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DEVELOPMENT OF A COMPREHENSIVE PROGRAMME FOR THE COMPREHENSIVE TREATMENT OF PATIENTS WITH MAXILLOFACIAL PHLEGMON WITH VIRAL HEPATITIS B

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ABSRACT:

The programme of complex treatment of patients with acute progressive inflammatory diseases of maxillofacial region in patients with hepatitis B consisted of one-stage, purposeful and pathogenetically grounded actions, directed to the correction of hemodynamic and metabolic disturbances, suppression of infectious agent, fight with intoxication, increase of nonspecific resistance and immunological reactivity of organism on a background of active surgical sanation of primary purulent focus

KEYWORDS: maxillofacial phlegmon, viral hepatitis "B", odontogenic and periodontal infection, immunity, liver, frequency, structure, hepatoprotectors.

RELEVANCE:

The analysis of the domestic and foreign literature showed that there are separate reports on the application of morphological methods of investigation of patients with purulent-inflammatory processes of the face. However, there are no studies devoted to the study of proliferative activity of soft tissues in the prolonged course of the pathology. Besides, there are no data concerning the possibilities of apoptosis intensity correction and regeneration stimulation against the background of cytogenetic and immunological changes in this contingent of patients. Today immune mechanisms of regulation of physiological functions during pathological process development are widely studied. Changes of immunocompetent cells and immunoglobulins at purulent-septic diseases of maxillofacial region are studied sufficiently. The problem of purulent infections of the maxillofacial region currently continues to be extremely relevant. Numerous studies by domestic and foreign authors are devoted to its development. Due to the increasing frequency and severity of the course of inflammatory diseases of the maxillofacial region, the problem of treating patients with this pathology is one of the leading ones in surgical dentistry and maxillofacial surgery. Most researchers agree that cases of phlegmon encompassing the fatty spaces of several anatomical areas of the head and neck at

once and difficult to be treated by conventional therapeutic measures have become more frequent in clinical practice. The incidence of severe complications such as contact mediastinitis, sepsis, cavernous sinus thrombosis, cerebral abscesses, erosive hemorrhages from large vessels, etc., has increased. Most authors explain the increasing frequency and severity of the clinical course of acute purulent-inflammatory diseases of the maxillofacial region by a change in the pathogenic properties of microorganisms, an increased etiological role of microbial mixtures with a predominance of non-spore-forming anaerobes, emergence of polyantibiotic-resistant forms of microorganisms, allergization, sensitization, intoxication of patients with products of microflora from infected root canals and periodontium, immunosuppression and inhibition of nonspecific protection mechanisms The program of complex treatment of patients with acute progressive inflammatory diseases of the maxillofacial region in patients with hepatitis B consisted of a single-stage, purposeful and pathogenetically grounded measures aimed at the correction of hemodynamic and metabolic disorders, suppression of the infectious agent, fight against intoxication, increase of non-specific resistance and immunological reactivity of the body against the background of an active surgical sanation of the primary purulent focus. The programme of complex treatment included preoperative preparation and the surgical period, and the postoperative period. The strategic direction of the complex treatment program was measures to restore and stabilize the disturbed blood circulation and metabolic processes, as the state of these important homeostasis systems predetermines the effectiveness of the treatment as a whole. Regardless of the severity of the disease, surgical intervention with revision of all the cellular spaces of the maxillofacial region and neck involved in the inflammatory process was an obligatory and integral component of treatment. The different level of preservation of the organism's reserve potential, the ratio of protective-adaptive and pathological reactions predetermined the tactics, the choice of methods and means of treatment. In this regard, the implementation of the program of complex treatment in sepsis provided for the creation of the most favorable conditions for strengthening the mechanism of sanogenesis, a combination of therapeutic measures of stimulating and replacement action, in the severe form of sepsis with decompensation of protective-adaptive mechanisms of substitution and were aimed to restore and maintain the activity of critical organs and life-support systems. The treatment of purulent-inflammatory diseases and wound infection, especially in cases of maxillofacial surgery, remains a complicated and unresolved problem, especially in patients who have hepatitis B, who are immunodeficient, have concomitant pathologies (diabetes mellitus, vascular diseases, etc.) purulent-infectious diseases, which, according to different authors, amount from 12% to 15% in the structure of surgical diseases, have a longer period of time and are accompanied by complications. In a purulent wound there is not a single change in the species composition of pathogens (2-3 times) in a fairly short period of time - up to 10 days. The incision, sanation, drainage of purulent bed, together with antibacterial therapy (broad spectrum antibiotics), symptomatic treatment, application of secondary sutures to the cleaned wound take a long time - on the average over 20 bed days, and with widespread purulent processes and in the presence of diabetes mellitus up to 40-60 days. The standard use of broad-spectrum antibiotics in combination with traditional surgery is not always effective due to the growing resistance of

