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Principles of Treatment of Purulent-Necrotic Complications After Hip Surgery

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Introduction. Treatment of postoperative purulent coxitis is an extremely complex, lengthy and far from always effective process due to severe pathological changes in all components of the joint, as well as the complexity of the anatomical structure of the joint and the thickness of the surrounding tissues, therefore, the choice of surgical intervention method is determined by the degree of morphological changes in the joint area. The treatment of this pathology provides for a system of comprehensive measures aimed at increasing the general reactivity and specific immunological immunity of patients to infection, affecting the wound microflora and local effects on the wound in order to cleanse it of non-viable tissues and increase local tissue immunity, stop the inflammatory process, improve local blood circulation, granulation and epithelialization of the wound. The most effective method of treating postoperative purulent necrotic processes, both in the early and advanced stages, is early joint surgery (wide arthrotomy) followed by organ-preserving surgery, resection of the femoral head and neck with thorough necrectomy and treatment of the acetabulum in the presence of foci of bone destruction. Surgical treatment of a purulent lesion is performed through an incision of sufficient size for complete revision and vacuum treatment with antiseptics. Such treatment, in most cases, can be performed under general anesthesia. After vacuum treatment, the necrotic tissues remaining in the wound are excised as completely as possible, including the edges, walls and bottom of the wound, without leaving pockets and lumps. The wound is drained by known methods. In cases of extensive tissue damage by a purulent process or the location of a wound near vital formations, it is advisable to postpone its closure until complete cleansing. During this time, the wound is treated with ultrasound until the inflammatory phenomena subside and granulation growth is activated. After 1.5–3 weeks, in the presence of pink, fine-grained granulations, autodermoplasty is performed. A number of authors believe that the effectiveness of vacuum therapy is assessed using objective criteria for the course of the wound process. Vacuum therapy provides atraumatic aspiration of devitalized tissues, pus, and, with them, microorganisms from the wound. In addition, the authors claim that the pathogenetic orientation of vacuum therapy makes it possible to implement another principle of active surgical treatment of purulent-necrotic complications — early restoration of the anatomical integrity of tissues. Thus, vacuum irrigation therapy, having a multifaceted effect on all elements of the biological healing system in the inflammatory phase, fully implements the basic principles of active surgical treatment of purulent wounds, and the method itself contains the clinical and biological prerequisites for managing the wound process, which ensures the success of wound healing. It should be noted that many authors have developed schemes of therapeutic measures to correct homeostasis and the body's defenses in purulent-septic complications based on laboratory research data and dynamic blood toxicity control, the main provisions of which are as follows. I. Detoxification therapy: − Normalization of rheological properties of blood. − Stimulation of kidney function — forced diuresis. − The use of detoxification agents. II. Correction of circulating blood volume. III. Correction of the water-electrolyte balance. IV. Correction of the protein and energy balance of the body. V. Restoration of the body's defenses: − Transfusion of freshly stabilized blood. − The use of immunoactive media. − Transfusion of leukocyte mass. VI. Antibacterial therapy. VII. Hyperbaric oxygenation (HBO). The following prescriptions can serve as an example of correcting impaired homeostasis and restoring the body's defenses in sepsis: − Rheopolyglucine (400 ml) to improve capillary blood flow. − Neohemodesis (300 ml) for inactivation of toxic products. These drugs are administered daily for up to

2 weeks or every other day. Both drugs are excreted by the kidneys, forming diuresis. −Physical substances are used as a source of liquids, electrolytes, and energy media. a solution of table salt, Dappoy liquid, Lactamol, 5-10% glucose solution in an amount of 400-800 ml with insulin (1 unit per 4 g of glucose). In case of hypovolemia, protein preparations aimed at restoring BCC are prescribed — plasma (200-300 ml), albumin (1 dose — 10-20) or protein (250 ml) for 1 week. With severe septicointoxication, along with antibiotics, immunoactive drugs are used. First, passive immunization is carried out, including — antistaphylococcal, antienterichiosis, antisinuginal plasma; plasma of convalescents is also used. After the patient's condition improves, active immunization is carried out taking into account the pathogen (immunization with Pseudomonas aeruginosa vaccine or staphylococcal antitoxin). Despite the half-century history of the use of antibiotics in the treatment of purulent-necrotic complications of the hip joint, there are currently different opinions about their dosage, routes of administration, duration of use and effectiveness of antibiotic therapy.

As for the use of antibiotics for the purpose of therapeutic effects on the course of the purulent process before the pathogen is detected, many authors recommend the use of penicillin-resistant antibiotics. When an anaerobic pathogen is detected, metronidazole remains the only available and highly effective drug today. In addition, the use of polymethylethacrylate with gentamicin in combination with mandatory surgical sanitation of a purulent lesion in the joint has become widespread. Recently, possibilities have been sought to enhance the antimicrobial effects of available antibacterial drugs by combining them with blood products. "Fibrin—antibiotic believes that the main advantage of such a complex is that fibrin has the property of transforming antibiotics into tissues, and a scheme for the preventive administration of cephalosporin has been developed for routine bone and joint interventions.

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