of endoscopic ultrasonography (JeUS). Identification of vascular arcs in the vicinity (< 1 mm) from the bottom of the ulcer according to JeUS may be a sure sign of a threat of recidivism gemorragii.

For exposure to the source of bleeding through the endoscope using various methods that differ in their physical properties and mechanism of action, but are often similar in effectiveness.

Endoscopic hemostasis should stop after you have exhausted all means in the clinic at the moment the possibility of its implementation; When used all reasonable time limits (time limits mainly depend on the intensity of bleeding and relevance fill krovopoteri); When relatively skompensirovannogo patient, there are clear signs of hemodynamic instability.

Infusion-trasfuzionnaja therapy.

The aim of this therapy is to restore the basic parameters of homeostasis, resulting in a deficit of Bcc. It is well known that the human body can withstand severe loss of 60-70% of the volume of red blood cells, but the loss of 30% of the volume of plasma is incompatible with life. In this regard, the priority is an infusion in the vascular track adequate amounts of colloidal and kristalloidnyh solutions to address the deficit of Bcc, normalizing microcirculation and blood rheology of correction vodno-elektrolitnogo Exchange.

Treatment of blood loss in 10-15% of Bcc (500-700 ml) is only kristalloidnyh infusion solutions in 200-300% of the volume of blood loss. Blood loss 15-30% Bcc (750-1500 ml) offset by the infusion of saline solutions and colloids in the ratio of 3:1 with a total of 300% on the amount of blood loss. Transfusion of blood components in this situation is contraindicated.

Introduction kristalloidnyh (0.9% solution of sodium chloride, disol, trisol, acesol, laktosol, mafusol, etc.) and colloidal (based on dextran: poligliukin, reopoligliukin, reogljuman; based on edible gelatin: zhelatinol; based on hydroxyethyl starch: Volenam NAYA 8-steril, Infukol, HES 6% and 10% solution) krovozamenitelej creates in the body the phenomenon of artificial hemodilution, ensures a stable recovery of the macro and microcirculation, immediately improves hemodynamics. When treating acute blood loss up to 30% of the BCC is no need to use the components of blood.

When krovopotere, reaching 30-40% (1500-2000 ml) and above, along with the infusion of krovozamenitelej shows jeritrosoderzhashhih transfusion Wednesday (jeritrocitarnaja mass, jeritrocitarnaja suspension, defrosted and washed red blood cells, red blood cells) and fresh-frozen plasma. Treatment of such blood loss at the first stage of the exercise and kristalloidnyh of colloidal infusion fluids to restore blood circulation due to the effect of artificial hemodilution, then treat advanced anaemia, i.e. start to the second stage of treatment. The total amount of perelityh infusion Wednesday must reach at least 300% from blood loss, while jeritrocitsoderzhashhie Wednesday should be up to 20%, and FFP-up to 30% of the perelitogo volume.

Critical levels of blood 30-40 blood volume% BCC is currently considered to be the following: hemoglobin is 65-70 g/l, hematocrit-25-28%. FFP is the source of the missing clotting factors, retired when krovopotere and consumed at a rapid and significant formation of blood clots. Deficiency of platelets and plasma of blood clotting can lead to DISSEMINATED INTRAVASCULAR COAGULATION syndrome. Therefore, when blood loss in excess of 40% of BCC should designate plasma transfusions, and when deep trombozitopenia (less than 10 x 109/l)-concentrate transfusions of platelets.

The criterion for restoration of the BCC serve symptoms pointing to reducing hypovolemia: increased blood pressure, reduced heart rate, increase in pulse pressure, warming and porozovenie skin.

Until the DVD does not reach 10-12 cm water column, and hourly diuresis-30 ml per hour (more than 0.5 mL/kg body weight per hour), the patient should carry out infusion-transfusion therapy. DVD above 15 cm water pillar, in the absence of a pronounced "centralization" circulation indicates the inability of the heart to cope with pritekajushhim volume liquids. In this case, it is necessary to reduce the pace of introduction of intravenous fluids and assign means providing stimulating effect and inotropic cardiac muscle.

Pharmacotherapy of bleeding

For the treatment of acute bleeding from the VOPT uses multiple plan of major groups. Antifibrinoliticheskie drugs (Aminocaproic acid), and normalizing properties of the blood coagulable (Fibrinogen, native plasma, trombocitarnaja mass) are assigned with Hemostatic purpose at all kinds of bleeding (taking into account the above evidence).