microbial strains to the most common antibiotics and inability to adequately sanitize the focus of infection using traditional techniques, which in 3-10% of patients with phlegmon and abscesses leads to the progression of the pathological process with development of severe complications: purulent mediastinitis, cavernous sinus thrombosis, jaw osteomyelitis, sepsis. With the localization of purulent inflammatory process, the problems of cosmetic defect in the long-term period are of particular relevance, which are the basis for subsequent plastic surgery in 8 - 15% of operated patients and encourage surgeons to introduce into clinical practice minimally invasive technology and semi-closed surgical techniques that ensure the formation of minimal physical characteristics of the scar. Over the last decade there has been significant success in the development of methods of surgical treatment of purulent focus, which should be combined with additional effects on the wound surface: cryotherapy, treatment with a pulsating stream of fluid, laser therapy, vacuum treatment, ultrasound cavitation, etc.

Analysis of the literature indicates that, despite its relevance, many issues of the course of maxillofacial phlegmon suffered from viral hepatitis B have not been solved. Proceeding from the above stated, the aim of the study was to improve pathogenetic grounded complex therapy in patients with abscesses and phlegmon of maxillofacial area having hepatitis B.

PURPOSE OF THE STUDY:

To create a comprehensive treatment programme for patients with acute progressive inflammatory diseases of the maxillofacial region in patients with hepatitis B

MATERIALS AND METHODS OF RESEARCH:

Based on our objectives, the programme we developed was used in the complex treatment of patients with acute progressive inflammatory processes of the maxillofacial region suffering from viral hepatitis B. The studies were carried out between 2015 and 2020. Experiments were carried out on 47 patients with maxillofacial abscesses and phlegmons depending on the severity of the current, and the patients were divided into B-group. There were 31 patients with abscesses suffering from viral hepatitis B, the control group consisted of 12 healthy individuals. 47 patients (30 male and 17 female). All patients were treated at Samarkand City Unified Facial Surgery Unit and were brought to the clinic for urgent indications. All patients underwent microbiological, immunological and biochemical analyses as well as mathematical analysis. In addition to the clinical evaluation, all patients were examined by a general examination, which included an assessment of the patient's general condition, measurement of body temperature, blood pressure, pulse, the presence of dyspeptic phenomena, and general blood and urine testsOf these, sepsis was detected in all patients (100.0%). Consequently, the program of complex treatment developed by us, was used in the most severe contingent of patients with acute progressive inflammatory diseases of the maxillofacial region, neck and their complications, most of whom (59 patients) were admitted with unstable compensation or decompensation of life support systems.

Patients with abscesses suffered from viral hepatitis B between the ages of 16 and 56. The cause was mainly chronic periodontitis. The process of inflammation occurred in half of the patients on the lower jaw. The cause of inflammation in 23 patients was the lower first teeth, in 19 patients the lower wisdom teeth, in 10 patients the lower canines, the lower second

canines -2 and the upper lateral canines-3. All patients were operated on the day of admission with removal of the causal teeth under local anaesthesia with potentiation. Patients were treated with antibiotics, desensitising agents, analgesics, hepatoprotectors and physiotherapy on day 2 after surgery.

RESULTS:

Adequate antibiotic therapy plays a special role in the treatment of purulent inflammatory diseases and is an essential adjunct to surgical treatment, but does not usually replace it. The main focus of antibiotic therapy is a specific effect on pathogens in the patient's body.

Rational antibiotic therapy is only possible when the choice of drugs is based on:

1. Identification of the pathogen;
2. Determination of sensitivity to antibiotic of microflora;
3. Knowledge of drug pharmacokinetics (mechanism of action, stability in the body, ability to diffuse into different environments of the body, distribution to organs, excretion rate, etc.).

It is necessary to ensure that an effective concentration of the drug in the body is achieved with minimal risk of undesirable side effects. The causative agents of purulent inflammatory diseases of the maxillofacial region are pathogenic or conditionally pathogenic Gram-positive, Gram-negative microorganisms, as well as mixed flora - microbial associations. Staphylococcal monoinfections are largely replaced by microbial associations involving Pseudomonas aeruginosa, Proteus, Klebsiella, Bacteroides and others.

Bacteriological examination revealed microbial growth in 54.0% of patients of all subgroups, in 72.2% of cases they were found in associations consisting of 2 (71.5%) and 3 (26.7%) pathogens in 25.8% of monocultures. The analysis of the species composition showed that obligate anaerobes (86.3%) were most frequently isolated in the main group. Facultative anaerobes were isolated much less frequently (13.7%).

