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UDC: 616-002.3:615.498.7

BAKUN VICTORIA

Master's thesis

APPLICATION OF THE DRESSING MATERIAL «MEPITEL-AG» IN THE COMPLEX TREATMENT OF PURULENT-INFLAMMATORY DISEASES

223 - Nursing

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Ternopil – 2021

Abstract

Purulent (nonspecific) infection - inflammatory diseases of various localization and nature caused by pyogenic micro flora, occupies one of the main places in surgery and determines the essence of many diseases and postoperative complications [3, 59].

In the middle of the 20th century, there was an opinion about the possible disappearance of infectious diseases from our planet at the end of the century. These predictions turned out to be erroneous and these diseases not only did not disappear from the face of the earth, but also conduct an intensive attack on humanity, accounting for more than 70% of all diseases that affect people and cause enormous socio-economic damage [61]. Despite the wide arsenal of dressings for the treatment of purulent wounds, their effect on the course of the inflammatory process and the condition has been insufficiently studied. A very promising direction in this search is the development and introduction into practice of new dressings with silver, the study of their properties and influence on the state of purulent wounds [22]. All this encourages us to search for new approaches, including local and general effects on the body, to treat such a common pathology as a purulent wound.

Purpose: to increase the effectiveness of the treatment of purulent wounds with the help of the “Mepitel Ag” dressing, to study its influence on the processes of wound healing.

Research Assignments: 1. To evaluate the effectiveness of the “Mepitel Ag” dressing in the complex treatment of patients with purulent wounds. 2. To compare the influence of traditional methods of treatment of purulent wounds of soft tissues and the “Mepitel Ag” dressing on the processes of wound healing. 3. To develop practical recommendations for the use of the “Mepitel Ag” dressing - as a supplement to the generally accepted treatment regimen for purulent wounds.

Practical significance. The work proved the expediency of using new dressings for the treatment of purulent wounds of soft tissues. The widespread introduction of the obtained materials into surgical practice will significantly improve the results of treatment of patients with purulent surgical infection. The use of the method of local treatment of purulent wounds using the “Mepitel Ag” dressing does not cause complications and is easy to implement. which makes it possible to use it in a polyclinic.

Implementation in practice. The results of the research are implemented in the work of Cortellucci Vaughan Hospital, Canada.

Content

Introduction

An increase in the number of purulent diseases and postoperative purulent complications, an increase in cases, generalization of infection and various kinds of toxic-allergic reactions, unsatisfactory results, treatment, patients with this pathology indicates the unsolved problem of purulent infection in surgery, which is gaining more and more socio-economic significance in across the country [49] Purulent diseases account for 35-40% of all patients hospitalized in surgical departments, and the incidence of postoperative complications reaches an average of 20-30% [5, 27]. In this regard, it becomes necessary to develop new methods of treatment based on the latest achievements of modern medical science [37, 46].

The need for complex treatment of purulent wounds is currently beyond doubt. The combination of operative and medical methods of exposure creates the prerequisites for early wound healing. Until now, many issues of local treatment of purulent wounds remain insufficiently developed. Achievements in the field of active management of purulent wounds do not exclude the use of a well-known method of treating them under a bandage, which is economically applicable in any conditions and, being simple and affordable, remains the main method of treating purulent wounds in practical surgery [30, 54].

Despite the wide arsenal of dressings for the treatment of purulent wounds, their effect on the course of the inflammatory process and the condition has been insufficiently studied. A very promising direction in this search is the development and introduction into practice of new dressings with silver, the study of their properties and influence on the state of purulent wounds [22].

All this encourages us to search for new approaches, including local and general effects on the body, to treat such a common pathology as a purulent wound. A set of these properties have preparations created on the basis of silver. Taking into account the characteristics of the wound process and the comparative analysis of the effect on the purulent wound of the antiseptic, it is advisable to study the effect of the antiseptic with other drugs and methods on the wound process with respect to purulent wounds. All the above stated determined the purpose and tasks of the forthcoming work.

Purpose of the study.

To increase the effectiveness of the treatment of purulent wounds with the help of the “Mepitel Ag” dressing, to study its influence on the processes of wound healing.

Objectives of the study.

1. To evaluate the effectiveness of the “Mepitel Ag” dressing in the complex treatment of patients with purulent wounds.

2. To compare the influence of traditional methods of treatment of purulent wounds of soft tissues and the “Mepitel Ag” dressing on the processes of wound healing.

3. To develop practical recommendations for the use of the “Mepitel Ag” dressing - as a supplement to the generally accepted treatment regimen for purulent wounds.

Scientific novelty of research

1. For the first time in the complex treatment of purulent wounds, the bandages "Mepitel Ag" were used. A comparative study of the activity of traditional "dressings and dressings “Mepitel Ag” was carried out. An adhesive plaster was used. The assessment of the activity of the components that make up the dressing "Mepitel Ag" was given.

2. The clinical effectiveness of the use of the dressing "Mepitel Ag" in the treatment of purulent wounds has been proved, which is expressed in the acceleration of the cleansing and stimulation of reparative processes, the reduction of the healing time in acute purulent processes from 7.5 ± 0.9 to 5.6 ± 0.15 days, with chronic purulent sluggish inflammatory processes from 18.0 ± 1.2 to 7.3 ± 0.4 days and a decrease in the period of disability.

3. On the basis of a comprehensive study, the dynamics of healing of purulent wounds under the influence of the antiseptic “Mepitel Ag” and containing active products has been studied.

Practical significance

The work proved the expediency of using new dressings for the treatment of purulent wounds of soft tissues. The widespread introduction of the obtained materials

into surgical practice will significantly improve the results of treatment of patients with purulent surgical infection. The use of the method of local treatment of purulent wounds using the “Mepitel Ag” dressing does not cause complications and is easy to implement. which makes it possible to use it in a polyclinic.

The following provisions are submitted to the defense:

1. Selection of the most effective combination of "Mepitel Ag" antiseptic, as well as the optimal period of the regenerative process for the effect of the antiseptic on the infected wound.

2. Acceleration of the wound process and the healing of purulent wounds when using the antiseptic “Mepitel Ag”.

3. Improvement of the immediate results of conservative treatment of patients with purulent wounds (reduction of the duration of hospital stay) when using the antiseptic “Mepitel Ag”.

Implementation in practice.

The results of the research are implemented in the work of Cortellucci Vaughan Hospital, Canada.

Scope and structure of work.

Master's work is presented in 58 pages of typewritten text. It consists of an introduction, a review of the literature, a description of materials and research methods, one chapters of our own research, discussion, conclusions, practical recommendations, a bibliographic index containing 64 sources. The work contains 5 tables and 4 pictures.

Chapter 1.

Current state of the problem of treatment of pyoinflammatory soft tissue diseases (Literature review)

1.1. Modern ideas about purulent diseases of soft tissues

Purulent (nonspecific) infection - inflammatory diseases of various localization and nature caused by pyogenic micro flora, occupies one of the main places in surgery and determines the essence of many diseases and postoperative complications [3, 59].

In the middle of the 20th century, there was an opinion about the possible disappearance of infectious diseases from our planet at the end of the century. These predictions turned out to be erroneous and these diseases not only did not disappear from the face of the earth, but also conduct an intensive attack on humanity, accounting for more than 70% of all diseases that affect people and cause enormous socio-economic damage [61].

Among the general trends in the organization and provision of surgical care to the population with purulent-septic infections, one should, first of all, include an increase in the number of patients with this profile. According to. A.V. Bezugly (2001), the incidence of purulent-inflammatory pathology among the adult population reaches 9.7 ± 0.89%, and 75% of them are of working age [7]. Various purulent complications develop in 23.5-71.2% of patients operated on for surgical diseases of the abdominal cavity [33]. Some authors believe that postoperative complications range from 0.29 to 30% [56, 62], but most give more homogeneous data - 2-10% . Currently, among patients in surgical hospitals, up to 35-40% are patients with various forms of chronic

infection [39, 59]. In the general structure of surgical mortality, the number of deaths due to infectious complications is 42-60% [18].

The factors that determine the onset of the development of the peculiarities of the course, outcomes, diseases associated with infection in surgery are the state of the body's immunological forces, the number, virulence, drug resistance, and other biological properties of microbes penetrating into the internal environment of the human body, anatomical and physiological features of the focus of microflora introduction, the state of the general circulation, the degree of allergization of the patient, etc. [50, 52, 60].

The wound process is a complex complex of biological reactions of the body that develops in response to tissue damage and aimed at their healing a special case of inflammation manifested by a combination of local destructive and inflammatory changes and general reactions [28, 40].

