MODERN MEDICINE AND PRACTICE
https://inovatus.es/index.php/ejmmp
EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE
Vol. 4 No. 11 (Nov - 2024) EJMMP ISSN: 2795-921X

IMPROVEMENT OF METHODS OF TREATMENT OF DEEP BURNS

Umedov Khushvakt Alisherovich
PhD., Department of Surgical Diseases No. 2,
Samarkand State Medical University, Samarkand, Republic of Uzbekistan

Tojiev Zokhid Yusufovich
Doctor, resident of the burn department of the Samarkand branch of the Republican Scientific Center for Emergency Medical Care, Samarkand, Republic of Uzbekistan

Abstract: The work is based on the analysis of the treatment results of 55 victims with thermal injuries (25 women and 30 men) aged 10 to 60 years, who were treated in the Combustiology Department of the Samarkand branch of the Russian Scientific Center for Emergency Medical Care in the period 2010-2020. The clinical assessment included the following criteria: amount and nature of discharge; wound bleeding; timing of epithelialization of donor sites, transplanted autodermografts; completeness of epithelialization; severity of wound pain. Local single application of the hemostatic drug Geprocel to the wound during autodermoplasty promotes rapid adhesion of the graft, ensures rapid and complete engraftment of skin flaps.

Key words: Geprocel, surgical necrectomy, autodermoplasty, hemostatic agents, traumatic surgery, carboxymethyl cellulose, oxycellulose, nanocellulose.

Relevance. A new approach to solving the problem of treating widespread deep burns was based on plastic closure of burn wounds with grafts of cultured human allofibroblasts in combination with perforated 1:6 or 1:8 mesh flaps of autoskin. The pathogenetic essence of this technique is determined by the stimulating effect of transplanted fibroblasts on the proliferation of epidermocytes that have survived in the wound and those that are in the mesh flaps of autoskin. Such an effect causes an acceleration of the engraftment processes of ADT with a high perforation coefficient due to the stimulation of the process of cell epithelialization [1-2]. Thermal injuries are a serious medical, social and economic problem. The development of heavy industry and the chemical industry, as well as the widespread use of electrical energy in everyday life and industry contribute to a significant increase in the frequency of burn injuries [1-4]. Burn injury is one of the most common traumatic injuries in the world. Thus, in the United States, almost 2 million people get burns annually; approximately 100,000 burns require hospitalization and approximately 5,000 cases are fatal. In Russia, burns were registered in 507.6 thousand people in 2020. In the Republic of Uzbekistan, about 6-8 thousand people per year suffer from burns per year out of 38 million people. Literature data indicate a stable number of victims with thermal trauma, the share of which is 5-12% among peacetime injuries. In the overall structure of injuries, burns occupy 2-3 place [12-15], while the proportion of deep burn injuries requiring mandatory surgical treatment is high [5-7]. The essence of surgical treatment of deep burns is to compensate for the defect of the skin formed as a result of their necrosis in one way or another [12-16]. Only transport injuries lead to more fatal cases than burns. Burns become especially dangerous for small children and the elderly. Two thirds of all cases of burn injury occur in everyday life. At

the same time, a characteristic feature is the increase in the group of patients with severe and extremely severe injuries. The contingent of burn victims has changed noticeably. Among adults in the burn department, there are many people without a fixed abode, conditionally employed, suffering from alcoholism, drug addiction and other asocial patients. Progress in medicine, including in combustiology, over the past three decades has led to an improvement in the survival rates of victims of deep and widespread burns. Thus, ten years ago, with injuries of 70-80% of the p.t. only a few survived, and now in this group of severely burned patients, significantly more patients survive. Improved results have become possible due to progress in resuscitation, the introduction of new surgical methods and technologies, the use of modern antibacterial drugs, nutritional and metabolic support. The most common method of restoring the integrity of the skin is free skin grafting. Plastic closure of a burn wound is preceded by its preparation, which consists of cleaning the wound from necrotic tissue and forming a bed favorable for the engraftment of grafts [18, 22]. Preparation of burn wounds for autodermoplasty can be carried out at different times, using different methods, differing in greater or lesser "aggressiveness". In all cases, the final stage is closure of the wound surface [19-21]. Historically, two main directions of surgical treatment of burns have developed: 1) autodermoplasty of granulating post-burn wounds after spontaneous rejection of necrotic tissue or chemical necrectomy; 2) early surgical necrectomy before the development of inflammation in the wound, followed by autodermoplasty [15-17]. Spontaneous rejection of dead tissue in deep burns leads to complete cleansing of the wound surface in 4-6 weeks. The long-term existence of a burn scab prevents the implementation of [25-26] autodermoplasty and promotes the development of purulent microflora in the burn wound.

