MINISTRY OF HEATH OF UKRAINE

POLTAVA STATE MEDICAL UNIVERSITY

Department general surgery with care of the patient

“APPROVED”
on the meeting of the chair
of the general surgery with care of the patient
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“ ” _____ 2021

METHODICAL RECOMMENDATIONS FOR TEACHERS to carrying out practical class on the general surgery with 3-rd year students (auditory work)

Study discipline	***General surgery***
Module №2	***Surgical infection. Necrosis. Basics of clinical oncology. Curing of surgical patients.***
Informative module №1	***Surgical infection. Necrosis.***
Lesson theme №26	Surgical sepsis (sepsis-3): definition, etiology, classification, pathogenesis, clinical manifestations, diagnosis, treatment principles. Septic shock. Syndrome of multiple organ failure. Detoxification therapy and immunocorrection**.**
Course	***III***
Faculty	***Medical, pediatric***

Poltava 2021

Informative module №1	*Surgical infection. Necrosis.*
Lesson theme №26	Surgical sepsis (sepsis-3): definition, etiology, classification, pathogenesis, clinical manifestations, diagnosis, treatment principles. Septic shock. Syndrome of multiple organ failure. Detoxification therapy and immunocorrection

1. Results of training:

General competence The problem of sepsis is determined by such factors as the frequency of development and high mortality, despite the use of the latest antibiotics, the introduction of new methods of drug and surgical treatment. On average, sepsis develops in one to five patients per 1,000 hospitalized depending on the profile of the medical institution. In Germany, 75,000 patients die every year from sepsis (the same number dies from acute myocardial infarction). Overall, up to half a million cases of sepsis are recorded annually in Europe. In the United States, 500,000 people (300,000 of whom are gram-negative sepsis cases) with a fatality of 35% are sepsis annually.

On the one hand, sepsis is appropriate to consider as a consistent link in the development of surgical infection, as a consequence of generalized infection, immediately localized in the primary focus, on the other, "sepsis - a severe non-specific infectious process, takes place against the background of changes in the reactivity of the organism.

The definition of sepsis, severe sepsis and SH was formulated in 2001, but despite a number of conflicting definitions and diagnostic criteria, at the initiative of the European Society for Intensive Care and Emergency Medicine (European Society of Intensive Care Medicine and the Society of Critical Care Medicine), The European Society of Anaesthesiology and 30 other professional societies initiated the convening of a task force of experts with experience in the field to review the definition and timing of sepsis and SB, and to promote lish early and most accessible to clinicians the diagnosis of sepsis. The results of this consensus were published in the journal JAMA last March, "The Third International Consultation Definitions for Sepsis and Septic Shock (Sepsis 3)"

Subject competence

To know the definition of sepsis, to interpret the community principles of development, to know the methods of diagnostics of sepsis. SIRS, treatment methods

2 . Learning Objectives :

2. Specific goals:

1. Interpret general etiological and pathogenetic mechanisms for the development of general purulent infection.

2. Explain the basic principles of sepsis classification (depending on origin, localization, agent, developmental phase, clinical course and body response).

3. Analyze symptoms of general purulent infection.

4. Interpret general and local clinical manifestations of sepsis.

5. Explain the principles of integrated treatment and care of patients with general purulent infection and be able to perform its individual stages.

3 . Basic knowledge , skills necessary for studying the topic (inter-disciplinary integration)

The names of the preceding disciplines	the acquired skills
1. anatomy	Know the anatomy of various parts of the body (considering possible ways of spreading purulent-septic processes, histological structure of tissues of the body
2. microbiology	To know the chemical structure of substances having antimicrobial properties, the mechanisms of their interaction with organic

	and inorganic compounds directly related to the development of the inflammatory process. The principles of the research content of the microflora and its sensitivity to antibiotics. Sterility control. Tech fence material.
3. pathophysiology	Signs of inflammatory process
4. biological physics	Know the main groups of physical factors used to control infection
5. pharmacology	Antibiotics principles and their application. Know the drugs, ways of administration, mechanism of action

The student must have an idea :

- On the etiology, pathogenesis , classification , clinic of sepsis, SIRS ;
- The modern classification of sepsis, SIRS;
- The mechanism of healing of sepsis, SIRS;
- The general reaction of the organism to sepsis, SIRS ;
- Special methods of clinical examination of patients.
-Bacteriological test

The student should know :

General purulent infection (sepsis): definition, etiology and pathogenesis;

• Definition of bacteremia, systemic inflammatory response syndrome, severe sepsis, septic shock, multi-organ dysfunction syndrome

• Main pathanatomic and pathophysiological changes in the patient sepsis

• Principles of sepsis classification: by origin, localization, microbial agent, developmental phases, clinical course and body response;

• Clinical picture of general purulent infection: general and local manifestations;

• Principles of comprehensive treatment of patients with sepsis

• Modern methods of intensive sepsis therapy;

The student should be able to:

- Apply the principles of care for surgical patients (hygiene of patients with the disease site) ;
- Inspect the patient and the site of disease ;
- Be able to provide clinical interpretation of the identified symptoms;
- Establish a clinical diagnosis ;
- Appoint conservative treatment for wounds of various locations ;
- Justify the indications for surgical intervention ;
- Conduct post-operative monitoring of patients and to provide care ;
- Apply preventive agents of infection in the wound

4.3. Practical works (tasks) that are performed in the lesson:

• General examination of the patient

• Assessment of the state of the primary focus

• Generation of diagnostic algorithm

• Measurement of body temperature

• Blood pressure measurement

• Measurement of central venous pressure;

• Select tools for central vein catheterization

• Care of the connecting catheter;

• Taking biological material for bacteriological examination;

• Sowing of material on nutrient media;

• Performing some stages of surgical treatment of the primary focus;
• Interpretation and justification of laboratory and instrumental data of the patient with sepsis.

