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Research Article

THE ROLE OF WOUND COVERINGS IN THE MAXILLARY TREATMENT OF BURN LESIONS (LITERATURE REVIEW)

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ABSTRACT

Currently, in medicine the number of patients with burn injuries. This necessitates further improvement of local treatment methods for such patients. Although several types of wound dressings have been developed, no gold standard has yet been developed. Therefore, the development of easy-to-use, bactericidal effective and inexpensive wound coverings is relevant, taking into account the requirements for coatings.

KEYWORDS

Primary chronic headache, Chronic migraine, Chronic tension type headache, MRA, Posterior communicating arteries, Circle of Wills.

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INTRODUCTION

Research objective. Study and analysis of various wound coatings in the local treatment of burn injuries.

Research materials and methods. An analysis of the results of research in distant and nearby countries, covered by the topic of the study, was carried out.

Research results

The treatment of burn injuries and infections is significant as an urgent problem in the entire history of jarrahlik. It has not only medical, but also socio-economic significance, and is also unique in the complexity of treatment, high disability. The burn is considered the most painful of all types of injury and is considered an injury that leads to numerous and long violations of homeostasis, deep dysfunction of various organs and systems. In burn injury, lethal complication accounts for 2.3-3.6% of the total death rate. And 85-90% of burned patients are the layer of the working population and children. 65-78% of patients who survive a burn injury are counted in need of long-term medical, social and mental support. The growing incidence of burn injuries among children is considered an urgent problem and is assessed as related to the industrialization of society and various unfortunate events. 10-50% of the indicator of children's domestic traumatism corresponds to burn injuries. Mortality from Burns is ranked 3rd among child mortality rates. Burns are tissue damage caused by high temperatures, chemicals (alkali, acid, salts of heavy metals, etc.), electric current and radioactive rays. Accordingly, burns under the influence of thermal burns, chemicals and Rays are distinguished. Burns, i.e. thermal burns, are common when exposed to high temperatures in life and production [4,16,28].

The relevance of the burn problem is explained by its occurrence, complexity, duration, cost of treatment. Unsatisfactory results are often recorded during the treatment of large-area burn injuries. The prospect of burn injuries is determined by the surface of the burn and its depth. It is considered very important to distinguish between superficial and deep burn surfaces and is considered important in general and local treatment. In the treatment of burn patients, the main tasks are to maintain patient life and restore skin integrity. Treatment is carried out intensively from the shock stage to the convolescence period and includes infusion-transfusion therapy, catabolic processes and immunodepression correction, prevention of infectious complications and generalized infections. Such problems, in turn, are inextricably linked with local treatment measures, so that the wound surface acts as a gateway for infection, which in turn leads to pneumonia or sepsis, as a result of which the prospect of the disease can manifest itself with a lethalic complication. The use of skin coatings at Grade II (epidermal), Grade III a (subdermal) and Level III B (dermal) according to the depth of burn injuries determines the effectiveness of the treatment, which is carried out on a timely and pathogenetically based treatment background. The period of recovery of the skin coating determines the prospect and course of burn disease in many ways. It is considered relevant in this case to apply skin coatings to the wound as a specific form of claim. In the treatment of deep and large-surface burnt skin, the shortage of donor sources is a major obstacle [6,19]. This manifests itself as a pressing problem, especially in Burns of more than 40%. Of course, the widespread use of biotechnological skin equivalents is effective in this, but the absence of a single skin model that meets the requirements for wound coatings creates difficulties in treatment. To

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date, there are more than 300 wound coatings, the effectiveness of which is also Turlich. They differ from each other according to their chemical composition and the drug added. Putting wound coverings in the treatment of burn injuries further increases the effectiveness of the treatment [37].

The use of wound dressings of different genesis (synthetic, biological) has a positive effect on the preservation of preserved viable cell elements and wound healing. Biological wound dressings are various variants of preserved xenoderm or dermis. Xenoterium is considered the "gold standard" among wound dressings [33].

Biological wound dressings include protein-polysaccharide complex dressings. Their advantage is shown by non-toxicity, antigenicity, easy and quick resorption in the body. I.N. Bolshakov and A.K. Kirichenko (2012) studied the effectiveness of collagen-chitosan complex wound dressings. It was observed that this complex preserves the proliferative culture of fibroblasts and restores the entire tissue structure, starting from the papillary layer of the skin. Biologically active textile dressing fabric includes "Aktivtex" and there are 20 types with different effects. A.V. Khachatryan (2011) used "Aktivtexfuragin" tool in the preparation of large granulation tissue for skin plate and achieved positive results. Sorbents are used in purulent wounds, and its main functional feature is absorption of a large amount of exudates from the wound.

Yu.I. Borodin and co-authors (2014) experimentally studied the use of "Litoplast" wound film on the burn surface in laboratory animals. In this case, it has a protective effect on the wound surface and improves the lymphatic system and its drainage function in the skin. In the post-burn period, the level of endogenous intoxication decreased [19].