The general reactions of the body in uncomplicated cases fit into 2 phases In the first phase (1-4 days) after injury or - operations intensify, vital processes increase "body temperature and basal metabolism, decrease in body weight, increase, breakdown of fat proteins and" glycogen are detected violation of their oxidation decreased the permeability of cell membranes, suppressed the synthesis of protein in a number of organs and you'd suppressed physiological regeneration [40, 41]. The initial mechanisms of this stage are the excitation of the sympathetic part of the autonomic nervous system, the release of adrenal medulla hormones, insulin ACTH and glucocorticoids into the blood. [40]. In the second phase (4-10 days after injury), the influence of the parasympathetic division of the autonomic nervous system predominates, body weight increases, protein metabolism normalizes, and regeneration

processes are activated. In this phase, mineralocorticoids, somatotropic hormone, aldosterone, and acetylcholine are of primary importance [40].

Local reactions to trauma in almost all cases are due to the interaction of two damaging factors, the presence of a focus of tissue1 destruction and a microbial pathogen. A characteristic feature of the wound process is that the microflora destroys the body's natural barriers - which is facilitated by the presence - in them of a traumatic defect and local damage to tissue structures. The local effect of trauma is, first of all, in direct damage, in the area of injury of cells, vessels and nerves, as a result of which microcirculation is disturbed, chemical mediators are released, the metabolism and cellular composition of the wound change [28, 51].

Vascular reaction - exciting arterioles, capillaries and venules in the area of injury, includes the following interrelated elements of changes in the vessels themselves, intravascular and extravascular changes. A slowdown in local blood flow is an increase in blood viscosity, a decrease in the ability of erythrocytes to reverse deformation leads to the development of sludge syndrome. The works of recent years have established that the occurrence of phenomena characterizing a local inflammatory reaction is due to the accumulation of specific biologically active substances of a protein nature in damaged tissues, which are called chemical mediators of the wound process [8]. The specific action of these activators is manifested when they minimal concentrations and their mutually potentiating relationship in the inflammation focus is clearly traced [55].

The mechanism of development of the wound process, the starting point of which is tissue damage and microbial invasion, can be presented as follows [15]. As a result of the destruction of tissue structures, biogenic amines (histamine, serotonin) are

released, as well as the Hageman factor, which plays a trigger role in the initial stage of inflammation. They activate the processes of converting kallikreinogen into kallikrein, the latter catalyzing the conversion of blood plasma kininogens into kinins. They also promote the local accumulation of lysosomal hydrolytic enzymes, which enhance the release of prostaglandins. Further, this chain includes the complement system, which functions in combination with the kinin system and the blood coagulation system4 [55].

When studying the dynamics of the inflammatory process, the classification of [28], who proposed to distinguish five stages, the first stage - a two-phase vascular reaction in the form of short-term constriction and long-term dilatation of microvessels c. areas of inflammation, leading to active hyperemia and an incipient increase in local vascular permeability second stage - slowing down of blood flow, a significant increase in the permeability of postcapillary venules, adhesion of leukocytes, third stage - complete cessation of blood flow, exudation of fluid through the walls of capillaries and venules, migration of leukocytes from the vascular bed fourth stage - deployment of extravascular processes - increased chemotaxis, phagocytosis of tissue decay products and inflammatory pathogens fifth stage - reparative processes [23].

Thus, a complex of local disorders arising as a result of local tissue damage and microbial invasion in the form of microcirculation disorders, metabolic disturbances under the influence of chemical mediators of inflammation, progressive hypoxia and a number of other factors discussed above, cause the development of hyperkalemia acidosis and an increase in osmotic pressure in tissues. As a result, tissue hyperhydration increases, the extreme degree of which leads to cell death, development and spread of necrosis [17].

Depending on the genesis of the resulting necrosis, it is differentiated into primary and secondary. Primary necrosis is the result of the direct action of mechanical trauma and microbial toxins in the damaged area. Secondary necrosis occurs in connection with the occurrence of a suppurative process and is caused by the action of a number of damaging factors, inflammation described above [4].

Cleansing the wound from purulent-necrotic sequestration indicates the onset of the reparative stage of inflammation, which is the final one. Wound repair in it granulation tissue is formed on the basis of the proliferation of the endothelium of capillaries and fibroblasts Endothelial cells are characterized by a high content of enzymes and the intensity of biochemical processes. Mast cells are concentrated around the newly formed capillaries, stimulating proliferation. According to most researchers, the source of wound fibroblasts is poorly differentiated adventitia cells, that is, perivascular cambium the pathway of transformation from mononuclear blood cells is possible [42].

The main function of fibroblasts is the synthesis of IMS collagen from amino acids entering the cell. Synthesis of collagen and protein-polysaccharide complexes of the connective tissue matrix is directly related to the process of capillary neoplasm The resulting micro vessels are a kind of biological basis from which the migration of fibroblasts producing collagen occurs. In the early stages of healing young wounds micro vessels provide oxygen delivery to cells that actively synthesize protein in the wound, since the synthesis processes in the inflammation focus require significant energy supply. As the wound defect is filled with granulation tissue, the latter becomes more and more dense. The number of microvessels decreases, some of them become

empty, the number of cellular elements - macrophages, mast cells and fibroblasts decreases [42].

Epithelialization of the wound begins, the latter occurs in parallel with the maturation of granulation tissue. This process has been studied in detail by [43]. It begins already in the first hours after injury with the fact that the epithelial cells located along the edges of the wound gradually lose their differentiation and, having lost their vertical anisomorphism, shift towards the wound. During the first day, 2-4 layers of basal epithelial cells are formed. In this case, the epithelium can creep onto the fibrin covering the wound, leukocyte-necrotic masses or granulation tissue. The high rate of epithelialization of wounds is provided by three processes of migration, cell division and differentiation. Epithelialization of the wound becomes firm only when the epithelium grows onto the granulation tissue in other cases, the epithelium dies [17].

Epithelialization of small wounds is carried out mainly due to cell migration, starting from the basal layer. A wound larger than 0.1 cm is epithelized due to not only migration, but also mitotic division of epithelial cells. The differentiation of the migrating epidermis begins already during the migration period. With the differentiation of the growing epithelium in the cells, granularity appears, the surface layers undergo keratinization, the basal layer of cells in its structure approaches the structure of cells of the transitional epithelium. The newly formed epithelial cover differs from the healthy one in the absence of sweat and sebaceous glands, as well as hair follicles [9].

The new epithelium forms a border between the damaged and underlying layers, prevents dehydration of the wound tissue, loss of electrolytes and proteins, and prevents the invasion of microorganisms. The degree of epithelialization is closely related to granulation and is due to the state of wound tissues, metabolism, trophies, the degree

and nature of bacterial contamination. Epithelialization ends on 7-10 days, and after 10-15 days after injury, the thickness of the formed epithelium decreases [9].

According to V.G. Garkavi, the most important condition for the normal course of wound healing is the strict synchronization of the epithelialization process, on the one hand, and the maturation of granulation tissue, on the other. The balance between maturation and resorption of granulations and scar tissue underlies the phenomenon of wound contraction - a uniform concentric contraction of the edges and walls of the wound. In the second and third phases of healing, wound contraction, as a rule, is combined with intensive epithelialization, which indicates a normal course of the wound process [7].

This is a schematic diagram of the course of the wound process according to the literature. The duration of the course of individual phases of inflammation is determined by a number of different factors, among which the nature of the damage, the state of reactivity of the organism and the methods of treatment of the wound process, are of primary importance [1].

The considered pathogenesis of the wound process reflects the phasic nature of its course, the continuity, individual phases and the transition from one phase to another. The timing of each phase - exudation, inflammatory infiltration, wound cleansing and repair is almost impossible to determine in advance. The sequence of changes in these phases remains stable, each of which is characterized by certain functional and morphological changes occurring in the wound and surrounding tissues. The allocation of individual phases and stages of the inflammatory process is conditional, since it is impossible to draw a strict line between the end of one and the beginning of the other [7].

The most detailed is the classification of MI Kuzin (1990) in which the following main phases are highlighted the first phase of inflammation, divided into two periods, the period of vascular changes and the period of cleansing the wound from dead tissues the second phase of regeneration, formation and maturation of granulation tissue the third phase is the formation and scar reorganization The division of the inflammation phase into two periods accentuates the pathogenetic orientation of therapeutic measures in the first stage of the wound process - stopping inflammatory changes and accelerating wound cleansing. Reorganization of the scar and epithelialization are the main components that complete the course of the wound process,

and their combination seems to be quite justified. The proposed classification, according to B.I.Kostyuchenok and V.A. Karlov, most accurately reflects the main stages of the course of the wound process, its most significant features, determines the strict pathogenetic orientation, treatment, according to a certain phase of healing. This makes its use justified from a clinical point of view [16, 17].

V. I. Struchkov subdivides purulent wounds, depending on their origin, into primary and secondary. Primary purulent wounds include wounds formed after surgical interventions along the path of acute purulent processes. Secondary suppuration occurs at a later date as a result of repeated infection, often intra-hospital or the appearance in the wound of secondary foci of necrosis of various origins [26]

In modern clinical surgery, it is generally accepted "the position that any accidental wound is bacterially contaminated or primarily infected. The term "bacterial-contaminated wound" should be understood as such a state of the wound when general and local defense mechanisms are able to suppress microorganisms that have entered

the wound and there are no clinical signs of an infectious process in the wound. It is customary to distinguish between primary and secondary microbial contamination of the wound. Primary contamination occurs at the time of injury and is typical for traumatic and gunshot wounds. Secondary wound contamination is associated with a violation of the rules of antiseptics during dressings and operations and is often the result of an intra-hospital infection. Consequently, the mere presence of microbes in the wound (even pathogenic, not to mention the group of opportunistic microbes) still does not make the development of infection in the wound obligatory [45].