4.Tascs for self-study in preparation for the lesson.

4.1. The list of basic terms, parameters, characteristics, which the student must learn in preparation for the class:

Termin	Definition
Bacteriemia	The presence of viable bacteria in the patient 's blood
Systemic Inflammatory Response Syndrome (CEPR)	Systemic inflammatory response to various severe tissue damage is manifested by two or more of the following signs: • Body temperature > 38 C or < 36 C; • HSS > 90 per minute; • HD > 20 per minute or RaCO2 32 mmHg; • Number of leukocytes > 12 * 109/L, < 4.0 * 109/L or presence > of 10% stick neutrophils.
Sepsis	The body 's systemic response to infection.
Heavy sepsis (sepsis syndrome)	Sepsis, is followed by organ dysfunction, hypoperfusion or arterial hypotension (systolic arterial blood pressure <90 mm Hg. Or its decrease by more than 40 mm Hg. From normal level in the absence of other causes of hypotension). Perfusion disorder can include lactic acid acidosis, oliguria, acute consciousness disorder, etc.
Septic shock	Sepsis with arterial hypotonia stored despite adequate correction of hypovolemia, and perfusion disorder.
Multi-organ dysfunction syndrome	Disorders of organ functions in a patient in a severe condition (independent, without treatment, maintenance of homeostasis is impossible).

4.2 . Theoretical questions for the class :

1) Apply the principles of care for surgical patients (hygiene of patients with the disease site) ;
2) Inspect the patient and the site of disease ;
3) Be able to provide clinical interpretation of the identified symptoms;
4) Establish a clinical diagnosis ;
5) Appoint conservative treatment for wounds of various locations ;
6) Justify the indications for surgical intervention ;
7) Conduct post-operative monitoring of patients and to provide care ;
8) Apply preventive agents of infection in the wound
9) Preventive measures for the further progression of the disease .

4.3.Praktical work assignments used in class:

1) General examination of the patient
2) Assessment of the state of the primary focus
3) Generation of diagnostic algorithm
4) Measurement of body temperature
5) Blood pressure measurement
6) Measurement of central venous pressure;

7) Select tools for central vein catheterization
8) Care of the connecting catheter;
9) Taking biological material for bacteriological examination;
10) Sowing of material on nutrient media;
11) Performing some stages of surgical treatment of the primary focus;
12) Interpretation and justification of laboratory and instrumental data of the patient with sepsis.

5. Content of topic

The most frequent cause of sepsis is acute purulent diseases of soft tissues, which make up 44.3% -52% - so-called wound sepsis - in the structure of sepsis.

The second most frequent cause of sepsis development is purulent peritonitis as a complication of purulent-inflammatory processes in the abdominal cavity. Severe septic syndrome with pronounced geodynamic landslides against the background of peritoneal inflammation is leading in the diagnosis of peritoneal sepsis.

A specific group is made up of patients with clostridial infection. The overall clinical picture of this infection is so vivid that it comes to the fore and obscures the role of the primary focal point of the infection.

Reasons of generalization of an infection:

1. Incorrect surgical tactics and inadequate volume of surgery
2. Incorrect selection of the volume and components of antibacterial, detoxification and symptom therapy
3. Macro-organism imunoreactivity is reduced or distorted;
4. Presence of severe accompanying pathology (diabetes mellitus, alimentary dystrophy, etc.)
5. Widespread antibiotic-resistant strains of microorganisms;
6. Change of etiological structure of purulent surgical infection agents.

The agents of sepsis can be almost all existing pathogenic and opportunistic bacteria. The most common staphylococcus (50.7%), streptococcus (5.2%), intestinal stick (3.6%), blue purulent stick (1.7%), proteus (0.5%).

Special attention should be paid to the fact that in recent years the number of mix-infections has increased, comes at the expense of microbial associations.

In addition to bacteria and their toxins, the course of general purulent infection is influenced by the decay products of the tissues of the primary and secondary foci. They, absorbed into the blood, lead to severe intoxication and degenerative changes in vital organs.

The pathogenesis of general purulent infection is determined by three factors:

• Microbiological - species, virulent, number and duration of bacteria exposure
• Infection focus - area, character and volume of tissue decay, circulation state in the focus;
• Reactivity of an organism.

Central to the pathogenesis of sepsis is caused by bacterial toxin excessive inflammatory response of the body.

Infection can manifest itself when microorganisms penetrate barriers (skin, mucous membranes). Toxic bacterial products activate systemic protective mechanisms (complement system, clotting cascade, and cellular components).

Activated cells synthesize mediators (cytokines, Hageman factor, kinins, lipid metabolites, proteases) triggering and supporting the inflammatory response.

The body 's hyperinflamatory response can, together with microbial toxins, lead to cell damage, perfusion disorder, and eventually to multi-organ failure, shock, and death.