Bacteriological examination and identification of anaerobic microorganisms is known to be available when a special anaerobic microbiological laboratory is available, so the following signs of anaerobic infection were guided

- The presence of crepitation on palpation of the tissues in the area of the inflammatory infiltrate;
- A foul-smelling, dark-coloured wound discharge with gas bubbles;
- Necrotisation of tissues in the inflammatory focus: muscles, fascial sheets, cellulose tissue is dirty grey or dark brown, flabby, infiltrated, easily splitting and tearing, does not bleed;
- Negative bacteriological findings with a clinical picture of a severe suppurative process.

Cephalosporins, macrolides, lincomycin, rifampicin, fusidine and aminoglycosides in combination with oxacillin or lincomycin were used to treat Gram-positive flora, represented in most cases by Staphylococcus aureus.

The treatment of purulent infections caused by Gram-negative microorganisms, of which Pseudomonas aeruginosa (Pseudomonas aeruginosa) is the most frequent representative, was difficult to determine. Modern aminoglycosides in combination with carbenicillin, as well as dioxidine, a combination of rifampicin and biseptol, and in severe cases with aminoglycosides, were used to treat Pseudomonas aeruginosa infection.

For the treatment of protist infections, drugs active against all species of protists, claforan, as well as aminoglycosides in combination with ampicillin, cephalosporins were used. For purulent infection caused by E. coli, cephalosporins, aminoglycosides and their

combinations, as well as the semisynthetic levomycetin and biseptol were most effective. A particular challenge was the treatment of infections caused by non-sporulating anaerobes, most commonly bacteria of the Basteidae group. For these, metronidazole, metrogil, metrojil, metrid were the most effective, while levomycetin and dioxidine were less effective. In viral liver lesions, when antiviral therapy is not possible, URSOSAN at a dose of 10 mg/kg/day for ≥6 months is optimal due to its pronounced anti-inflammatory effect.

The treatment of purulent infection before the bacteriological diagnosis was based on the clinical picture of the disease. In most cases, combinations of antibiotics were used to cover the entire possible microbial spectrum of the infection. The most effective combinations of antibiotics, based on the peculiarities of the mechanism of action of various drugs, are presented in Table 1

Immediately after receiving the results of laboratory microbiological tests, the prescription of antibiotics was corrected according to the antibiogram.

The dosages of the drugs administered were determined on the basis of the instructions for use of the respective antibiotics. In some cases, especially in severe or extremely severe disease, Rocephin, ceftriaxime up to 4 g, aminoglycosides up to 2 g/day were administered.

The duration of aminoglycoside administration was increased to 9-11 days in some cases.

Table 1. Antibacterials most commonly used in purulent surgery

Name	**Daily dose**	**Rational combination**
Cefatrexil	8-12 g iv/v	Ampicillin, carbenicillin, aminoglycosides, dioxidine
Kefzol	6 g w/v	Ampicillin, carbenicillin, aminoglycosides, dioxidine
Cefamezine	4-6 g w/v	Ampicillin, carbenicillin, aminoglycosides, dioxidine
Streptomycin	not applicable	Penicillin
Gentamicin	3-5 mg/kg	Penicillin, lincomycin, cephalosporins, dioxidine, metronidazole, biseptol
Tobramycin	3-5 mg/kg	Same
Sisomycin	3-5 mg/kg	Same
Amikacin	20-25 mg/kg	Same
Vibramycin	200 mg	Tetracycline, dioxidine
Lincomycin	2,4 г	Oral aminoglycosides
Fusidine	3 г	Same intramuscular, intravenous
Rifampicin	0,9-1,2 г	Methicillin, cephalosporin, orally rifampicin
Biseptol	up to 3.8 g	Aminoglycosides, bactrim, oral fusidine, cephalosporins
Metronidazole	300 ml/day	Aminoglycosides,
Dioxidine	90 ml	Rimfamycin daily
Rocephin	2 g w/v	Penicillin, cephalosporins,
Ceftriaxone	2 g w/v	(metrogil, metrogil, aminoglycosides IV drip, levomycetine, metrid) dioxidine
Ursosan	10 mg/kg/day	Penicillins, cephalosporins,

Along with traditional intramuscular and intravenous methods of antibiotic administration, in 8 patients we used intra-arterial administration by retrograde catheterization of the common carotid artery or catheterization of its branches.

The indication for intraarterial injection of antibiotics was a severe course of the disease with the threat of generalization of infection, its spreading to mediastinum, the brain. In case of disseminated phlegmon of the face, mouth cavity floor and neck, the superficial temporal artery was catheterized, and the catheter was inserted to the depth of 8-10 cm. A 2-2.5 cm incision was made in front of the auricle to expose the artery. Before fixation of the catheter, its position and the area of infusion were controlled by injecting 5-15 ml of 0.25% novocaine solution or 5000 units of heparin with novocaine. When novocaine was injected, patients felt warmth or a slight tingling

sensation in the area of infusion, and when heparin with novocaine was injected, a rapid burning sensation was felt.