The development of infection is most likely in extensive bacterial-contaminated wounds containing a large number of non-viable or damaged tissues, which serve as an excellent environment for bacteria. [35]. Для сравнительной оценки способности различных микроорганизмов вызывать инфекционный процесс разработан ряд качественных показателей характеризующих степень их агрессии к ним относят патогенность вирулентность и токсичность [35].

Для реализации инфекционного процесса в ране микроорганизмы должны обладать определенными количественными (число попавших в рану возбудителей) и качественными (факторы инвазивности) характеристиками которые находятсяв обратной зависимости [1].

Оценке роли микробного фактора в звазвитии инфекционного процесса всегда уделялось большое внимание. Хорошо известно, ото от вида микроба, вызвавшего инфекционный процесс, зависит специфика течеяя последне. Это положение особенно важно учитывать в настоящее время, когда произошли изменения в этиологической структуре возбудителей инфекционных заболевании

вообще и гнойных хирургических инфекций в частности и на первое место выдвинулась проблема условно-патогенных возбудителей [34].

Analysis of the literature reveals one trend observed in clinics in different countries. Under the powerful selective effect of antibacterial drugs, significant changes have occurred in the etiological structure of pathogens of purulent surgical infections. Currently, the leading among them are staphylococci and gram-negative bacteria belonging to the Enterobacteriaceae family. An essential role in the etiology of wound infection is played by obligate non-spore-forming anaerobic bacteria [31].

For purulent wounds of various origins, it is characteristic that among the representatives of the wound microflora at all stages of the examination of patients according to various authors, staphylococci prevail, which stand out both in monocultures and in various microbial associations. According to most literary sources, a rather high percentage is observed. isolation of various GR (-) microorganisms, especially Pseudomonas aeruginosa, the frequency of detection of which significantly increases during hospital stay [32].

Studies carried out by various authors indicate that the main causative agents of acute purulent diseases of soft tissues "are Gr (+) microorganisms, namely St. aureus in 83.7% of cases and various types of streptococci. In the course of treatment, the frequency of excretion of these representatives from purulent wounds quite naturally decreases, but the frequency of excretion of GR (-) microflora significantly increases, which, as the same authors show, is the result of in-hospital infection of wounds [34].

The causative agents of chronic purulent diseases, along with staphylococci and streptococci, in most patients are GR (-) microorganisms, wound microflora is

polymicrobial in nature and in 54.1% of cases is presented in the form of microbial associations [20].

Experiments and clinical observations have shown that for the development of an infectious process in a wound, it is necessary that the total number of microbes in the tissue per g exceed the "critical level", which "is 105-106 bacteria per g of tissue taken from the depth of the wound [3].

1.2 Modern approaches to conservative therapy of purulent wounds

During the last three decades of the 20th century, the fundamental principles and traditional methods of treating purulent rush have undergone a significant revision. The need for this step was primarily due to an increase in the number of pyoinflammatory diseases and postoperative purulent complications, as well as a deterioration in the overall results of treatment of purulent surgical infection.

The main tasks in the treatment of purulent wounds are

- suppression of infection
- removal of necrotic tissue.
- immunocorrection and immunostimulation
- neutralization of the negative effects of activation of the body's defense systems.

Antimicrobial drugs play an important role in the prevention of surgical infection. The question of their rational use is rather complicated and requires further study [24]. For antibiotic prophylaxis of purulent-septic complications, most researchers recommend to be guided by the principle of “reasonable sufficiency”, the drug used should be active against the main representatives of the most frequently detected groups

of pathogenic microorganisms in surgical hospitals (staphylo-streptococci and enterococci, enterrobacteria, non-fermenting gram-forming anrid bacteria, non-spore bacteria). Usually for this purpose "use penicillins, cephalosporins PG - IV generation aminoglycosides, lspsosamides and imidazoles, fluoroquinolones [52].

The basis for the treatment of purulent wounds is antibiotic therapy in phases 1-2 of the wound process. An antibacterial drug should be prescribed taking into account the sensitivity of the wound microflora, pharmacokinetics of the drug, compatibility with other drugs [47].

Determination of the antibiotic dose should include the age and body weight of the patient, the severity of the disease, the methods and frequency of administration it is not recommended to use one drug for more than 7-10 days [13].

In addition to antimicrobial drugs, bacteriolytic enzymes are used, as well as bacteriophages. Detoxification therapy is also used in phases 1-2 in the presence of systemic manifestations of the inflammatory process. Immunotherapy is carried out through the use of active and passive immunization serum drugs or immunomodulators. The inflammatory mediators released during the development of the infectious process (especially reactive oxygen species, proteases, cytokines) take part not only in antibacterial protection, but also have a damaging effect on the body. In this regard, antioxidants, inhibitors of proteolytic enzymes, and antibodies to cytokines are used in the treatment of purulent wounds. It should be noted that even such a large number of pathological effects as tumor necrosis factor-alpha plays an important role in protecting the organism from infection [10].

Symptomatic therapy includes relief of pain syndrome, correction of organ and system disorders, correction of homeostasis disorders, etc. [44].

Control over the course of the wound process is necessary in the treatment of any purulent wound. In addition to clinical and laboratory methods, various methods are used to control the dynamics of the microbial landscape, the level of contamination and the intensity of regenerative processes in tissues. These are bacteriological, cytological and modern high-precision laboratory research methods, including express methods - gas-liquid chromatography, tests using enzyme systems, etc. [43].

A special place in the therapy of purulent wounds is given to drugs for local use, the use of which allows you to create the necessary concentration of the active substance in the lesion and reduce the dose of drugs intended for systemic action [29].

Treatment of patients with purulent surgical infection is carried out taking into account the type of infection, phase and localization of the inflammatory process, the characteristics of general and local manifestations due to the condition and reactivity of the patient [38].

In the first phase (infiltration), the goal of treatment is the earliest possible limitation of the inflammatory focus, reduction of intoxication and weakening pain reaction, if possible, the resolution of the inflammatory process in the stage of serous and infiltrative impregnation without transition to the destructive phase [25].

In the second phase (the stage of softening or abscess formation), the most important task is the prompt emptying of the abscess, ensuring an unobstructed outflow, exudate, reducing the absorption of decay products and toxins from the purulent focus, limiting and promptly rejecting necrotic tissue, cleansing the inflammation zone from exudation products and non-viable tissues. An important condition for the manifestation of the protective properties of the organism is the creation of rest, which is best

achieved by immobilizing the affected areas of the body with a plaster cast, limiting active movements [12].

In the regenerative stage, treatment is aimed at creating favorable conditions for the final elimination of the infection in the inflammation focus or in the wound for a faster, optimal elimination of the tissue defect and restoration of impaired functions. For this purpose, various means that stimulate regeneration are used surgical methods, such as secondary suturing of wounds, autodermoplasty, are of great importance [3].

Surgical treatment and drug therapy for purulent wounds are not competing or interchangeable methods. They can be considered as complementary components of the complex treatment of purulent wounds. However, in most cases, only adequate surgical treatment can provide the necessary prerequisites for optimal wound healing - the elimination of a purulent focus, the creation of normal conditions for the outflow of wound discharge "Knife sterilization" allows you to cleanse wounds from necrotic and highly infected tissues [25].

In cochomplex treatment of purulent wounds today it is used drainage of wounds is passive, active [58]. For the same purpose, hypertonic solutions are used. Most often, a 10% sodium chloride solution is used in surgery. Also use other hypertonic solutions 3-5% solution of boric acid, 20% solution of sugar, 30% solution of urea, etc. Hypertonic solutions are designed to ensure the outflow of the wound discharge. However, it was found that their osmotic activity lasts no more than 4-8 hours, after which they are diluted with wound secretions, and the outflow stops. Therefore, in recent years, surgeons refuse, from the use of hypertonic solutions [48].

Local drug treatment should be understood as the use of drugs applied to the wound and, in particular, the use of ointments. In surgery, various ointments based on

fatty and vaseline lanolin are used, Vishnevsky ointment, synthomycin emulsion, antibiotic ointments - tetracycline, neomycin, etc. But such ointments are hydrophobic, that is, they do not absorb moisture. As a result, tampons with these ointments prevent the outflow of wound secretions, they become only a "plug". The use of ointments in the first phase of the wound process is most common, but the existing ointments have shown insufficient effectiveness, since they have a fatty base (petroleum jelly, lanolin), which is highly hydrophobic and does not allow ointments to mix with wound exudate, and even more so to absorb it. In addition, the fatty base does not provide the release of antibacterial agents from the composition and does not facilitate their conduction deep into the tissues to the microbial focus [6].