Patients who died of sepsis have:

• thrombophlebitises

• disintegration of fabrics
• multiple hemorrhages
• Presence of abscesses in tissues and organs
• Degenerative-dystrophic changes of internal organs

There are several options for **classifying** sepsis depending on the principle:

1. By origin:
• Primary (cryptogenic) - occurs when there is a "dredging" focus in the body
• Secondary - develops against the background of the existing purulent focus in the body;

2. On localization:
• surgical
• Obstetric and gynecologic
• urological
• otogenny
• Odontogenic et al.

3. On the microbic activator:
• Gram-positive (staphylococcal, streptococcal, etc.)
• Gram-negative (coli bacillary, purulent, etc.)
• klostridialny

4. On development phases:
• Initial phase (toxemia)
• septitsemiya
• septikopiyemiya

5. On a clinical current:
• lightning
• sharp
• septic shock
• subsharp
• chronic

6. On reaction of an organism:
• giperergichesky
• Normergichny
• Gipoyergichny

Terminology. The decisions of the Conciliation Conference recommended the use of the following concepts and terms in clinical practice:

Systemic Inflammatory Response Syndrome (SIRS). It is a pathological condition caused by the influence of surgical infection or the alteration of tissue of non-infectious nature (trauma, ischemia, burn, autoimmune damage, etc.), characterized by the presence of two or more of the four indicated signs:

• Temperature higher than 38 ˚ With or lower than 36 ˚ Page.

• Tachycardia more than 90 beats per minute.

• Tachypnea more than 20 breathing times per minute (in case of pCO2 information less than 32 mm Hg).

• The number of leukocytes is more than 12x109 or less than 4x109, the number of immature forms exceeds 10%

Sepsis - a systemic inflammatory response, the occurrence and progression of which is due to infectious onset, served as a trigger mechanism and the reason for the further progression of SSVI.

Infection is a microbiological phenomenon characterized by an inflammatory response to the presence or invasion of microorganisms in host tissue.

Bacteremia is the presence of living bacteria in the blood.

It was previously defined as the presence of microbes and their toxins in the blood. It is recommended that this term be deleted from practice. We bring him in because he 's still found in literature.

Signs of infectious nature of SIRS progression:

• Stable bacteremia (with identical microflora):

• Presence of non-sanovanized extensive focus of inflammatory alteration;

• Presence of stable (established during repeated studies) laboratory signs of infectious-inflammatory alteration at shutdown of local destructive process.

Sepsis syndrome (severe sepsis) is a condition characterized by the development of one form of organosystemonea insufficiency (respiratory distress syndrome, cardiogenanedostasis, acute renal failure, coagulopathy, etc.) when there is established sepsis.

Septic shock is one form of sepsis - a syndrome that is characterized by an inability to self-regulate vascular regulation. Hypotension (AD less than 90 mmHg) develops. C. Stored against the background of adequate correction of hypovolemia and requires the use of sympathomimetics.

The 3rd International Consensus for the Definition of Sepsis and Septic Shock (Sepsis-3, 2016) provides a scheme for identifying clinical criteria for sepsis and septic shock in patients.

The clinical pattern of sepsis is due to the general picture and local manifestations in the focus of infection.

General manifestations:

• Characteristic appearance
• temperature increase
• tachycardia
• tachipnoe
• AO normal or reduced
• manifestations of intoxication
• Increase in liver and spleen size
• Secondary purulent sites are possible.

Condition of primary center:

• Sluggishness, bleeding and pale granulations
• Delay in rejection of necrotized tissues
• Progression of necrotic changes
• Lack of exudate, becomes serous-hemorrhagic or rotten

Laboratory-instrumental criteria for diagnosis of general purulent infection:

• Laboratory-immunological data, including bacteriological study data
• radiological data
• Ultrasonic scanning data of parenchymatous organs and vessels
• Computed tomography, magnetic resonance imaging
• Video endoscopic inspections

Diagnosis of sepsis and septic shock

The International Guidelines for Management of Severe Sepsis and Septic Shock 2012 does not necessarily indicate changes that are dangerous or life threatening to the patient. According to the new

criteria, sepsis is a life-threatening organ dysfunction resulting from the disorder of the host 's responses to the infection. **Septic shock** - hypotension against the background of adequate infusional therapy and support vazopressor and level of a lactate is ≥2 mmol/l. The term "heavy sepsis" in new recommendations it is excluded as polyorgan insufficiency, according to experts, has to be considered as compound sepsis, but not its complication.

Also, experts adopted a new scale to assess the suspicion of sepsis in the early period: the qSOFA scale, which includes only three simple clinical criteria for evaluation, does not require additional instrumental research and experience of the doctor, namely: change of the state of consciousness, reduction of blood pressure, presence of tachypnea more than 22 per 1 minute. The presence of 2 or more points on this scale can be considered as the initial stage of sepsis development in the presence of a focal point of infection. Pras suspected of sepsis, provided a positive response in the assessment on the qSOFA scale, should be evaluated by the patient on the SOFIA scale, which includes laboratory diagnostics aimed at determining organ dysfunction. Important indicator - lactate level

The treatment of sepsis must be complex.

Local treatment:
- Focus sanitization (surgical treatment, drainage, vacuum suction)
- Surgical treatment of metastatic foci.

General treatment:
- antibiotic treatment
- Infusion-transfusion therapy
- respiratory support
- immunocorrection
- Compensation of organs and systems functions
- Enteral and parenteral nutrition

In January 2017, the journal Intensive Care Medicine presented updated recommendations for the treatment of sepsis and SH, key provisions of which are listed below.