Autologous PRP gel has been used in Western Europe and the US for 20 years. It stimulates wound healing. This gel composition is enriched with plasma platelets and contains growth factor, cytokines, chemokine and fibrin [Frykberg R.G., Driveretal V.R., 2010; Reese RJ, 2010]. The mechanism of action is related to molecular and cellular induction, which is also observed in the activation of platelets. A systematic review and meta-analysis conducted by Marissa J. Carter (2011) showed that patients who received PRP gel had a faster rate of partial or complete wound healing than patients who did not receive PRP gel. Maksyuta, Yu.R. Skvortsov, I.V. Chmyrev's (2015) article entitled "Synthetic wound dressings after late necrotomy in deep burns" published in Vestnik Rossiyskoy voenno-medicinskoy Academy magazine, compared the efficacy of synthetic sponge "Askin Calgitrol Ag" and gel dressing "Gelepran Pg" in burn patients. 42 patients aged 26-52 years were studied, and deep burns made up 1-9% of patients. 24 patients in group 1 were covered with a synthetic sponge "Askin Calgitrol Ag" after necrotomy, and 18 patients in group 2 were covered with a gel cover "Gelepran Pg". Both groups did not reliably differ in age, gender, burn depth, and treatment volume. According to the results, when the bacterial landscape was studied in both groups, by the 15th day after necrotomy, bacterial microflora was detected in only ¼ of the patients. However, their amount was not enough to increase the infectious process. According to the clinical effectiveness, these two drugs did not reliably differ between groups in stimulating the formation of soft tissues, timely formation of granulation tissue, epithelization of the wound edge. According to Gelepran Pg, the use of Askin calgitrol Ag wound dressing has significantly improved the results of granulation tissue autodermoplasty after late necrotomy. "Askin Calgitrol Ag" wound dressing was well accepted by patients and allowed to change the dressing 4 times less [1]. T.A. Kuznetsova, N.N.

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Besednova, N.N. Kovalev, L.M. Somova, A.B. Zemlyanoy and V.V. In a study co-authored by Usov (2013), the effectiveness of biologically active substances of marine hydrobionts, chitosan and calcium alginate in a thermal burn model was studied experimentally. According to 3 types of marine hydrobionts - mollusc nerve ganglion peptide, two-layer mollusk hydrolyzates and sulfated polysaccharides protective coatings obtained from brown algae were compared and studied. According to the results, the agents contained in the gel enhanced the regeneration processes in the wound. Planimetric and pathomorphological examinations also showed that regenerative processes and wound healing were accelerated under the influence of this gel coating. The best results were observed in peptide-retaining coatings obtained from mollusk nerve ganglia [7,40].

Currently, the use of polymer nanocomposites containing nano-sized metal particles in modern medicine is growing rapidly. Such composites are used as antibacterial agents, targeted systemic contrast agents and drugs, biosensors and other medical-biological purposes [1,2]. Important and necessary properties of these agents are pharmacological activity, hydrophilicity, nontoxicity, biocompatibility, resistance to aggressive environment, and the presence of functional groups that can freely combine with various substances, including drugs. 1-vinyl-1,2,4-triazole-retaining polymers have similar properties and are considered promising, although less studied [3,15]. Among the nanoparticles of various metals, silver nanoparticle is considered to be somewhat effective, and its antimicrobial effect is broad [6]. The use of silver nanoparticles in medicine is increasing year by year, and it is developing more and more innovatively and technologically. They are used as wound dressings, surgical masks, medical equipment coatings, various microfiltration membranes and nanogels [7,9]. Silver is an important trace element for the body, it increases immunity and has an active effect against disease-causing bacteria and viruses. In recent years, in the scientific literature, silver has been equated with steroid hormones as a powerful immunomodulator. Depending on the amount, it can increase or decrease phagocytosis. Under the influence of silver, the amount of immunoglobulins and T-lymphocytes increases. In small amounts, silver rejuvenates the blood, supports the formation of lymphocytes, monocytes, erythrocytes and increases the amount of hemoglobin, besides, it has a positive effect on the course of all physiological processes in the body [31].

The effect of silver on bacterial cells was first studied by Karl Nobel, who argued that it is not the metal itself, but its ion that affects microorganisms and causes them to die. Nowadays, scientists have begun to prepare silver nanoparticles of different sizes, shapes and compositions [12,28]. The production of silver nanoparticles with a wide spectrum of antibacterial action is being carried out both in the stationary and adsorbed states in solutions. One of the new generation of such polymer wound dressings is "Nanoderm", which contains carboxymethylcellulose and stabilized silver nanoparticles, recommended for local treatment of temporary wound dressings. Polymer coatings were developed at the Institute of Chemistry and Physics of Polymers of the Russian Academy of Sciences under the leadership of Professor A.A. Sarimsakov. The drug contains silver nanoparticles and carboxymethylcellulose in amounts of 0.00216%, 0.00324%, 0.00432% and 0.00648%. This wound dressing was used to treat artificial burns in rats in the laboratory. In rats, the lesion has been shown to be more effective than conventional Levomecol ointment treatment. Now it is recommended to study these coatings in burn patients, including the research of the

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effect on the general and local condition of patients, and the outlook of the disease.

From the above information, it can be concluded that the number of appeals with burns is high in practical medicine. In the local treatment of burn wounds, a wound dressing that meets all requirements has not yet been developed. In this regard, silver nanoparticle protective wound dressings have been successfully implemented in experimental animals, and are now recommended for use in burn patients.

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