The use of new hydrophilic ointments-Levosin, levomekol, mafenide-acetate is pathogenetically justified. Such ointments contain antibiotics, which are easily transferred from the composition of the ointments to the wound. The osmotic activity of these ointments exceeds the effect of a hypertonic solution by 10-15 times, and lasts for 20-24 hours, therefore, one dressing per day is enough for an effective effect on the wound. However, the low dehydrating capacity and the weak non-political effect of conventional drugs for early provides sufficient cleansing. Most of the ointments used today have a narrowly targeted effect, and for treatment in the first phase, it is necessary to act in at least three directions increased outflow from the wound, necrotic action, suppression of pathogenic microflora [6].

At present, against the background of a reappraisal of the place of antibiotics, interest in antiseptics has revived. The latter are chemical substances (regardless of the source of production and composition) that have an antimicrobial effect and are used to apply mucous membranes, cavities and wounds to damaged and intact skin in order to

treat and prevent the development of local infectious lesions. Recently, there has been an active search for substances and dosage forms with prolonged antimicrobial action. For this purpose, ointments and gels are widely used, with immobilized antiseptics on hydrophobic and hydrophilic bases. It is argued that for wounds of mild and moderate severity, it is possible to limit ourselves to the local use of antiseptics and antiseptic antibiotics. In severe wounds, accompanied by the development of immunodeficiency, local use of antiseptics and local antibiotics should be combined with parenteral administration of antibiotics that do not have cross-resistance with locally applied antiseptics and antibiotics [4].

Among antiseptics, solutions of hydrogen peroxide (3%), potassium permanganate (0.1-0.5%), boric acid (1-3%), dioxidine (1%), chlorhexidine (0.02%) are most often used - Water solutions of hydrogen peroxide and potassium permanganate, traditionally used to treat purulent wounds, do not have a significant effect on the microbial flora, their antiseptic effect is limited to the wound surface and does not extend deeper into tissues where microbes nest. The use of hydrogen peroxide solution promotes more gentle mechanical treatment than disinfection [3].

Currently, there is a decrease in the effectiveness, local use of antibiotics, which is explained by the high rate of development of resistance of pathogenic microorganisms to antibacterial drugs [16]. In addition, the difficulty of creating a minimum inhibitory concentration of antibiotics in the wound due to their inactivation due to complexation "with metal cations, as well as the effect of low redox potential, purulent wound exudate is of importance [57].

But the doctor can not always establish the type of pathogen and its spectrum of sensitivity, and recently, purulent-inflammatory processes are caused by associated

microorganisms. Currently used antiseptics generally have a narrow spectrum of action. Antiseptics widely used in clinical surgery furacilin, chloramine B, chlorhexidine, ethacridine lactate have a narrow spectrum of action. For example, furacilin is active against GR (+) and some GR (-) microorganisms. It is not active against Pseudomonas aeruginosa, Proteus, enterococci [36].

Of particular interest is the use of cationic surface-active antiseptics. The molecules of these antiseptics envelop the bacteria, penetrate their membranes and, interacting with cellular structures, cause their death. In addition, with local use, antiseptics have an advantage over antibiotics due to the low incidence of microflora resistance to them, less resorptivity and allergenic action [15].

Based on the study of the regularities of the sorption of cationic antiseptic compounds - chlorhexidine, etonium, decamethoxin, which are ammonium compounds by chemical nature, methods for their introduction into polymer materials have been developed. Cellulose in the form of gauze, starch and their derivatives with active carboxyl and phosphate groups in the form of fibrous, film and gel structures are used as polymeric carriers of antiseptics. These materials are harmless to the human body, have a relatively developed specific surface area, and, being diphilic compounds, have sorption-active properties [11].

The introduction of antiseptics into the composition, polymer carriers was carried out by the method of physical sorption and chemical addition. The introduction of molecules of low-molecular-weight medicinal compounds into the structure of cellulose preparations by molecular sorption, in the form of poorly soluble forms, or by the mechanism of electrovalent attachment in the form of cations, provides for the

production of complex polymeric drugs with a given duration of antimicrobial action [21].

The duration of the effect of the developed polymeric antiseptics is determined by the mechanism of attachment of the molecules of the initial low molecular weight antiseptics to the cellulose polymer matrix, the amount of the drug compound introduced into the polymer and the method of sterilization of the materials obtained. When studying the antimicrobial effect of the obtained polymer antiseptic preparations, it was shown that they are capable of releasing the bound antiseptic into the environment for a long time (up to several days) and creating a concentration exceeding the MIC for most causative agents of wound infections. In addition, it was found that low-molecular-weight antiseptics, when converted into a polymer state, completely retain the original spectrum of antimicrobial action, and their activity against some bacterial strains even increases1 [15]

The mechanism of the prolonged action of polymeric antiseptics has been established, which is due to the slow elimination of the release and dissolution of the active antiseptic in the contacting biological medium.In the case of chemical addition to the polymer, antiseptics in the form of cations pass into solution due to the reaction of ion exchange with metal cations of biological fluids. The concentration of the antiseptic and the duration of its antibacterial action are determined by the type of addition, the chemical, nature, amount and activity of the administered drug, as well as the chemical and supramolecular structure of the polymer carrier.In addition to this, it was found by the method of luminol-dependent chemiluminescence that - these compounds have a modifying effect on oxygen-activating systems of plasma membranes wound and inhibit the activity of exogenous myeloperoxidase, thus exerting an antioxidant effect [14].

In addition to the drug and surgical treatment of purulent wounds, local / exposure to ozone and laser irradiation are being used more and more widely. Positive results have been obtained using a CO2 laser. In the phase of inflammation of the wound process, a high-energy or surgical laser is used. With a moderately defocused beam of a surgical laser, pus and necrotic tissues are evaporated, thus it is possible to achieve complete sterility of wounds, which in some cases makes it possible to impose a primary suture on the wound. In the regeneration phase of the wound process, low-energy (therapeutic) lasers are used, which have a regeneration-stimulating effect [9].

The modern complex methods of treatment include systemic ozone therapy, which has a detoxification, antihypoxant and immunostimulating therapeutic effect [4].

However, with all the advantages and disadvantages of these methods of treatment, one should not underestimate the means of drug therapy for purulent wounds, including the use of proteolytic enzymes, which are used to quickly remove dead tissue. For this purpose, the proteolytic enzymes trypsin chymopsin, chymotrypsin, terrilitin are widely used. These drugs cause lysis of necrotic tissues and accelerate wound healing.

For the treatment of wounds in the third phase (the phase of epithelialization and scarring), sea buckthorn and wheatgrass oil, aerosols, troxevasin-jelly, and low-energy laser irradiation are used. With extensive skin defects, long-term non-healing wounds and ulcers in the 2nd and 3rd phases of the wound process, i.e. after cleansing the wounds from pus and the appearance of granulations, dermoplasty can be performed:

a) artificial leather

b) a split displaced flap

c) walking stem according to Filatov

d) autodermoplasty with a full-thickness flap

e) free autodermoplasty with a thin-layer flap according to Thirsh.

Despite the obvious progress, active methods of wound healing,

the operation, for various reasons, cannot always be completed by closing the wound. In such cases, treatment under a bandage is necessary in preparation for wound closure. Due to its apparent simplicity and general availability, the method of treating wounds under the bandage has attracted and attracts the attention of surgeons for many centuries. Until now, this technique remains the main one in practical surgery [11].

In the classical form, the term "local drug treatment of wounds" means the use of various medications applied to the dressings. a wound in the form of solutions, ointments, aerosols on bandages, using "electrophoresis or novocaine blockade. The extraordinary abundance of various substances, according to T.Ya. Aryev (1962), testifies to their "imperfection, pathogenetic groundlessness" and "pronounced empiricism" in application. And the very method of local medication treatment in its traditional form has a number of disadvantages. Firstly, many drugs applied to the bandage in the form of solutions dry out quickly and are often inactivated by wound exudate.

The second disadvantage of treatment under the bandage is using. traditional medicines lies in the unidirectionality of the action of most of these drugs, for example, only. osmotic (hypertonic solutions, one-component sorbents), only antibacterial (antibiotics, antiseptics), or mainly non-political (enzymes) action. For these reasons, the overwhelming majority of drugs for local treatment of wounds, having arisen, gradually or soon go out of use [21]

In most cases, the mainstay of surgical wound treatment is the local treatment of wounds under the bandages. A regular change of dressings with osmotically active substances and antiseptics, water-soluble ointments is carried out (fat-soluble ointments are contraindicated as they interfere with the outflow of wound discharge). At each dressing, the wound is cleaned of pus and sequesters, necrosis is excised, and washed with antiseptics [21].

The bandage is a long-term remedy. on a wound, a pathological focus, a part of the patient's body using various materials and substances by keeping them in the required area of the patient's body. Based on the requirements of modern medicine, the bandage as a remedy should not only promote wound healing, but also increase it. the quality of life of the patient as a whole. Nowadays, is wider. apply interactive dressings. These are dressings that are able not only to create, but also to maintain an optimal wound environment for healing by controlling its moisture content, gas composition and pH, and are also atraumatic due to their physical and chemical properties [22].