Initial infusion therapy

Infusion therapy is recommended to start immediately with intravenous administration of crystalloid solutions (balanced solutions are preferred), less than 30 ml/kg during the first 3:00, after which the volume of infusion therapy should be reassessed based on hemodynamics monitoring indicators. The initial target for patients with SB requiring vasopressure support is an average blood pressure (AAD) of 65 mm Hg.

For initial resuccitation, the use of an albumin solution in addition to crystalloids is also recommended, as well as for further replacement of the intracular volume in the case where patients require a significant volume of crystalloids. According to these protocols It is not recommended to use hydroxyethyl starch solutions to restore the volume of circulating blood in patients with sepsis and cross-state blood serum lactate is a marker of tissue hypoperfusion, and its normalization - a criterion of efficiency of intensive therapy.

antibacterial therapy

The authors of the plants recommend the introduction of antibacterial drugs as soon as possible after diagnosis of sepsis and/or SH (within 1:00).

Empirical ABT should be administered with all possible agents in mind with one or more antibacterial drugs (including given the likelihood of fungal and viral etiology). The combined empirical ABT provides for the administration of at least two antibacterial drugs of different classes aimed at the most likely bacterial agents. Once the agent has been identified, the empirical ABT should be narrowed according to the sensitivity of the isolated agent/agents (de-escalation).

The duration of ABT, even for serious infections associated with sepsis and SNR, in most cases should not exceed 10 days. Longer ABT courses may occur in patients with delayed clinical response;

existence of the center of an infection; Bacteremia caused by oxacillin-resistant golden staphylococcus strains; Some fungal and viral infections; In patients with immunosuppression (including neutropenia).

The determination of procalcitonin levels can be used to decide to terminate ABT and reduce its duration.

vazoaktiv means

Noradrenaline (norepinephrine) is the first choice drug of vasopressors in patients with SH. Vasopressin (up to 0.03 units per minute) or adrenaline may be used to maintain the AAD target and reduce the dose of noradrenaline. The use of dopamine as an alternative vasopressure preparation may occur in patients with low risk of developing tachyarrhythmias and/or absolute bradycardia. The use of dobutamine is recommended in patients with clear signs of sustained hypoperfusion, subject to adequate infusion and vasopressure therapy.

corticosteroids

Experts do not recommend routine use of intravenous hydrocortisone for treatment of patients with SH, if adequate liquid resuccitation and vasopressure therapy can stabilize hemodynamics. If this is not possible, the use of hydrocortisone at 200 mg/day is permissible.

blood medicines

Transfusion of erythrocytic mass is recommended at decrease of hemoglobin concentration < 7.0 g/dl in adult patients in absence of ischemic heart disease, COPD, severe hypoxemia and acute blood loss. Erythropoietin Not recommended for treatment of anaemia in patients with sepsis and SH. Freshly frozen plasma Not recommended for correction of blood coagulation system disorders with no signs of bleeding or planned invasive procedures.

Prophylactic platelet transfusion is shown if the number is < 10 × 109/l, in the absence of apparent bleeding, and in the amount < 20 × 109/l if the patient has a significant risk of bleeding. Higher level of platelets (≥50 × 109/l) is recommended at active bleedings, operation or invasive procedures.

immunoglobulins

The authors of the recommendations do not advise the use of intravenous immunoglobulin in patients with sepsis and SH.

anticoagulants

Experts do not recommend the use of antithrombin, there is no data on the effectiveness of administration of thrombomodulin and heparin for the treatment of sepsis and SH.

Artificial ventilation of lungs

It is recommended to use the target respiratory volume of 6 ml/kg compared to 12 ml/kg for adult patients with sepsis-induced acute respiratory distress syndrome (PRDS), the upper limit of plateau pressure should be not more than 30 cm of water. In patients with severe sepsis-induced PRDS, with a ratio of PaO2/FiO2 < 150, the use of recruitment maneuver and ventilation in the abdominal position is recommended. It is not recommended to carry out high-frequency artificial pulmonary ventilation (IVL) in adult patients with sepsis-induced PRDS, as well as long-term use of myorelaxants (more than 2 days).

sedation

The authors recommend minimizing elongated and periodic sedation of patients with sepsis who are treated with IVL.

6. Materials for self-control.

1. To master the technique of identifying areas of pain to panaritiums .

2 . Make a differential diagnosis between

felon and other inflammatory soft tissue finger.

3.Viznachity method of anesthesia and the method of surgical intervention in various forms of felon

control of a glycemia

Insulin administration should be started at blood glucose level (after double detection) of more than 180 mg/dL (> 10 mmol/L). It is recommended to control blood glucose level every 1-2 hours until

blood glucose level and insulin infusion rate ARE constant, after which glycemia control is carried out every 4:00. If the patient has an arterial catheter, it is recommended to take blood samples from him (not capillary blood).

Introduction of soda (sodium hydrogen carbonate)

Authors do not recommend routine use of solution of bicarbonate of sodium for the purpose of improvement of indicators of haemo dynamics and/or reduction of requirement in vazopressors to support at level pH ≥7.15.

Preventionof tromboembolic of complications

In patients with sepsis and SB, pharmacological thromboprophylaxis is recommended by using unfractionated (HPG) or low molecular weight heparin (HMG) in the absence of contraindications to use, and preference is given to HMG over HPG. In contraindication to the use of pharmacological prevention of venous thromboembolism (BTE), the use of mechanical preventive measures (interleaved compression of lower limbs) is recommended, the optimal method of prevention of BTE is a combination of pharmacological and mechanical agents.