Objective of the study. The local hemostatic drug "Geprocel" is used to improve the results of early necrotomy with autodermoplasty in patients with severe burns.

Materials and methods. The work is based on the analysis of the treatment results of 55 victims with thermal injuries 25 women and 30 men aged 10 to 60 years who were treated in the combustiology department of the Samarkand branch of the Russian Scientific Center for Emergency Medicine in the period 2010-2020 (Fig.1).

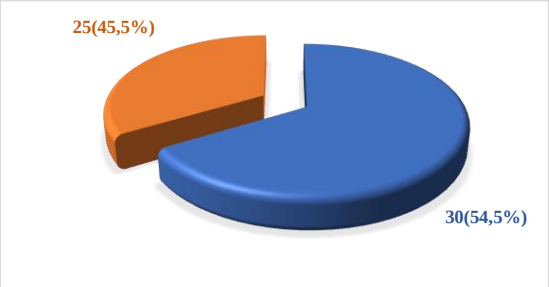

Fig. 1. Distribution by gender

In most cases, the cause of injury was fire 32 cases, burns from boiling water 15 cases, and contact burns 8 cases (Fig.2).

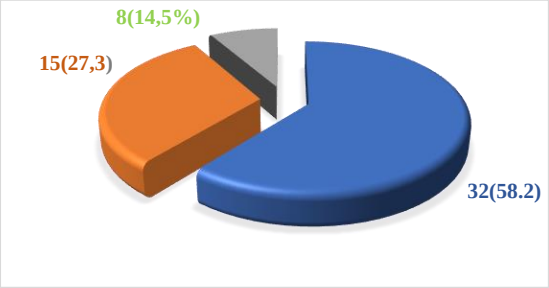

Fig. 2. Distribution by cause of injury

The total area of damage in patients ranged from 5 to 25% of the body surface, and deep burns of grade IIIb-IV up to 20%. All patients underwent early necrectomy to healthy tissues with the appearance of capillary bleeding with simultaneous autodermoplasty. Hemostasis was carried out with a hemostatic powder from cellulose derivatives, the drug "Geprocel" 10 mg of powder 2 times a day for 3 days.

A method has been developed for obtaining a composite biodegradable hemostatic agent "Geprocel" in the form of films based on purified sodium carboxymethyl cellulose (NaCMC), oxycellulose (OC), nanocellulose (NC) and chemically bound calcium ions. In the hemostatic agent "Geprocel" the content of components, in terms of dry matter, was NaCMC-53.54%, OC-29.28%, NC-3.89% and calcium chloride-12.30%. Biodegradable films of "Geprocel" with a thickness of 35-91 μm were obtained, their hemostaticity was 34 ±2 sec. Studies were conducted to determine acute and chronic toxicity, hematological and biochemical blood parameters of experimental animals. Based on the results of the studies, the possibility of using "Geprocel" in practical medicine was established.

Results. The clinical evaluation included the following criteria: amount and nature of discharge; wound bleeding; time of epithelialization of donor sites, transplanted autodermal grafts; completeness of epithelialization; severity of wound pain. The scope of surgical intervention performed on 35 patients with deep burns consisted of the use of the hemostatic drug Geprocel to stop bleeding after excision of necrotic skin and subcutaneous structures. Our studies have shown that early surgical necrectomy and taking split autografts from donor sites is accompanied by blood loss (6-10 ml of blood per area of 100 cm2), and after using the hemostatic powder "Geprocel" the bleeding completely stops and the wound surface takes on a shiny appearance due to the film adhered to it. Pain was insignificant. When closing the wound defect with a donor autograft, good adhesion of the skin flap to the underlying wound was noted. On examination the following day, no signs of skin graft necrosis were noted. The donor wound was also clean, no signs of infection or pain were noted.

On the 3rd day after the operation, the patients showed positive dynamics of skin graft healing. No discharge from the wound was detected. There were no signs of inflammation or wound infection at the donor site. On the 7th day after the skin transplant, the skin graft was perfectly engrafted, the suture line appeared as a clear thin line, without signs of redness or infiltration. The skin graft was soft, elastic, pale pink. No signs of infection were noted. The donor site was completely epithelialized, leaving a thin elastic scar without signs of hypertrophy. On the 12th day, the skin autograft was completely engrafted with complete restoration of the defect with minor contraction of the defect area. Thus, the use of the film form of the hemostatic agent "Geprocel" after necrectomy with subsequent autodermoplasty in all cases contributed to the complete healing of donor sites in patients on the 7th day, and the complete engraftment of the skin autograft with complete restoration of the defect by the 12th day after surgery.