Polyvinylpyrrolidone strongly binds poisons, dyes, antibiotics and other drugs, therefore it is used to prolong the therapeutic effect of drugs. It has immunostimulating properties. antioxidant effect, binds toxins well. Polyvinylpyrrolidone enters into complex compounds with medicinal substances due to the presence of an NH2-group in its molecule, which determines the property of this drug to bind water and adsorbed. In it. medicinal substances. The drug itself is in. . to force. its properties of a hypertonic colloid has the ability to linger in the tissues for a long time, and the drug is also retained. The studies carried out prove that polyvinylpyrrolidone, being adsorbed on microbes, has a bactericidal effect on them and assembles them into agglomerates. It has wound healing and anti-inflammatory properties. Polyvinylpyrrolidone is temperature

resistant at heating up to 100 °C for many hours does not decompose, and therefore easily can be sterilized, can be stored practically indefinitely [18],

In this regard, it is of interest to study the effect of dressings traditionally used in the treatment of purulent soft tissue diseases and the “Mepitel Ag” dressing on wound healing processes.

CHAPTER 2.

Materials and research methods

2.1. General characteristics of clinical material

This work analyzes the results of treatment and follow-up of 122 patients with purulent wounds of various localization and etiology at the age from 23 to 84 years. Patient consent for the use of the “Mepitel Ag” dressing has been obtained. The control group includes 61 patients. They are received traditional treatment with antiseptics, Poliderm ointment. The main group included 61 patients. In their treatment, dressings were used with the help of the dressing material "Mepitel Ag". The distribution of treatment options in the main and control groups of patients was carried out by the method of stratified randomization. “The groups were formed by the method of typological selection according to the main feature (purulent-inflammatory diseases of soft tissues). By coverage, the observation was continuous, by the time of observation - current, by type - direct.

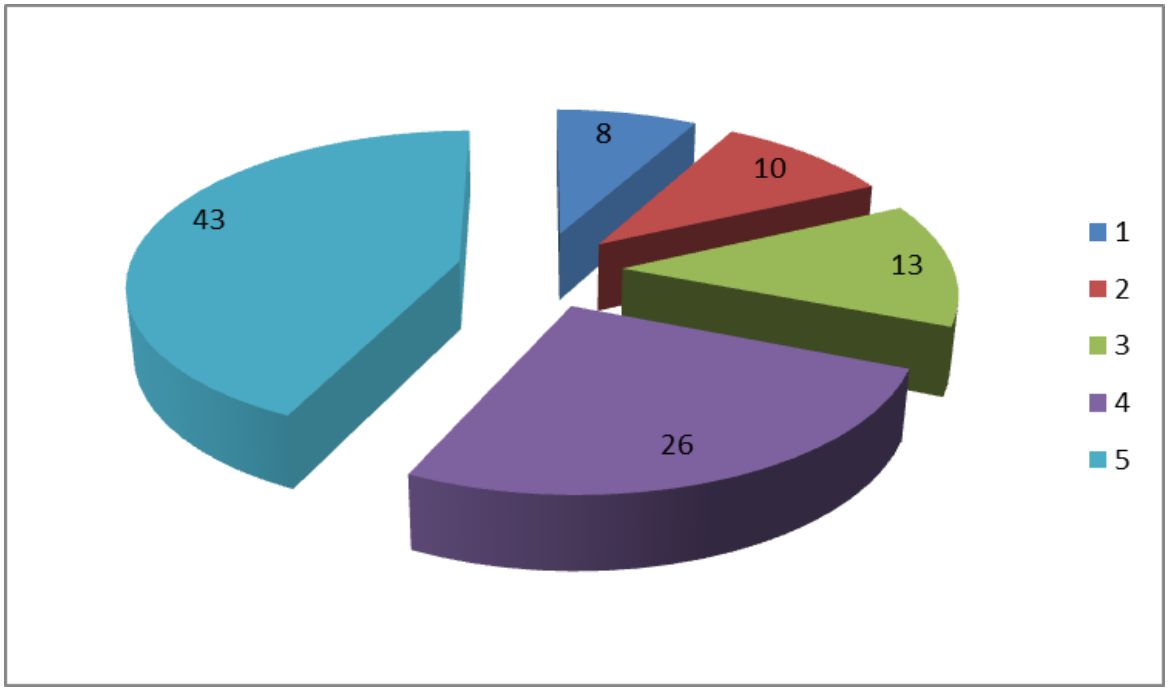


Fig. 1. The structure of purulent wounds for reasons of occurrence

Purulent wounds in 52 patients. (43%) occurred as a result of purulent-inflammatory diseases of soft tissues (5), in 32 (26%) - after injury (4), in 12 (10%) - after suppuration of a postoperative wound (2), in 16 (13%)) - as a result of trophic disorders in chronic venous insufficiency (3), in 10 (8%) as a result of trophic disorders in diabetes mellitus (1). The data are presented in Fig. 1.

Of the 122 patients, there were 64 men (52%) and 58 women (48%). The distribution of patients in the study groups by age and sex is shown in Table. 1.

Table 1,

The distribution of patients in the study groups by age and sex

Age	Main Grupp				Control Grupp				All			
	M		F		M		F		M		F	
	Abs	%	Abs	%	Abs	%	Abs	%	Abs	%	Abs	%
20-29 years	6	9.8	4	6.6	8	13.1	6	9.9	14	21.9	10	17.3
30-39 years	8	13.1	7	11.5	8	13.1	6	9.9	16	25.9	13	22.4
40-49 years	7	11.5	3	4.9	6	13.1	3	4.9	13	20.3	6	10.3
50-59 years	3	4.9	2	3.3	3	9.8	3	4.9	6	9.4	5	8.6
60-69 years	3	4.9	8	13.1	4	4.9	5	8.2	7	10.9	13	22.4
70 year and old	4	6.6	6	9.8	4	6.6	5	8.2	8	12.3	11	19.0
All	31	50.8	30	49.2	33	54	28	46.0	64	100	58	100

The majority of the sample consisted of people of working age (68%). Most often, purulent wounds occurred at the age of 30-39 and 20-29 years - 29 (23.8%) and 24 (19.7%) cases, respectively. The foregoing testifies to the socio-economic significance of the problem of treating purulent wounds.

In the distribution of patients by sex, there were no significant differences between the main and control groups. In the main group there were 31 men (51%) and 30 women (49%). The control group consisted of 33 (54%) men and 28 (46%) women.

In a comparative analysis of patients with purulent wounds on the localization of the inflammatory process, the following was revealed in the main group, 7 cases (11.5%) represent purulent wounds of the upper extremities 31 (508%) of the lower extremities, 23 (37.7%) - of the head or the head (including gluteal regions).

In the control group, purulent wounds on the upper extremities were localized in 8 patients (13.1%), in the lower ones - in 29 (47.5%), on the head and trunk - in 24 (39.4%). The distribution of patients in the main and control groups by nosological structure is presented in the Table 2.

Chronic sluggish purulent processes include trophic ulcers with venous insufficiency and diabetes mellitus.

As you can see from the table. 2, acute purulent diseases prevail in both groups, soft tissues in the main - 48 (78.7%) cases, in the control - 44 (72.1%). Chronic purulent diseases in 17 (27.9%) patients in the control group and in 13 (21.3%) patients in the main group.

At the same time, 9 (62.2%) patients with trophic ulcers in the main group with chronic venous insufficiency of the lower extremities and 4 (30.8%) - with diabetes mellitus. In the control group of 13 patients, respectively, 7 (53.8%) and 6 (46.2%).

Most of the patients with purulent wounds were admitted. for inpatient treatment from two to ten days after the onset of the Table 2.

Table 2

Distribution of patients in the main and control groups by nosological structure

Disease	Main group						Control group						Total					
	M		F		Total		M		F		Total		M		F		Total	
	All.	%	All	%	All	%	All	%	All	%	All	%	All	%	All	%	All	%
Trophic ulcer with venous insufficiency of the lower extremities	4	6,6	5	8,2	9	14,8	2	3,3	5	8,2	7	11,5	6	9,4	10	17,2	16	13,1
Trophic ulcer in diabetes mellitus	1	.1,6	3	4,9	4	6,5	2	3,3	4	6,6	6-	9,9	3	4,7.	7	12,1	ю	8,2
Phlegmon of the upper limb	6	9,8	1	1,6	7	11,4	6	9,8	2	3,3	8	13,1	12	18,8	3	5,2	15	12,3
Phlegmon of the lower limb	5.	8,2	3	4,9	8	13,1	4	6,5	2	3,3	6	9,8	9	14,0	5.	8,6	114	П,5
Erysipelas	5	8,2	5	8,2	10	16,4	2	3,3	.5	8,2	**T**	11,5	7	10,9	1°	17,2	17 .	14
Post-injection abscess	3	4,9	4	6,6	7	11,5	6	9,8	3	4,9	**9**	14,7	9	14,0	7	12,1	16	13,1
Carbuncle	3	4,9	2	3,3	5	8,2	5	8,2	2	3,3	7,	11,5	8	12,5	4	6,8	12	9,8
Furuncle	2	3,3	4	6,6	6	9,9	2	з,з	2	3,3	4	6,6	4	6,3	6	10,4	10	8,2
Suppuration of wound	2	3,3	3	4,9	5	8,2	4	6,5	3	4,9	7 .	11,4	6	9,4	6	10,4	12	9,8
Total	31	50,8	30	49,2	61	100	33	54,0	28	46,0	61	100	64	100	58	100	122	100

Most of the patients with purulent wounds were admitted. for inpatient treatment from two to ten days after the onset of the disease Table 3.