Prevention of stress ulcers

The management recommends to prevent stress-induced ulcers in patients with sepsis and SH in the presence of risk factors for gastrointestinal hemorrhage (GCC). The use of proton pump inhibitors and H2 receptor antagonists is recommended for the prevention of FSC. It is not recommended to prevent stress ulcers in patients without risk factors for the development of FSC.

nutritive support

Preference should be given to enteral nutrition of patients with sepsis and SH, if possible. The authors of the recommendations propose the use of early trophic/low calorie enteral nutrition in patients in critical condition with sepsis and/or SH depending on the tolerance of nutrition to patients.

The use of omega3 fatty acids, arginine and glutamine as an immune application to nuthritical support in critical patients is not recommended. Also, the installation does not recommend continuous monitoring of the residual volume of the stomach (stagnation) in patients with sepsis and SH. Residual gastric volume control can occur in patients at high risk of aspiration (for patients with non-surgical sepsis and SH).

Patients with gastric motility disorders are advised to use prokinetics (metoclopramide, erythromycin) or postpiloric nutrition by establishing an intestinal probe.

After recent publications on the definition of sepsis and SV, recommendations for intensive care activities in the subject-matter medical journals, discussions and scientific discussions continue actively, and the justification of the scope and composition of sepsis infusion therapy deserves special attention.

Since recent publications on the definition of sepsis and SV, recommendations for intensive care activities in specialized medical journals, discussions and scientific discussions have been actively ongoing, and the justification of the scope and composition of infusion therapy for sepsis and SV deserves special attention. L. Byrne, F. Van Haren conclude that the recent history of infusion therapy teaches us that aggressively excessive attempts to "normalize physiology" by focusing on numbers can be harmful to the patient, the most important contribution aimed at improving treatment for intensive care patients was the removal of ineffective and potentially dangerous treatments for sepsis and SH. As of 2017, we have new definitions and treatment protocols for patients with sepsis and SCh.

6.1. Tascs for self-control .

question:

(Tables, diagrams, figures, graphs) are attached.

1. What scientist and in what century was the term "sepsis" introduced?

A. N. I. Pyrogov in 19v.

B. Aristotle at 4st. *

C. R. Koch in 19v.

D. K. Landsteiner in 20in.

E. A. Pare in 16v.

2. Early sepsis is called sepsis, which originated:
A. Up to 14 days after damage
B. Up to 14 hours after damage
C. Up to 14 weeks after damage
D. By 1 day after damage
E. Up to 1 week after damage.

3. How much sub-acute sepsis lasts:
A. 6-12tizh.
B. 6-12 h.
C. 6-12 days
D. 6-12 months.
E. 6-12 years.

4. What is sepsis in the nature of body reactions:
A. Normergichny
B. Initial
C. Secondary
D. Sharp
E. Chronic.

5. There are the following phases of the clinical course of sepsis except:
A. Tension phases
B. catabolic
C. anabolic
D. Rehabilitation
E. Exhaustion.

6. How blood is sown to detect bactariemia:
A. not "3 times daily for 3 consecutive days
B. 1 times a day
C. 1 once a week
D. Three times a day with 1 week intervals
E. Single research.

7. One of the early symptoms of sepsis are:
A. T-limfotsitopeniya
B. Agranulotsitoz
C. Trombotsitoz
D. Monotsitoz
E. Eritrotsitoz.

8. What kind of blood pattern is typical of sepsis:
A. Shifting the leukocyte formula to the right
B. Shifting the leukocyte formula to the left
C. Leykotsitoz
D. Shift of leukocyte formula to the right, leukocytosis, toxic leucocyte grain
E. Shift of leukocyte formula to the left, leukocytosis, toxic leucocyte grain.

9. What is the pathogenetic mechanism of endotoxic shock development:
A. hyperaemia
B. Generalized ischemic hypoxia

C. Gemichesky hypoxia
D. Local ischemia
E. Giperkapniya

10. Multi-organ failure is characterized by the failure of so many systems:
A. 2 and>
B. 3 and>
C. 4 and>
D. 5 and>
E. 6 and>.

11. Recently, the most important in the etiology of sepsis are:
A. Staphylococcus
B. Streptococci
C. Colibacillus
D. sinegnoyny stick
E. Mixt-infections.

12. What hemodynamic shifts occur in severe sepsis:
A. Arterial hypertension above 140/90 mm
B. Arterial hypertension above 180/100 mm
C. Blood pressure within normal limits
D. Arterial hypotension below 90/40 mm
E. Arterial hypotension below 70/30 mm

13. What changes on the part of the hemocoagulation system are observed in sepsis:
A. Platelet count increase above 400 * • 10 9/l, fibrinolysis decrease below 10%
B. Decrease in platelet count below 100 * • 10 9/l, decrease in fibrinolysis below 10%
C. Platelet count increase above 400 * • 10 9/l, fibrinolysis increase above 18%
D. Decrease in platelet count below 100 * • 10 9/l, increase in fibrinolysis above 18%
E. There will be no changes.

14. Among the changes from the gastrointestinal tract, there are:
A. Mechanical intestinal obstruction
B. Dynamic intestinal obstruction
C. Heartburn
D. Atsetonemichesky vomiting
E. There will be no changes.