At the beginning of mastering this technique, the infusion zone was identified by injecting a 3% methylene blue solution in a 25% glucose solution into the catheter. The skin of the relevant anatomical area was stained blue. Fluoroplastic catheters 1.5-2 mm in diameter were used for catheterization. In addition to antibiotics, infusates used included 0.25% novocaine solution, heparin, hydrocortisone, protease inhibitors, dimedrol or suprastin (in the same dosages and combinations).

The drugs were administered fractionally. Initially, 10-15 ml of 0.25% novocaine solution, 25000-50000 IU of tracilol or contrical were administered. 12, 5-25 mg of hydrocartisone, 5000-10000 IU of heparin, 5-10 ml of 0.25% novocaine solution and the end of the catheter was sealed. Medicines were administered 1 or 2 times a day for 2-3 days. The catheter was removed 1-2 days after the last drug administration. The artery was not ligated after catheter removal, and there was no bleeding. Intra-arterial injection of antibiotics in all patients was carried out as a component of complex treatment and had a significant positive effect on the general condition of patients and on changes in the local inflammatory focus. Already after the first infusion the intensity of pain, hyperthermia of tissues in the area of inflammation decreased, local temperature decreased by 1-1.5 ºC. After 2-4 infusions the pain usually disappeared, the general condition improved, sleep normalized and appetite appeared. Inflammatory infiltrates significantly decreased in size, the skin became normal in colour, wounds were cleared of pus and necrotic masses. On the background of the improvement of the general state, reduction of intoxication and positive dynamics in the inflammatory focus favorable shifts in the indices of the morphological and biochemical composition of the blood were established. By the 3rd-4th day COE decreased, the level of albumin increased, the content of &1 and &2 - globulin decreased. During the period of mastering this technique, we observed complications in two patients due to errors in infusion technique. One patient had convulsions (like epileptiform convulsions) with short-term loss of consciousness during rapid infusion of concentrated monomycin solution. In another patient, a short-term loss of vision occurred during administration of a 3% methylene blue solution (to determine the infusion zone), which can probably be explained by retinal blocking by the dye. The complications were short-lived (1-2 min) and did not affect the course of the disease or the condition of the patients as a whole.

Considering that the method of regional administration of antibiotics is of great importance not only in terms of controlling intracranial complications of progressive inflammatory processes of the maxillofacial region and neck, but also in the prevention and treatment of septic pneumonia. We controlled their direct introduction into the pulmonary artery by catheterisation of the subclavian vein. For this purpose, as well as to implement multifaceted infusion therapy, subclavian vein catheterization was performed in 24 (14.8%) patients according to the Seldinger technique.

We used antibiotics in the treatment of all 59 patients in this group. Complications associated with antibiotic therapy were observed in five patients. Allergic reactions in the form of skin itching, skin rashes, general malaise were observed in 4 patients, and in 1 patient an abscess was formed at the site of antibiotic administration (in the gluteal area), which was opened.

CONCLUSIONS:

Thus, the clinical and laboratory studies indicate the feasibility of differentiated use of antibiotics in the complex treatment of patients with acute progressive inflammatory processes of the maxillofacial region, neck and its complications. Microbiological studies to identify the causative agent and determine the sensitivity of the microflora to antibiotics are a prerequisite for the effectiveness of antibiotic therapy. A systematic retrospective analysis of the results of bacteriological investigations to select an antibiotic or combinations thereof before the nature of the pathogen and its sensitivity to antibiotics are known is justified in specialised surgical wards, and we obtained a marked clinical effect of using higher doses of antibiotics against the background of systematically administered infusion therapy and haemodilution, hyperdynamic circulatory system. For patients with acute progressive inflammatory diseases of the maxillofacial region in patients with hepatitis B, hepatoprotectors serve to enhance the detoxifying function of hepatocytes by increasing glutathione reserves, taurine, sulphate or increase activity of enzymes participating in oxidation of xenobiotics, as well as inhibition of excessive lipid peroxidation reactions (LPO), binding of LPO products (hydrogen peroxide, free ions O++ and H+and others) and repair of cellular structures.) and repair of cell membrane structures (this mechanism is also typical for all hepatoprotectors, but the leading role is played by essential phospholipids and UDCA (URSOSAN), besides they have anti-inflammatory and immunomodulatory effects, inherent first of all to UDCA (URSOSAN) preparations, block fibrogenesis due to necrosis of hepatocytes and prevent influx of antigens from gastrointestinal tract as a result of translocation of intestinal bacteria and their toxins that are Kupffer cells activators; Stimulation of collagenase activity in the liver and blockade of enzymes involved in the synthesis of connective tissue components.

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