Tab. 3

Distribution of patients by hospitalization period from onset of the disease

Time from the onset of the disease	Main group		Control group		Total	
	All	%	All	%	All	%
1-5 days	15	24,6	12	19,7	27	22,1
6-10 days	31	50,8	35	57,4	65	53,3
11-15 days	10	16,4	6	9,8	16	13,1
16-20 days	2	3,3	"1 2	3,3	5	4,1
More 21 days	3	4,9 .	6	9,8	9	7,4

There were no significant differences in terms of hospitalization between the main and control groups. Late admission of patients to the hospital was associated with an erased clinical picture due to the inactivity of the organism. Similar phenomena were typical for the elderly. Other reasons for the late hospitalization were the untimely appeal of the patient for medical help and self-medication.

The first place in the structure of concomitant diseases belonged to ischemic heart disease in the main group - 10 (16.4%) patients, in the control - 11 (18%). Hypertension was somewhat less common. The presence of diabetes mellitus in the main group significantly complicated the treatment of purulent wounds, it was noted in

4 (¡6.6%) patients, in the control group - in 6 (9.8%). When comparing patients in the study and control groups, no differences in the structure of concomitant diseases were observed.

When the patient was admitted to the hospital, special attention was paid to the severity of local signs of inflammation. When assessing the local status, attention was paid to edema, hyperemia, tenderness on palpation, dysfunction, the presence of fluctuations, and the prevalence of the inflammatory process. The data obtained were analyzed and presented in table. 4.

Table 4

The frequency of detecting local signs in purulent-inflammatory diseases of soft tissues

Symptoms	All	%	All	%
Edema	58	95,0	50	82,0
Hyperemia	57	93,4	56	91,8
Tenderness to palpation	50	82,0	50	82,0
Fluctuation and softening	22	36,0	26	42,5
Dysfunction	15	24,5	17	27,9

In patients with shock-inflammatory diseases of soft tissues edema, hyperemia and tenderness on palpation were most often observed. The dysfunction depended on the location of the abscess and the extent of the process. This symptom was more often detected when the abscess was localized on the extremities and near the vessels. The absence of fluctuation was associated with the deep location of the purulent focus.

When examining patients with purulent wounds, complaints, medical history data (causes of the onset, course and duration of the disease before going to a medical

institution, the results of outpatient treatment, if any, the initial localization and prevalence of the purulent process) were studied. The presence of concomitant diseases (diabetes mellitus, cardiopulmonary pathology, varicose veins, liver and kidney diseases, etc.), affecting the course and outcome of the purulent-inflammatory process, was noted. The sex, age of patients, and their working conditions were taken into account.

The general condition of the patients was assessed on the basis of pulse rate, blood pressure, body temperature, laboratory blood and urine tests, with special attention paid to signs of intoxication.

Great importance was attached to the local status of localization, the area of the lesion, the consistency of the inflammatory infiltrate, the presence of fluctuation, pain, the degree of soft tissue damage in the focus of inflammation and dysfunction, the involvement of peripheral lymph nodes in the inflammatory process.

During the surgical treatment, the localization and prevalence of the purulent-inflammatory process, the amount of purulent discharge from the wound, the presence of streaks and necrotic changes were noted.

The dynamics of the wound process was assessed by the timing of wound cleansing from pus and necrotic tissues, the appearance of granulations and marginal epithelialization, the area of the wound, and the rate of wound healing.

To register the rate of epithelialization of a trophic ulcer in time, a method was used, which consists in the following determination of the area of a trophic ulcer before the start of treatment, and then, in the course of treatment, the rate of epithelization was determined by the formula:

$$\Delta S=(S-Sn)x100/Sxt$$

where

S - is the size of the ulcer area at the first measurement,

Sn - the size of the ulcer area on the day of the subsequent measurement,

t - number of days between measurements

2.2 Material of investigation

To solve the tasks, clinical studies were carried out. We examined 122 patients who were in the surgical department of Cortellucci Vaughan Hospital, Canada with purulent posttraumatic wounds and suppurative soft tissue diseases. The main difference between the study groups and the control group is the use of the antiseptic wounds “Mepitel Ag” in local therapy Fig. 2.

Fig. 2

“Mepitel Ag” Antimicrobial wound contact layer for exuding burns and wounds

Mepitel® Ag is a gentle wound contact layer – for when you need an antimicrobial action to reduce bioburden in the wound. It's designed for a wide range of exuding wounds such as skin tears, skin abrasions, sutured/surgical wounds, partial thickness burns, partial and full thickness grafts, lacerations, diabetic ulcers, venous ulcers and arterial ulcers. “Mepitel Ag” has been shown to inactivate wound relevant pathogens – bacteria and fungi – within four hours and for up to 8 days, as shown in vitro An international consensus states that an antimicrobial action is indicated to help reduce bioburden in infected wounds. And acts as an antimicrobial barrier in wounds at high risk of infection or re-infection. “Mepitel Ag” adheres gently with Safetac® – the original less-pain contact layer with silicone adhesion. So your patients experience less pain during dressing changes.Antimicrobial wound contact layer for a wide range of exuding burns and wounds Less painful dressing changes Rapid and sustained antimicrobial activity [63].

2.3 Thermometric indicators of the dynamics of the wound process

In the region of the inflammation focus there is a rise in temperature in comparison with a healthy symmetrical zone. As the inflammation slows down, the gradient of the temperature difference decreases. In addition, there is a direct correlation between the skin temperature and the degree of circulation of the soft tissues of these areas [64]. The measurement of the temperature was carried out by infrared thermometer Etekcity lasergrip 774 Fig. 3.

Fig. 3.

Iinfrared thermometer Etekcity lasergrip 774.

The study of local thermometric data in dynamics allows us to evaluate the course of the wound process and use this method as an objective diagnostic and prognostic criterion,

It is known that wound healing is accompanied by a change in the temperature of damaged tissues caused by endo - and exothermic biochemical reactions of the wound process, a disorder of central thermoregulation in the injured area of the body, a violation of blood circulation and other factors of regular wound inflammation. From the experience of treating wounds it follows that the dynamics of local and perifocal temperature parameters largely corresponds to the nature of the course of the wound process, and therefore has a certain diagnostic and prognostic value.

Small size, high sensitivity and low thermal capacity of temperature sensors allow to measure the temperature of the object practically without disturbance of the heat balance of the process being studied. Studying the question of thermal topography of skin in humans, it was established that the skin temperature in different parts of the body is not the same and depends on a number of anatomical and physiological features the degree of blood supply, the rate of bleeding, the tone of the cutaneous vessels, etc. [25]. At the same time, it was found that in the symmetrically located parts of the body, the skin temperature is almost the same (the difference does not exceed 0.2 ° C), i.e. the determination of asymmetry of skin temperature is an important auxiliary method in the diagnosis of surgical diseases. According to the published data, in a number of studies, a local increase in the cutaneous temperature on the side of a purulent wound was significantly reliably compared to a healthy one more than 0.2 °C. Moreover, a statically significant difference in temperature is revealed in 85-90% of patients. This difference is the greater, the heavier the purulent process in the wound, the higher the reactivity of the patient and the less pronounced subcutaneous fat layer [24].

But skin thermometry is not only an additional method of diagnosing diseases, but as it was noted earlier, it is a method that well illustrates the nature and dynamics of the course of the wound process. Based on the data of M.I. Anokhin et al., The temperature of the vulgar granulating wound is usually 1-1.5 °C higher than the temperature of healthy tissues in a symmetrical area. With a normally occurring wound process, the temperature difference is somewhat larger, but increases markedly with a pathological increase in the inflammatory response. According to P. Melnikova et al, when a linear postoperative wound is suppurated, the temperature gradient between the wound zone and the symmetric area reaches 2-3 ^{0}C, while at the primary tension it is 0.3-0.8 °C [24].

The temperature was determined in symmetrical areas of the body, the duration of adaptation to the environment of the subject in nude was 10-15 minutes at a room temperature of 20-21^0 C and an average relative humidity of 55%. Thermometry at symmetrical points was carried out immediately upon admission of the patient to the ward, then after the application of an antiseptic, both after the operation and in patients who had not undergone surgical treatment, and daily during the application of an antiseptic and similarly in traditional treatment. This method of investigation was to help answer two questions. How, judging by the thermometry, do dressings affect a purulent wound? In other words, does the local temperature and its gradient with a symmetrical area change before the dressing is affected and after their application and with traditional treatment?