Conclusions.

1. The use of the drug Geprocel during autodermoplasty after early necrectomy provides complete hemostasis and reduces the severity of wound pain.

2. Local single application of the hemostatic drug Geprocel to the wound after necrectomy during autodermoplasty promotes rapid adhesion of the graft, ensures rapid and complete engraftment of the skin flaps.

3. Studies have shown that the use of the biological implant "Geprocel" to provide aero- and hemostasis in deep skin burns reduces additional extirpation from 38.2% to 11.4%, and additional extirpation in multiple burns from 29.4% to 5%. decreased by 7% ($\chi 2 = 7.706.$, $Df = 2$; $P = 0.021$).

4. In case of thermal inhalation injuries, the time for implant application, aero- and hemostasis was reduced from 32.8±2.5 to 12.5±1.2 min ($P<0.001$), and the total duration of the operation was reduced from

135.6±6.1 to 107.2±4.7 minutes (P<0.001), and the duration of the patient's hospital stay was reduced from 12.1±0.4 to 10.7±0.2 days (P<0.01).

References

1. Карабаев Х.К. и др. Методы подготовки глубоких ожоговых ран к аутодер- мопластике //Актуальные проблемы термической травмы. Материалы междунар. конф. СПб, 2002. С. 303-305.
2. Умедов Х. А. Оценка профилактики и эффективности артрита у ожоговых пациентов с использованием низкочастотного лазерного света //Science and innovation. – 2024. – Т. 4. – №. 2. – С. 16-21.
3. Умедов Х. А., Муродова Р. Р. ЛЕЧЕНИЕ ПОЛИОРГАННОЙ НЕДОСТАТОЧНОСТИ У БОЛЬНЫХ ТЕРМИЧЕСКОЙ ТРАВМОЙ //Research Focus International Scientific Journal. – 2023. – Т. 2. – №. 6. – С. 309-316.
4. Умедов Х. А. ОСТРЫЙ ГНОЙНЫЕ ВОСПАЛЕНИЯ СУСТАВОВ ПРИ ОЖОГАХ БОЛЕЗНИ (Обзор литературы) //Boffin Academy. – 2024. – Т. 2. – №. 2. – С. 10-17.
5. Умедов Х. А. и др. ПРИНЦИПЫ КОНСЕРВАТИВНОГО ЛЕЧЕНИЯ БОЛЬНЫХ С ПОВРЕЖДЕНИЯМИ ПЕЧЕНИ И СЕЛЕЗЕНКИ ПРИ ЗАКРЫТОЙ ТРАВМЕ ЖИВОТА //Journal the Coryphaeus of Science. – 2024. – Т. 6. – №. 1. – С. 444-445.
6. Турсунов Б.С., Карабаев Х.К. Патоморфологические изменения в органах больных при термоингаляционной травме //Сборник научных трудов I съезда комбустиологов России, 2005. С. 209.
7. Умедов Х. А. МЕТОД ХИРУРГИЧЕСКОГО ГЕМОСТАЗА ПРИ СОЧЕТАННОЙ ТРАВМАХ ПАРЕНХИМАТОЗНЫХ ОРГАНАХ БРЮШНОЙ и ПОЛОСТИ (ЛИТЕРАТУРНЫЙ ОБЗОР) //Journal the Coryphaeus of Science. – 2024. – Т. 6. – №. 2. – С. 28-35.
8. Умедов Х. А. Оценка профилактики и эффективности артрита у ожоговых пациентов с использованием низкочастотного лазерного света //Science and innovation. – 2024. – Т. 4. – №. 2. – С. 16-21.
9. Умедов Х. А. ОСТРЫЙ ГНОЙНЫЕ ВОСПАЛЕНИЯ СУСТАВОВ ПРИ ОЖОГАХ БОЛЕЗНИ (Обзор литературы) //Boffin Academy. – 2024. – Т. 2. – №. 2. – С. 10-17.
10. Турсунов Б.С. и др. Патоморфологические изменения в органах дыхания при термоингаляционной травме //Сборник научных трудов, 2005. Т. 1. С. 209.
11. Умедов Х. А., Раджабов Ф. Г. ЛЕЧЕБНЫЕ ВОЗМОЖНОСТИ ЛАПАРОСКОПИИ ПРИ ЗАКРЫТОЙ ТРАВМЕ ПЕЧЕНИ //Research Focus International Scientific Journal. – 2023. – Т. 2. – №. 6. – С. 317-321.
12. Умедов Х. А., Муродова Р. Р. ЛЕЧЕНИЕ ПОЛИОРГАННОЙ НЕДОСТАТОЧНОСТИ У БОЛЬНЫХ ТЕРМИЧЕСКОЙ ТРАВМОЙ //Research Focus International Scientific Journal. – 2023. – Т. 2. – №. 6. – С. 309-316.
13. Alisherovich U. K. SHOW THE EFFECTIVENESS OF A STAGED SURGICAL METHOD FOR SEVERE LIVER DAMAGE //THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH. – 2023. – Т. 2. – №. 13. – С. 139-148.
14. Jamshid S., Ravshan S. Accompanying defects of development in children with congenital cleft of lip and palate //European science review, 2017. № 1-2.