15. In septic shock caused by Gram-positive microorganisms, the following occurs:
A. Precapillary paresis and arterial hypotension
B. Pocapillary paresis and arterial hypertension
C. Precapillary paresis and arterial hypertension
D. Pocapillary paresis and arterial hypotension
E. Spasm of precapillaries and arterial

16. What is typical of the state of the primary hearth in sepsis:
A. Sluggishness, bleeding, delay in rejection of necrotized tissues, lack of exudate
B. Lack of bleeding, delay in rejection of necrotized tissues, lack of exudate
C. Lack of bleeding, significant rejection of necrotised tissues, lack of exudate
D. Lack of bleeding, significant rejection of necrotised tissues, high amount of exudate
E. There will be no changes.

17. What is the increase in SOE in sepsis:
A. Recovery
B. Progressing of sepsis
C. Acute course of sepsis
D. Sub-acute course of sepsis
E. Chronic course of sepsis

18. What changes from internal organs are observed in sepsis:
A. Reduction in spleen and liver size
B. Heart hypertrophy (cor bovinth)
C. Increase in spleen and liver size
D. left ventricular hypertrophy
E. hypertrophy of the right ventricle of the heart.
19. What is typical of metastatic sepsis:

A. Improving well-being, gradually reducing body temperature
B. Hectic fever, significant sweating
C. Small amplitude of temperature curve, slight sweating
D. Temperature curve amplitude does not change, sweating is absent
E. Gradual rise in body temperature, deterioration of well-being
20. What is administered in sepsis to eliminate metabolic acidosis:
A. Hypertonic sodium chloride solution
B. Isotonic sodium chloride solution
C. Hypertension solution
D. isotonic glucose solution
E. Sodium hydrogen carbonate solution.

21. Solutions with ions are introduced to normalize electrolyte exchange:
A. Na
B. K
C. Ca
D. Mg
E. Fe

22. Which conference adopted sepsis terminology:
A. At the 19 Congress of Surgeons of Ukraine
B. At the 20 Congress of Surgeons of Ukraine
C. At the 6 of the CIS International Conference of Hepatologists
D. At the World "Conference of Agreement"
E. At the 5 World Congress in Munich

23. Which microorganisms can be agents of sepsis:
A. Only pathogenic
B. Opportunistic only
C Pathogenic and opportunistic
D. All without exception
E. Prions

24. What is the main cause of sepsis:
A. Violation of immunity
B. Impaired glucose tolerance

C. On the part of the hemocoagulation system
D. Metabolic disorders
E. On the circulatory side

25. What happens in the anabolic phase of sepsis:
A. Breakdown of tissue proteins
B. Restoration of structural proteins
C. Formation of interferon
D. Gluconeogenesis processes
E. Processes of a glikogenoliz

26. What primary disorders by the immune system during general purulent infection are associated with:
A. With defects in erythrocytes
B. With defects in platelets
C. With defects in all blood cells
D. With defects in immunocompetent cells

27. What is associated with the growth of postoperative purulent-septic complications:
A. With poor nursing
B. Low intake of vitamin C
C. Environmental degradation
D. with hypodynamics of patients
E. With the emergence of hospital strains of microorganisms

28. Which is central to the pathogenesis of sepsis:
A. Excessive inflammatory response of the body
B. Reduced inflammatory response of the body
C. Reduction of microcirculation in the primary focus
D. Primary focus neurotrophics reduction
E. Reduction of lymphflow in the primary focus

29. For what purpose hyperbaric oxygenation is used in the treatment of sepsis:
A. To provide sufficient oxygen to the body
B. To improve the effect of topical wound treatment
C. To improve the circulation of the body
D. To increase perfusion through the alveolo-capillary membrane
E. To increase blood pressure

30. How the excision of necrotized tissues is performed
A. With minimal tissue injuries
B. With preservation of the integrity of the outer covers
C. Most widely
D. only non-viable fabrics are carved
E. Excision is not carried out

31. Which glands of internal secretion are stimulated during the stress phase:
A. Thyroid
B. Pancreas
C. Thyroid and pancreas
D. At thyroid
E. Pituitary and adrenal glands

32. What complication of sepsis leads to embolism of a large circulation:
A. Endocarditis
B. deep vein thrombophlebitis of lower limbs
C. Thrombophlebitis of the surface veins of the lower extremities
D. Pericarditis
E. myocarditis

33. Which immunoglobulins are included in the preparations for the treatment of sepsis:
And. Ig E
B. Ig A
C. SIg A
D. Ig M
E. Ig G

34. What is targeted by infusion-transfusion therapy in sepsis:
A. Treatment of local disorders in the primary focus
B. Prevention and treatment of organ disorders
C. Treatment of disorders in metastatic foci
D. Treatment of disorders in the hemocoagulation system
E. Prevention and treatment of microcirculatory disorders

35. Which antibacterial drugs are part of the reserve group in the treatment of sepsis:
A. Tsefalosporina
V. Aminoglikozida
From Karbopenema
D. Tetratsiklina
E. Penicillin

36. For what purpose in sepsis the preparations of the fork gland are used
A. For immunostimulation
B. For immunosuppression
C. To maintain homeostasis
D. To increase erythropoiesis
E. To increase thrombocytopoiesis

37. Which is the indication for the assignment of interleukin-2:
A. Increase in blood plasma cells
B. Reduction of plasma cell content
C. Decrease in T-lymphocyte content D. Increase in T-lymphocyte content
E. Decrease in erythrocyte content

38. To which chemical compounds the bacterial endotoxin belongs:
A. Proteins
B. Esters
About Monosaccharides
D. Lipoproteins
E. липополисахарид