The data obtained were processed statistically using the Statistica for Windows software package. The mean values and their standard errors (M ± m) were calculated. The Student's test was used. The $P<0.05$ values were taken as the probability of differences.

CHAPTER 3.

Results of our own research

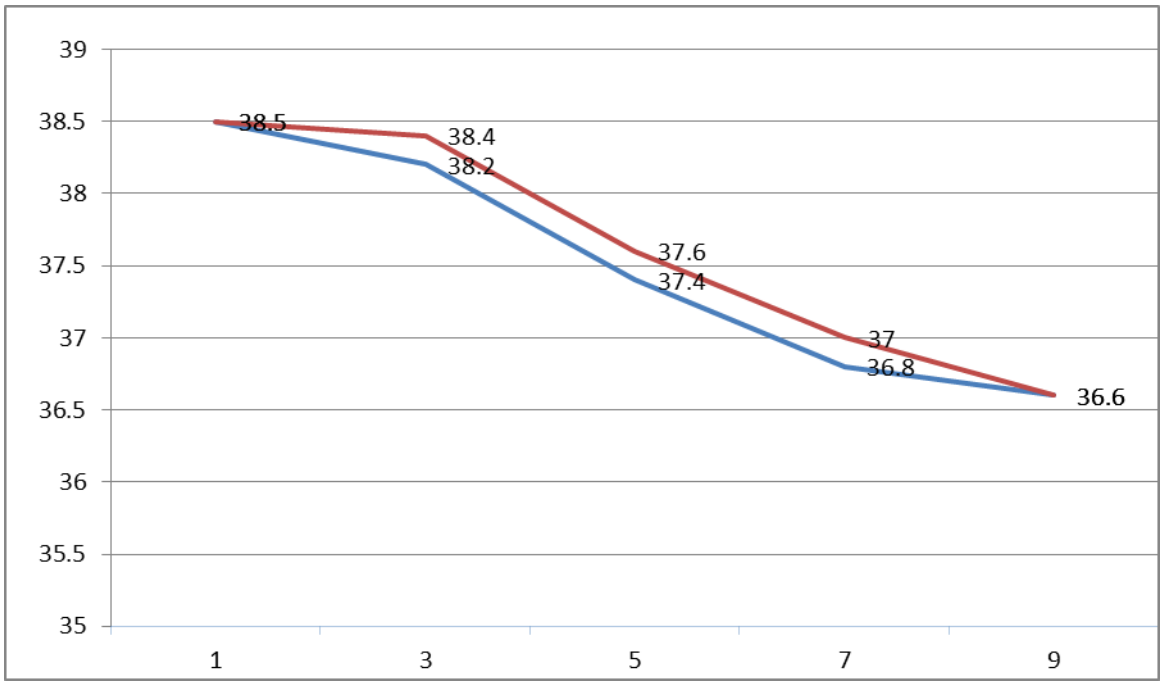
Comparative characteristics of the clinical Course of purulent inflammatory diseases

The results of treatment of patients with purulent wounds were assessed on the basis of the dynamics of the clinical picture (general and local symptoms of the purulent-inflammatory process), assessment of laboratory parameters, data from bacteriological, morphological and cytological studies.

One of the important indicators of the course of the purulent process is the temperature reaction of the body. Temperature measurement in patients of the main and control groups was carried out daily. The dynamics of its decrease in the course of treatment in patients of both groups is shown in Fig. 4.

Fig. 4.

Dynamics of body temperature in patients with the main and control



As seen in Fig. 4, in all patients, a sequential decrease in body temperature to normal values was observed, while in the main group its earlier normalization was noted (on days 4-5).

The severity of the course and the general condition of the patients were in direct proportion to the volume and localization of the purulent process. The condition of the majority of patients at the onset of the disease was of moderate severity, body temperature within 38-39 °C. Consciousness is clear, the position is passive. There were no violations of the internal organs associated with the local inflammatory process. There was moderate anemia, minor leukocytosis. In the urine, the appearance of protein and hyaline casts, a moderate increase in the number of leukocytes and epithelium in the field of vision was often noted. Physiological functions were normal.

The first phase of the wound process is characterized by pronounced inflammatory changes in the edges and walls of the wound, swelling, skin hyperemia, tissue infiltration around the wound, pain on palpation. The boundaries of hyperemia and infiltration were about 3-5 cm.

The effectiveness of the treatment was assessed by the visual characteristics of the wounds (the nature and amount of wound discharge, the condition of the tissues in the wound, the presence and severity of perifocal inflammation) and the severity of pain in the wound area during dressing and at rest.

n patients of the main group, perifocal inflammatory phenomena subsided already on the 3-4th day the amount of wound exudate significantly decreased. acquired a serous-Yono character. In patients of the control group, the corresponding state was observed only on the 5-7th day.

“Mepitel Ag” dressings provided a good drainage effect, dressings were performed in most cases. painless. In the control group, using traditional dressings in many patients, the dressing adhered to the wound, the removal of the dressings was accompanied by tissue trauma and severe pain.

Side effects when using the “Mepitel Ag” dressing were noted in 3.3% of cases. This is mainly the appearance of short-term burning and itching in the wound area. In the control group, side effects reached 9.8% and were manifested by rash and itching.

The manifestations of diabetes mellitus associated with hyper- and hypoglycemic conditions affect the mechanisms of wound healing as follows slowing epithelization, delaying wound contraction, later appearance of granulations, impaired chemotaxis of phagocytes, decreased ability of phagocytes to absorb and lyse microorganisms in the wound, inhibition of collagen synthesis, decrease the ability of erythrocytes to deform, which impairs capillary blood flow in case of vascular damage. In this regard, in patients with diabetes mellitus, it is advisable to use drugs that activate the reparative processes in the wound, thereby promoting the growth of granulations and the acceleration of epithelialization.

It is also necessary that these drugs reliably protect the granulation tissue from secondary infection and suppress the microflora growing in the wound, improve the conditions for regional microcirculation and metabolic processes in tissues. In this regard, the use of the bandage "Mepitel Ag" is pathogenetically substantiated.

Clinical example Patient B., 41 years old, was admitted to the department of purulent surgery with complaints of fever, chills, weakness, pain in the left leg and painful formation in this area with reddening of the skin above it. Considers himself sick for 8 days. She has not previously sought medical help.

Clinical examination of a moderate condition, the skin of the usual color, the face is hyperemic, acrocyanosis of the nasolabial triangle. Temperature, body 39.1 °C. Breathing is vesicular, respiratory rate 16 per minute. Pulse 96 beats per minute, good filling, correct rhythm. Blood pressure 130/90 mm Hg. Status localis in the area of the left leg is determined by a painful formation measuring 20.0x20.0 cm, dense consistency, local hyperemia and hyperthermia above it, a positive symptom of fluctuation in the center of the infiltrate.

General blood count - erythrocytes - 3.7x1012 / l, hemoglobin - 130 g / l, leukocytes - 13.7x109 / l, ESR - 37 mm / hour. Leukocyte formula stab neutrophils - 6% segmented neutrophils - 68%, eosinophils - 1%, lymphocytes - 22%, monocytes - 3%. General urine analysis color yellow, turbid reaction alkaline, specific gravity 1021, protein - 0.033%, squamous epithelium - 4-3-5, leukocytes - 5-6-6, erythrocytes 1-2-1 in the field of view, bacteria +, mucus ++. Electrocardiogram sinus rhythm, heart rate 96 per minute, the electrical axis of the heart is deflected to the left, signs of left ventricular hypertrophy.

A diagnosis of phlegmon of the left lower leg was established. After examination and short-term preoperative preparation, the patient underwent emergency surgery under intravenous injection. anesthesia, autopsy drainage of the abscess. During the operation, the wound was revised, sanitized with a 3% solution of hydrogen peroxide and an aqueous solution of chlorhexidine. The area of the wounds after opening the abscess was. 84.7 cm2. The bandages "Mepitel Ag" were installed, in the area of postoperative wounds and the abscess cavity. Further, dressings were carried out every day, as the wound discharge decreased, every three to four days. Analgesics were prescribed. Microbiological examination revealed Staphylococcus aureus sensitive to cefazolin.

On the third day of treatment, there is an improvement in self-feeling, a decrease in body temperature to 37.0 ° C. On the dressing, the purulent discharge was significantly reduced, single granulations. On the sixth day, the wounds are clean, actively granulating, signs of marginal epithelialization. The patient was discharged from the hospital on the 12th day in a satisfactory condition with actively granulating wounds. The treatment was continued in the polyclinic using the “Mepitel Ag” dressing. Complete epithelialization of the wounds occurred on the 28th day, with the formation of elastic smooth scars.