Antisecretory drugs are of particular importance in the treatment of patients with bleeding from the VOPT, especially loss of ulcerous etiology. This is the introduction into clinical practice antagonists n2-gistaminovh receptors, and several later inhibitors h+-k+-ATPase (protonovoj pump) with potent antisekretornym effect, gives the opportunity to create optimal conditions for the prevention of recurrence of bleeding and healing of sores, lets push operation to stage a planned surgery or even abandon it.

Antigelikobakternye medications as a means of accelerating regenerative processes, antacids and drugs, possessing citoprotektornym activity (synthetic analogues of prostaglandins) assigned as pathogenetically well-founded means for accelerate healing ulcerative and erosive lesions.

Synthetic analogue of human growth hormone somatostatin-sandostatin (oktreotid) among its many humoral influences capable of reliably reduce organ blood flow in the abdominal cavity, which allows it to recommend for all types gastrointestinal bleeding. Especially this valuable effect has been useful in the treatment of acute bleeding from esophageal varices and gastric. At a bleeding from varikozno expanded veins oesophagus and stomach, along with endoscopic or balonnym hemostasis, applicable vazokonstrictora (vasopressin, terlipressin). Past lead to arterial spasms intestinal capillaries electoral blood vessels and reducing blood flow in the portal system. In addition, when you use the portal hypertension nitroglycerin and beta blockers are drugs affecting splanhnicheskij and, in particular, the portal circulation.

Nutrition of patients with ulcer bleeding is part of conservative therapy. It needs to be, especially in critical care patients to exercise, since the first days of the proceeds directly to the scrawny gut through subtle nazoejunalnyj probe, creating functional calm stomach on 2-3 day. On 3-4 day, after both received clinical-endoscopic evidence of reliable stop blood, is appointed by the diet Mejlengrahta: frequent, fractional, full power in its composition, mechanical sparing diet rich in dairy products and vitamins.

SURGICAL TREATMENT

Indications for emergency intervention. Non-ulcer bleeding nature rarely are indication for urgent surgery. However, with the ineffectiveness of conservative treatment, including endoscopic hemostasis techniques shown surgical intervention as a last resort stops bleeding, whether from acute ulcers (gastrotomija and topstitching source bleeding) of esophageal mucosa breaks-gastric (gastrotomija and suturing lacerations) or from the disintegrating tumors of the stomach (gastrectomy if possible).

The ineffectiveness of conservative treatment of varicose veins of the esophagus with cirrhosis of the liver performs surgery-topstitching of esophageal varices and gastric gastrotomiju (Tanner, modified Professor M. Pociora) or intersection and stapling of abdominal esophagus circular mechanical suture that separates the bloodstream by having improved. Porto kavalnye anastomoses in emergency situations would be inappropriate because of their technical complexity and extremely high fatality.

Bleeding from gastroduodenal ulcers is the indication for urgent surgery when using non-surgical methods of bleeding or unable to stop or too great a threat to his relapse.

As a matter of urgency, infertility patients with profuse bleedings continued bleeding and haemorrhagic shock with clinical-anamnesticheskimi instructions on bleeding of peptic ulcer; patients with massive bleeding, for which conservative events, including endoscopic methods proved ineffective, as well as patients with recurrent bleeding in hospital.

Emergency surgery is indicated for patients with ulcer bleeding stop conservative ways is not sufficiently reliable and there are indications of a high risk of recurrence of bleeding. Usually, in these cases, surgical intervention is performed during 12-24 hours from receipt-time needed to prepare the patient for surgery. It should be stressed that the introduction of reliable non-operational hemostasis is gradually reduced the number of such patients.

Prediction of recurrence of bleeding stopped endoscopically, based on analysis of clinical and laboratory data and results of endoscopic studies. The clinical and the laboratory criteria for high-threat of recurrence of bleeding include: signs of hemorrhagic shock, profuse vomiting blood and/or massive Melena; deficiency of globular volume corresponding to severe blood loss. Endoscopic characteristics-criteria for threat of recurrence of bleeding are: the continued blood bleeding at the time of research; large trombirovanne vessels in ulcerative crater; Ulcerative defect of large diameter and depth localization of ulcers in the projection of large vessels. The presence of any two adverse factors are seen as evidence of the threat of a repeat bleeding.

Patients who have bleeding stopped conservative methods and the risk of recurrence is small, immediate surgery is not indicated. Such patients maintained the conservative (correction of blood loss caused by its violations hemostatics syndromic oral Proton pump blockers, antigelikobakternaja therapy) without active urgent endoscopic studies.