39. What are the main complaints of a sepsis patient:
A. Loss апетитуB. increase in appetite

C. Fever
D. Pain
E. Nausea

40. What dermatological manifestations are observed in a septic patient:
A. Ekhimoza
V. Petekhiya
From Rozeola
D. Pustula
E. Papules

41. What nature of exudate is typical of the primary hearth in sepsis:
A. Only serous
B. Only hemorrhagic
About purulent
D. Fibrinozno-gnoyny
E. serous-hemorrhagic and rotten

42. The initial phase of sepsis is:
A. Initial sepsis
B. Secondary sepsis
With Septitsemiya
D. Toksemiya
E. Septikopiyemiya

43. What can cause the generalization of sepsis:
A. Severe concomitant pathology
B. Hypovitaminosis
C. Organism dehydration
D. Environmental impacts
E. Organism overhydratation

44. Which theory of sepsis is basic:
A. Bacteriological
B. Toxic
With Allergic
D. Neurotrophic
E. Tsitokinovaya

45. Which substances are a key factor in the development of the immune response:
A. Tumor necrosis factor
Century. Interleukin-2
C. Hageman's factor
D. Kinina
E. Leykotriyena

46. What auscultal changes can be from the cardiovascular system:
A. Systolic noise
B. Emphasis on 1 ton
About Diastolic noise
D. Emphasis 2 tones
E. Rhythm of "gallop"

47. What applies to nosocomial sepsis:
A. Sepsis developing against the background of immunodeficiency
B. Sepsis resulting from radiation
With Sepsis amid tuberculosis
D. gram-negative sepsis
E. Sepsis acquired at the hospital

48. Which microorganisms most often cause nosocomial sepsis:
A. Streptococcus
B. Staphylococcus
From an enterokokka
D. Escherichia
E. Proteus

49. Which of the instrumental methods of the study is most informative when making a diagnosis of biliary sepsis:
A. Magnetic resonance imaging
B. Computer tomography
C. Endoscopic retrograde cholangiopancreatography
D. Ultrasonography
E. Survey X-ray analysis

50. Which means "sepsis" translated from Greek:
A. Rotting
B. Infection
C. Neutralization
D. Wound
E. Necrosis
Correct answer And

51. What is sepsis in the nature of body reactions:
A. Normergichny
B. Initial
C. Secondary
D. Sharp
E. Chronic.

52. What kind of blood pattern is typical of sepsis:
A. Shifting the leukocyte formula to the right
B. Shifting the leukocyte formula to the left
C. Leykotsitoz
D. Shift of leukocyte formula to the right, leukocytosis, toxic leucocyte grain
E. Shift of leukocyte formula to the left, leukocytosis, toxic leucocyte grain.

53. What hemodynamic shifts occur in severe sepsis:
A. Arterial hypertension above 140/90 mm
B. Arterial hypertension above 180/100 mm
C. Blood pressure within normal limits
D. Arterial hypotension below 90/40 mm
E. Arterial hypotension below 70/30 mm

54. What is typical of the state of the primary hearth in sepsis:
A. Sluggishness, bleeding, delay in rejection of necrotized tissues, lack of exudate
B. Lack of bleeding, delay in rejection of necrotized tissues, lack of exudate
C. Lack of bleeding, significant rejection of necrotised tissues, lack of exudate
D. Lack of bleeding, significant rejection of necrotised tissues, high amount of exudate
E. There will be no changes.

55. What is administered in sepsis to eliminate metabolic acidosis:
A. Hypertonic sodium chloride solution
B. Isotonic sodium chloride solution
C. Hypertension solution
D. isotonic glucose solution
E. Sodium hydrogen carbonate solution.

56. What is the main cause of sepsis:
A. Violation of immunity
B. Impaired glucose tolerance
C. On the part of the hemocoagulation system
D. Metabolic disorders
E. On the circulatory side

57. Which is central to the pathogenesis of sepsis:
A. Excessive inflammatory response of the body
B. Reduced inflammatory response of the body
C. Reduction of microcirculation in the primary focus
D. Primary focus neurotrophics reduction
E. Reduction of lymphflow in the primary focus

58. What complication of sepsis leads to embolism of a large circulation:
A. Endocarditis
B. deep vein thrombophlebitis of lower limbs
C. Thrombophlebitis of the surface veins of the lower extremities
D. Pericarditis
E. myocarditis

59. For what purpose in sepsis the preparations of the fork gland are used
A. For immunostimulation
B. For immunosuppression
C. To maintain homeostasis
D. To increase erythropoiesis
E. To increase thrombocytopoiesis

60. The initial phase of sepsis is:
A. Initial sepsis
B. Secondary sepsis
C Septitsemiya
D. Toxemiya
E. Septicopiyemiya

Situational tasks

1. Patient N. 27 years old receives complaints about expressed general weakness, increase of body temperature to 38.5 C, suffocation, swelling of lower limbs. From the history it became known that uses narcotic substances for 5 years. The examination takes note of bilateral pneumonia, leukopenia, hepato- and splenomegaly, postthromboflebytic syndrome (PTFS) of the lower limbs. What is the probable cause of the patient 's condition:

A. Secondary sepsis
B. Bilateral pneumonia
WITH PTFS
D. Cirrhosis
E. Verlgof's disease

2. Sick R., 23 years old entered surgical hospitals 3 days from the beginning of the disease with complaints about common abdominal pain, nausea, general weakness, fever. Objectively: AD = 70/40 mm, pulse 120 per minute. Notes the pronounced pale skin, sticky cold sweat, auscultally - absence of peristaltic noises. According to ultrasound - presence of liquid in abdominal cavity. It is executed laparotomy. In the abdominal cavity - up to 1.5 l of purulent-fibrinose exudate, tubovaric tumor on the left, which occupies the whole cavity of the small pelvis with a perforation hole up to 2 cm in diameter. What is the etiology of this condition:

A. General peritonitis
B. Gynecologic sepsis
About infectious and toxic shock
D. Local stealth peritonitis
E. Local bordered peritonitis

3. Sick S., 43 years old operated on pancreonecrosis. Performed pancreatic tail necrectomy, marsopulization, Cholecystostomy, sanitization, abdominal drainage, laparostomy. The postoperative period is accompanied by tachypnea, tachycardia, leukopenia and moderate diastasuria. What is the probable cause of the severe course of the postoperative period:

A. General peritonitis
B. Abdominal sepsis
C. Bilateral pneumonia
D. Local bordered peritonitis
E. Phlegmon of retroperitoneal space

4. Sick M., 63 years old hospitalized with jaundice syndrome. According to ultrasound: choledocholithiasis, ectasia of bile ways. According to FSDS: purulent cholangitis, papillitis. Pulse 96 per minute, AD = 100/40 mm Leukopenia, cachexia, hyperbilirubinemia, coagulopathy, fever. What is the most likely diagnosis in a patient:

A. Viral hepatitis
V. Biliarny sepsis
C. Liver abscess
D. pseudotumor form of pancreatitis
E. Pancreatic head tumor

5. Sick M., 63 years old hospitalized with jaundice syndrome. According to ultrasound: choledocholithiasis, ectasia of bile ways. According to FSDS: purulent cholangitis, papillitis. Pulse 96 per minute, AD = 100/40 mm Leukopenia, cachexia, hyperbilirubinemia, coagulopathy, fever. Which treatment is most appropriate in this case in the first step:

A. Detoxification infusion therapy
B. Antibacterial therapy
With Laparotomy, a holedokhotomiya
D. Pancreoduodenal resection (PDR)

E. Endoscopic papillosphincterotomy (EPST) and choledocholitoextraction (Xle)

6. The patient, 81, after suffering a stroke 2 years ago with left-handed hemiparesis, was hospitalized in serious condition with hypotonia and tachycardia. According to laboratory data: leukopenia, moderate hyperbilirubinemia. When examining the smoked areas, a black skin defect of 19 * 15 cm was found. With skin hyperemia around up to 5 cm, which extends to the lumbar. Despite performing PCO purulent, the patient died 12:00. Liver abscesses occurred on autopsy. What is the probable cause of death of the patient:

And. septic shock
B. Initial sepsis
About the Spreading sepsis
D. Repeated stroke
E. Mezenterialny thrombosis

7. The patient, 35, entered the reception department of the hospital with complaints about swelling of the left tibia, hyperemia of the skin, fever. AO = 100/60 mm, pulse 100 per minute. From history it is known that for two years uses narcotic substances. Diagnosed: phlegmon of the left tibia. Which should be the treatment sequence of the patient:

A. Pre-operative preparation under AIT conditions, opening of phlegmon
B. Conservative surgery therapy and routine surgical treatment
C. Phlegmon disclosure, surgical separation treatment
D. Phlegmon disclosure, outpatient treatment
E. Conservative outpatient treatment

8. The patient was treated for 43 years in the resuscitation department of the surgical hospital for the purulent-inflammatory process of the right foot and decompensation of diabetes mellitus. Suddenly hyperthermia, thread pulse 140 ud/min, AD = 80/60 mm, skin pale, covered with cold sticky then, oligoanuria, neuropsychic disorders. What condition arose in the patient:

A. Acute respiratory distress syndrome
Century. DVS-syndrome
With Septic encephalopathy
D. Acute adrenal insufficiency
E. Septic shock

9. The patient, 41, entered surgical hospitals with a diagnosis of postoperative ventral impaired hernia. It is executed a gerniolaparotomiya. During the examination of the hernial contents, an unviable loop of the small intestine was found. Resection of the latter with side-to-side anastomosis applied. Within 3 days of surgery, the patient was on IVL. On day 4, significant hyperthermia, leukopenia with significant stick displacement, emerged. The abdomen in palpation is mild, slightly painful in the area of postoperative wound. The symptoms of abdominal irritation are negative. Sluggish vermicular movement. What is the probable cause of postoperative sepsis:

A. spilled peritonitis due to insufficient abdominal sanitization
B. spilled peritonitis as a result of anastomosis failure
With Nozokomialnaya pneumonia
D. Phlegmon of retroperitoneal space
E. postoperative wound nudity

10. The patient, 73, was hospitalized in severe condition in a surgical hospital with a cavity organ perforation clinic. With history it has become known that the patient takes non-steroidal anti-inflammatory drugs in connection with polyartritis. Ulcer disease has been suffering for the last 5 years. It is operated. The perforation hole is sutured despite pilorotenosis phenomena. The postoperative period was complicated by bleeding from the ulcer of the posterior wall of the DPC. On day 7, duodenal

contents began to be released from drainage. Relaparotomy, excision of mirror ulcers of DPC are carried out, subgenal and subdiafragmal abscesses are eliminated, laparostomas are formed. Despite the complex of postoperative therapy in OAIT, the patient died. What is the cause of the death:

A. Abdominal sepsis
B. Hemorrhagic shock
About Insolvency of an anastomoz
D. Gipovolemichesky shock
E. polyorgan insufficiency

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