The following parameters were included in the complex of clinical assessment of the effectiveness of local treatment reducing the size of the wound surface, cleansing

the wound from purulent-necrotic discharge, the appearance of granulations, the beginning of edge epithelialization. The data obtained indicate that the cleansing of the wound and the onset of the second phase in all parameters characterizing the wound process, when using the “Mepitel Ag” dressing, occurred faster than in the control group. The dressings were less painful and more comfortable. At the same time, young granulation tissue was not injured, as was observed in the control group. The dynamics of the healing of purulent wounds in the main and control groups of patients is presented in Table 5.

Table 5.

The dynamics of healing of purulent wounds in the treatment of various ways

Disease	Group	Number of patients	Study results				
			Frequency rate of dressings	Wound cleaning, days	Filling with granulation and appearance marginal epithelization, days	Pain reduction, days	Treatment time, days
Acute purulent process	The main	44	1 time 2-3 days	4,4± 1,3*	5,6±0,15*	4,6± 0,5*	10,6± 0,4*
	Control	48	daily	6,2± 1,4	7,5±0,9	87± 0,7	14,5± 0,3
Chronic wound	The main	17.	1 time 3-4 days	4,9±1,3*	7,3±0,4*	5,1±0,4*	18,8± 0,5*
	Control	13	daily	9,8,± 1,6	18,0±1,2	14,7± 0,9	23,5± 0,5

* - statistically significant differences between the corresponding indicators of the main and control groups ($p < 0.05$)

The indicator of wound healing in assessing the course of the wound process as a whole in the studied groups was characterized by statistically significant differences. The rate of wound healing per day in patients with acute purulent-inflammatory process in the main group was 7.2 ± 0.35%, in the control group - 5.4 ± 0.66.

Wounds, in the treatment of which,. used dressings "Mepitel Ag", healed with a soft scar without pronounced sclerosis of the surrounding tissues. Dressings "Mepitel Ag" had a more effective effect on the wound process and in the treatment of trophic ulcers. With the traditional method of treating trophic ulcers, purification of wounds from purulent-necrotic masses occurred on the 9-10th day. On days 7-8, single granulations appeared. By the 19th day, the ulcers were filled with granulation tissue, marginal epithelialization appeared. The pains disappeared by the 15th day, by the same time edema, hyperemia, tissue infiltration decreased. In this group, we had good treatment results in patients with short duration of ulcers and their small sizes. At the same time, the ulcers that have existed for more than five years, with an area of more than 25 cm2, healed very slowly, the time for clearing them from necrotic masses was 15-20 days. The average rate of decrease in the area of ulcers was 2.66 ± 0.15%.

In the main group, on the 5-6th day from the start of treatment, the ulcers were cleared of purulent-necrotic tissues. By the 9-10th day of treatment, the surface of the ulcers was completely covered with granulation tissue, and marginal epithelialization appeared. On days 12-14, most patients formed a gentle regenerative layer without coarse scar tissue, ulcers more than halved. n patients with a short history of the disease and ulcers with an area of less than 16 cm2, complete epithelialization of ulcers occurred. The average rate of decrease in the area of ulcers was 64 ± 0.4%. In the control group, complete healing was not achieved in any patient, and a 2-fold decrease in the area of the ulcer occurred in only two people. Consequently, when using the “Mepitel Ag” dressing, the time required to prepare wounds for surgical closure in case of a large wound surface is reduced.

Thus, it has been found that treatment with the “Mepitel Ag” dressing has the following advantages over traditional topical treatment methods;

-the time for cleansing wounds from pus and necrotic masses is accelerated by 2-3 days;

-the development of granulation tissue is more effectively stimulated;

- there are fewer adverse reactions, better tolerated by patients;

-can provide a sufficient therapeutic effect without prescribing systemic antibiotic therapy;

- the consumption of the dressing material is reduced;

- actively affects the regeneration and epithelization, shortening the treatment time. Dressings "Mepitel Ag" can be effectively used to prepare the wound surface for autodermoplasty in large areas of the wound surface.

- dressings "Mepitel Ag" are easy to use, their use is possible both in a hospital and in an outpatient setting.

Discussion

Currently, there has been an increase in the number of patients with purulent wounds of various localization. Treatment of purulent wounds is an urgent task of modern surgery, despite significant advances in this area. The high percentage of pyoinflammatory diseases and postoperative complications in surgical clinics significantly increases the loss of society. Purulent diseases of soft tissues are widespread among the working-age population of developed countries, which explains the great medical and social significance of the problem of this disease. In recent years, the severity of the clinical course of purulent-inflammatory diseases has been increasing, the spectrum of drug resistance to antibiotics and the immunological status of the body have changed. The number of long-term and recurrent purulent processes increases.

Despite use of various methods, treatments, growth antibiotic resistance. microorganisms, reducing the overall resistance of the human body requires the development and study of new methods of dealing with wound infection and stimulation of reparative processes.

Currently, the tactics of treating purulent wounds consists of surgical and local treatment. A promising direction in the local treatment of wounds is the use of dressings with an antiseptic effect, since recently it has been of great importance in the development of purulent diseases. Dressings "Mepitel Ag" "were used to treat the main group, the control group received traditional treatment.

The main and control groups of patients included in the study were comparable in terms of sex, age, duration and structure of diseases. This was achieved by the method of stratified randomization and made it possible to avoid systematic errors arising at the stage of formation of the compared groups. Among the patients examined with purulent diseases of soft tissues in the main group there were 30 women, 31 men,

28 and 33 in the control group, respectively. Most of the observed patients with purulent wounds were of working age - 68%.

The "Mepitel Ag" dressing protects the wound from mechanical stress, pollution, prevents secondary infection, protects against drying out and loss of fluid, actively affects electrolytes. healing processes due to stimulation of wound cleansing.

The analysis of the clinical course of patients with purulent wounds of the soft tissues of the main and control groups revealed that the severity of the disease depends on the patient's age, localization and volume of the pyoinflammatory process, the timing of the onset of the disease, the presence of concomitant diseases and immunological status. There is hyperthermia up to 38-39 °C, inflammation of the regional lymph nodes, muscle pain. In the blood picture was anemia, pronounced leukocytosis with a shift to the left. Locally - edema, hyperemia and tissue infiltration around the wound, an abundant amount of discharge with a characteristic odor.

Surgical treatment was carried out under endotracheal or intravenous anesthesia and consisted in a wide dissection and radical removal of all necrotic altered tissues. For local treatment of wounds in the main group, dressings "Mepitel Ag" were used. The wound was pretreated, mechanically removing pus and necrotic tissues. Then there was an application of a bandage "Mepitel Ag" In the control group used antiseptics, ointment "Polyderm".

To assess the results of treatment, we took into account the general and local signs of a pyoinflammatory process, blood and urine tests, bacteriological, cytological, histological studies, and wound healing criteria.

Comparative analysis of the clinical aspects of the effectiveness of treatment in patients of the main group, receiving / "Mepitel Ag" therapy, and the control group, traditionally treated, showed significantly better results in patients of the main group. In patients of the main group, complete cleansing of wounds occurred on 4.65 ± 1.3 days, after surgical treatment in patients in the control group, cleansing occurred on 8.1 ± 1.5 days. The appearance of granulations and the beginning of marginal epithelialization

during treatment with the “Mepitel Ag” dressings were noted at 6.45 ± 0.3 days, with traditional treatment - at 12.75 ± 1.05 days. On average, the duration of treatment in the main group was 2 days less. As a result, the use of the “Mepitel Ag” dressing in patients with purulent wounds of soft tissues not only normalizes the clinical parameters of blood, but also accelerates the cleansing and healing of wounds. Our studies allowed us to conclude that the indications for the use of Ag dressings for all patients with purulent wounds of soft tissues are unambiguous. The studies carried out made it possible to prove the safety of using the Mepitel Ag dressing in the treatment of purulent-inflammatory diseases of soft tissues.

CONCLUSIONS

1. The use of the antiseptic “Mepitel Ag” has a positive therapeutic effect on the wound process, which is confirmed by clinical studies.

2. The developed methods of using an antiseptic agent for patients with acute purulent diseases of soft tissues are effective for use at the end of the first and second phases of the wound process.

3. Application of the bandage "Mepitel Ag" in the complex treatment of patients with purulent wounds accelerates the time of wound healing in acute purulent processes from 7.5 ± 0.9 to 5.6 ± 0.15 days, in chronic purulent processes - from 18.0 ± 1.2 to 7.3 ± 0.4 days and reduces the length of days of disability.

4. The use of the "Mepitel Ag" dressing is an effective method of treating purulent wounds and normalizes the healing processes, while with traditional methods of managing patients, these changes are still preserved by the end of treatment.

PRACTICAL RECOMMENDATIONS

1. At first, dressings with the “Mepitel Ag” dressing are recommended to be done daily, then every two to three days. The proposed technique can be used both in a surgical hospital and at the stage of outpatient care.
2. In the first phase of the wound process, the “Mepitel Ag” dressing is used to suppress the infection in the wound, normalize local homeostasis, improve the rejection of necrotic tissues, absorb the products of microbial and tissue decay and intensify the healing processes.
3. In the second phase of the wound process, the “Mepitel Ag” dressing has an antibacterial effect, stimulates regeneration and increases the activity of wound healing.

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