The following should be stressed that elderly patients with a high degree of operational risk anesthesia, usually are caused by decompensation of concomitant diseases amid transferred blood loss. Such patients, even at high risk of bleeding (and sometimes continued bleeding) compulsively maintained conservatively with active dynamic EXAMINATION. Conservative treatment includes: intensive correction of blood loss caused by its violations, syndromic introduction of Haemostatic and antifibrinoliticheskih funds, Proton pump inhibitors, antigelikobakternuju therapy. Control endoscopic studies are carried out on 1, 2, 4 day and up until the disappearance of the risk of recurrence of bleeding.

Operation method selection, first of all, depends on the severity of the patient's condition, the degree of operational risk of anesthesia and, of course, the localization and the nature of a bleeding ulcer. Earlier, a few years ago, gastrectomy, with rare exceptions, was considered the only justifiable operational intervention. So far in the arsenal of surgical treatment of complications of peptic ulcers introduces new methods. With regard to requests for urgent surgery, organ-preserving operations are of particular importance with vagotomiej (usually-stem), differing primarily technical simplicity and low fatality.

Flashing bleeding ulcers (or its excision) with piloroplastikoj and vagotomiej (stem) is shown with duodenal ulcers in patients with a high degree of operational risk.

Antrumjektomija with vagotomiej in the same localization of a bleeding ulcer is shown in patients with a relatively low degree of operational risk (young age, small or medium degree of blood loss). The downside of this operation is that it is more technical complexity, but it provides a more reliable hemostasis and greater radicalism of treatment of peptic ulcer disease. Antrumjektomiju with vagotomiej is usually performed in modifying Billroth-II.

When a bleeding gastric ulcer shown distal gastrectomy (antrumjektomija), if there is a small degree of operational risk.

In patients with a high degree of operational risk bleeding from stomach ulcers can be stopped is technically less complex operational intervention, not related to the excision of the authority and does not require an overlay anastomoses. Here can be applied to excision of ulcer (wedge resection, or flashing of highly positioned bleeding ulcers curvature through gastrotomicheskij). When combined with gastric ulcer bleeding duodenal ulcer should be preferred stem vagotomy with antrumjektomiej.

The absence of external signs that indicate the location of the bleeding, is the indication for intraoperative esophagogastroduodenoscopy, or gastrotomii. The most preferred accesses are longitudinal incision through the gatekeeper with a length of up to 6 cm and the transverse or longitudinal incision in the upper third of the body of the stomach. Examination of the stomach from the inside (if there is no certain signs by palpation) best start through the first incision: first hold an audit of the initial part of the duodenum, then the antrum of the stomach Division. Carefully inspect the mucous membrane after the evacuation and expanding wound narrow hooks. If the source of bleeding was detected, and from the upper sections of the stomach comes fresh blood at the wound in the pyloric region impose clamps and gastrotomiju produce in the upper division of the stomach. A wide cross section and application retraktorov lets you carefully examine the mucous membrane of the body of the stomach area of Cardia. Cut the stomach closes two rows of stitches. Piloroduodenalny incision is sutured in the transverse direction (piloroplastika at Gejneke-Mikulichu).

A thorough audit of the stomach, duodenum and adjacent organs is an important phase of the operation, which not only diagnostic, but also tactical value. In cases where an audit conducted by a clear plan does not detect the source of the bleeding, you should consider the rare causes of bleeding (gemobilija, pancreat-intestinal fistula, etc.) or of the possibility of systemic diseases. Execution of unreasonable transactions (as "blind" gastrectomy and vagotomy with piloroplastikoj) when not detected the source of bleeding is considered invalid.

The POSTOPERATIVE PERIOD in patients undergoing topstitching bleeding ulcers and organ-preserving surgery with vagotomiej has a number of features and should be planned in accordance with modern requirements of surgical Gastroenterology. After sewing a bleeding ulcer without performing a vagotomy (this group tend to be sick of high operational and anesthetic risk) in the immediate postoperative period, the patient is prescribed a course of protivojazvennoj therapy comprising Proton pump inhibitors or last generation of n2-blockers, as well as a set of antihelikobakterna therapy. After organ operations with the vagotomiej feature of the postoperative period is the need to prevent motor-the excretion of operated stomach disorders (drugs group prokinetics).

Here is the plan of the patient.