15. Alisherovich UK va boshqalar. Jigarning og'ir shikastlanishida ko'p bosqichli jarrohlik taktikalarining samaradorligini baholash // Tadqiqot mavzusi. – 2023. – T. 2. – №. 1. – S. 312-318.
16. Sayit I. Damages to hypothalamus vessels in various types of blood loss on the background of acute alcohol intoxication //European science review, 2016. № 7-8.
17. Alisherovich U.X. KUYISH PAYTIDA BO'G'IMLARNING YIRINGLI YALLIG'LANISHI (adabiyotlarni sharhi) //Research Focus. – 2024. – T. 3. – №. 5. – S. 71-75.
18. Alisherovich U. K. SHOW THE EFFECTIVENESS OF A STAGED SURGICAL METHOD FOR SEVERE LIVER DAMAGE //THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH. – 2023. – T. 2. – №. 13. – C. 139-148.
19. Slepov V.P. et al. Use of ethonium in the combined treatment of suppurative and inflammatory diseases in children //Klinicheskaia khirurgiia, 1981. № 6. C. 78.
20. Alisherovich U. K., Rashidovich S. H., Ugli K. Y. E. OUR EXPERIENCE IN CONSERVATIVE TREATMENT OF SPLEEN INJURY IN CLOSED ABDOMINAL TRAUMA //Research Focus. – 2023. – T. 2. – №. 1. – C. 319-325.
21. Aminov Z., Haase R. & Carpenter D., 2011. The Effects of Polychlorinated Biphenyls on Lipid Synthesis. Epidemiology. 22 (1). S. 298-S. 299. Alisherovich U.X. KUYISH PAYTIDA BO'G'IMLARNING YIRINGLI YALLIG'LANISHI (adabiyotlarni sharhi) //Research Focus. – 2024. – T. 3. – №. 5. – S. 71-75.
22. Alisherovich U. K. НАШ ОПЫТ КОНСЕРВАТИВНОГО ЛЕЧЕНИЯ ПОВРЕЖДЕНИЯ СЕЛЕЗЕНКИ ПРИ ЗАКРЫТОЙ ТРАВМЕ ЖИВОТА //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2023. – T. 8. – №. 4.
23. Alisherovich X.U. Qorin bo'shlig'ining kombinatsiyalangan shikastlanishi uchun endovideolaparoskopiyaning diagnostika va terapevtik imkoniyatlarini yaxshilash. //Tadqiqot yo'nalishi. – 2024. – T. 3. – №. 3. – S. 95-99.
24. Kasimov S. et al. Haemosorption in complex management of hepatargia //The International Journal of Artificial Organs, 2013. T. 36. № 8.
25. Alisherovich U. K., Rashidovich S. H., Ugli K. Y. E. OUR EXPERIENCE IN CONSERVATIVE TREATMENT OF SPLEEN INJURY IN CLOSED ABDOMINAL TRAUMA //Research Focus. – 2023. – T. 2. – №. 1. – C. 319-325.
26. Umedov N. B. et al. ОПЫТ ЛЕЧЕНИЯ ПОВРЕЖДЕНИЙ ПАРЕНХИМАТОЗНЫХ ОРГАНОВ БРЮШНОЙ ПОЛОСТИ ПРИ СОЧЕТАННОЙ ТРАВМЕ.
27. Indiaminov S.I. Morphological features of the human brain in different variants of fatal blood loss on the background of alcohol intoxication //Herald of Russian State Medical University. Moscow, 2011. № 5. C. 63-66.