1. Food through the mouth. Liquids in limited quantities (up to 500 ml) should be allowed, usually already on the 1 St postoperative day (not including day surgery). With 2-3-th day of sick drinkers almost without restriction. With the 3 day special diet first days (frequent meals every 2-3 hours limited amounts; permitted product set backgrounds diet 0, gradually expands to 6-7 day to shestirazovogo nutrition based diet # 1A with the exception of dishes on whole milk).

2. Post-operative drainage of the stomach. Constant aspiration through gavage.

3. Infusion Therapy is in the final restoration of the Bcc and the treatment of anemia. Under the supervision of the laboratory data produce fractional blood transfusion, prescribe medicinal therapy that stimulate haematopoiesis (iron, b vitamins and vitamin c). Produce a transfusion of plasma substitutional solutions.

4. Drug therapy is aimed at preventing complications and treatment of opportunistic diseases of the cardiovascular and respiratory systems. Patients with portal hypertension require intensive prevention and treatment of liver failure.

5. Antiulcer therapy, including modern antisecretory drugs (h2 blockers gistaminovykh receptors or Proton pump inhibitors) in combination with antigelikobakternoj therapy with the aim of rapid healing of ulcerative ushitogo substrate and allowing the prevention of recurrence of ulcers. After surgery for a bleeding ulcer combined with stenosis appointed prokinetiki.

6. In the first days of the postoperative period repeated enemas cathartic colon should be freed from streamed changed blood.

7. The use of prophylactic antibiotics in response to the threat of complications of an infectious nature from anemizirovannyh patients.

8. Respiratory activity.

9. Stitches 8-10 day; extract exercise taking into account the laboratory data, indicating elimination of anemia.

Among the complications of early postoperative period secrete: peritonitis, infiltrates, abscesses in the abdomen, bleeding or abdominal lumen of the digestive tract, postoperative pancreatitis, early adhesive intestinal obstruction, violation of the evacuation of the stomach or his stump.

**LIST OF LITERATURE**

1. Afonin n.i., modern principles of infusion-transfusion therapy in acute blood loss//medical journal.-2001.0-December-8-11.

2. Sparrows a.i., Gorodetsky v.m., Shulutko E.m., Vasiliev S.a. acute blood loss.-m.: Geotar-Med.-2001.-175 with.

3. Gostishhev V.k. General Surgery: Tutorial for medical institutions.-m., 1991.

4. Zhiburt E.b. Transfusiology.-Spb: Peter.-2002.0-733 with.

5. Zhiznevskij J.a. Bases infusion therapy.-Minsk: Higher School. -1994.-281 p.

6. Maistrenko n.a., Movchun K.n. surgical treatment of ulcers duodenal ulcer. p-p/b, Hippocrates.-2000.0-348 with.

7. Pantsirev Yu.m., Greenberg A.a. Vagotomy complications of duodenal ulcers.-Moscow, medicine-1979.0-160 with.

8. Pantsirev Yu.m., Mikhalev A.i. Fedorov, e.d., I.g. Natroshvili experience in applying minimally invasive interventions using laparoscopic technique when complications of duodenal ulcer//Russian Journal of Gastroenterology, hepatology, Coloproctology. -2000.-No. 6.0-65-68.

9. Pantsirev Yu.m., Charniakevich s.a., Fedorov E.f., Mikhalev A.i. et al. efficacy of parenteral forms omeprozola (losek) and FAMOTIDINE (kvamatel) in patients with acute bleeding from gastroduodenal ulcers//Фарматека-2003, no. 3.0-s. 44-49.

10. Order of the Ministry of health of the Russian Federation No. 363 of 25.11.2002 g.

11. Rahimov a.a., Yeremenko A. A. Nikiforov, U.v. Transfusiology in reanimatology.-Moscow: Medinform.. -2005.-with 775.

12. Guide to emergency surgery of abdominal cavity organs. Edited by V.s. Savelieva.-m., publishing house "Triada-x, 2005, 640 p.

13. Rumyantsev a.g., Agranenko V.a. Clinical transfusiology.-Moscow: Geotar-honey. -1988.-575 s.

14. Shevchenko Yu.l., Shabalin v.n., Zarivchackij m.f., Selivanov Ea General and guide clinical transfusion.-St. Petersburg: Folio. -2003.-598 with.

15. Swain C.P. Gastrointestinal haemorrhage//Clinical. gastroenterology-2000.0-v. 14, no. 3.0-p. 357-515.