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NEW COMPLEX METHODS OF TREATMENT OF GUNSHOT WOUNDS

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Annotation: The number of young and mature fibroblasts increased in comparison with the previous period and the control group. Smears-prints recorded single altered neutrophils, accumulation of detritus, which was lower in comparison with the previous period, microflora was rarely detected.

Relevance. Despite the use of the most modern methods of treatment in armed conflicts, surgical infectious complications were observed in gunshot wounds of the extremities up to 30% Gunshot wounds are contaminated, massive soft tissue injuries are observed and lead to severe infectious complications that require the development of new complex treatment methods, Mainly lymphogenic spread of infection leads to the formation of wound abscesses, phlegmon, severe wound edema and sepsis. In this regard, the methods of endolymphatic antibiotic therapy and stimulation of lymphatic drainage of the Target are of particular relevance. Improving the results of treatment of gunshot wounds .

Material and methods. We examined 37 victims with various purulent-septic complications of gunshot wounds. This group of patients consisted of patients brought from subfilials, where they underwent wound repair and treatment with conventional traditional methods. The distribution of patients by fracture localization was as follows: in the main group at the hip level – 5, shin – 12, shoulder – 4, forearm – 4, in the control group at the hip level – 3, shin – 5, shoulder – 2, forearm in 2 wounded. The age of the wounded ranged from 18 to 58 years. The limitation period of the received gunshot wounds is from 16 to 56 days. In 8 (21%) of the wounded, multiple combined injuries were detected, in 29 (78.4%) only one segment was damaged. There was a variation in the nature of microbial complications. Five of the wounded (13.6%) had purulent-resorptive fever, four (10.9%) had septicemia and a local purulent-necrotic process. Purulent foci caused a wave-like course of the process with an intermittent type of fever, which lasted at least 7 days after the opening of the pus focus, in combination with pronounced functional disorders. The blood is sterile, bacteriological studies are negative. Septicemia developed in 4 (10.9%) patients. The general condition of these patients was severe, severe fever, the activity of many organs was disrupted andprogressed, despite active antimicrobial therapy. Many (n-28) had purulentnecrotic changes at the wound site, which were putrefactive in nature.

The patients were depressed, there was drowsiness, dryness and lifelessness of tissues on the surface of the wound, a plaque of dirty brown or dirty green color. These colors then acquired a muddy-dirty color, with abundant exudate release, in rare cases, a small number of foamy gas bubbles within the wound. Fluctuation of body temperature in the range from 36.6 to 38C, pain syndrome was expressed slightly. It should be noted that in the conditions of subfilials, some patients (n-13, 35.1%) did not undergo radical primary surgical treatment of the wound: 10 (27%) were limited only to dissecting the wound and applying primary sutures to the skin. In addition, five patients (13.6%) underwent primary osteosynthesis unstable, and nine (24.4%) intervention is not adequate enough. The main objective of the treatment of infectious complications is the correction of homeostasis, timely elimination of the purulent process in the wound by repeated surgical intervention, which significantly reduces the risk of secondary complications. Secondly, the impact on pathogenic microorganisms with the help of LTA with radar, stimulation of immunity, adequate fixation of the fracture with the help of an external fixation device, rehabilitation measures. This was tested on 25 patients of the main group. The purulent wound was surgically treated in two directions – extensive dissection with the opening of purulent lumps and pockets, which included radical excision of all necrotic, pus-soaked and non-viable tissues, creating conditions for subsequent drainage of the wound. As a result of purulent intoxication with infectious complications, persistent homeostasis disorders occur. This is manifested in the violation of carbohydrate, protein, water-salt and acid-base balance. Therefore, in the pathogenesis of treatment, it is necessary to carry out adequate correction of multiple organ failure, which should include detoxification and substitution therapy: restoration of waterelectrolyte and protein composition. It is necessary to use parenteral nutrition preparations and improve microcirculation. Assuming that anaerobic infection may be present in gunshot wounds with infectious complications, we prescribed ceftrakson, a broad-spectrum antibiotic. In the main group, we prescribed ceftrioxone 1.0 lymphotropically with radar once a day, for 5-7 days, depending on the severity of the disease. The fragments were fixed with the Ilizarov external fixation device. At the same time, the drainage was flushed with antiseptic solutions. Antiseptics and watersoluble ointments were also used during daily dressings. In this case, the control group included 12 patients with identical complications of gunshot wounds who underwent complex treatment and antibacterial therapy in the traditional way.

Results and discussions. LAT with radar are multifunctional and favorably influenced both the general condition of patients and the course of the wound process. The very next day, 41.7% of patients had an improvement in their general condition, lethargy and adynamia, vegetative phenomena, and the effects of intoxication disappeared. The respiratory rate decreased from 25.8 ± 0.1 to 24.6±0.1 per minute ($p<0.001$). On the 3rd day, this indicator was already 23.1±0.1 ($p<0.001$). A significant positive effect of the complex treatment of LTA with radar is expressed in peripheral blood indicators. From the first day, lymphocytes increased, leukocytes fell significantly, the functions of the main detoxification systems of the body changed for the better. This was objectively evidenced by liver indicators: total bilirubin fell to 20.2-1.7 mk.mol (was 34.27±2.23), total protein increased to 64.1 ± 2.1 from the initial values of 54.8±2.3 ($P<0.01$). Residual nitrogen decreased to 30.1 ± 4.2mg% from the initial value of 46.7 ± 3.2mg%.To monitor the condition of the wound, in parallel with determining the level of MSM in the blood plasma of patients, the value of PC was determined, which is an important test in determining the nature of the course of purulent processes and wound healing. Thus, in patients of the main group with LT radar, as a result of the treatment, the concentration of MSM decreased to 0.425±0.043-0.312± 0.046 CU for 5-7 days (Table.1), the PC increased and amounted to 1.09 ± 0.10 cu. More significant shifts were noted on day 9. At the same time, the content of MSM decreased to 0.252± 0.058 ($p<0.05$)., PC increased to 1.14± 0.15 cu.. On day 12, the concentration of MSM decreased to 0.269±0.020 cu ($p<0.05$), the PC reached normal values - 1.21 ±0.16 cu. In patients of the control group, a significant decrease in MSM was noted only on day 9, when it decreased, but was still higher than normal values of 0.410 ±0.053 cu.E. ($p<0.05$). On day 12, the difference in comparison with the baseline indicators remained high and amounted to 0.380±0.051 ($p<0.01$). The value of the PC by 7-9 days increased to 0.88± 0.11-1.00 ± 0.1 CU, and on day 12 1.05 ± 0.12, but did not reach normal values The statistics clearly show in figures the positive effect of our treatment method on the immune status. T and B lymphocytes were stimulated, the level of M and G increased in contrast to patients in the control group, where even after wound healing, immunosuppression did not disappear.

In the group of wounded, where lymphotropic antibiotic therapy with radar was performed, positive dynamics of wound healing was noted already on the 5th day, which manifested itself in a decrease in the latter in size, the appearance of finegrained granulations. The early suturing of the wound, as well as the ability to perform autodermoplasty, was the result of the performed LTA with radar. In the

wounded of the control group, signs of inflammation and the presence of purulent discharge in the wound did not disappear even on the 6th day of treatment. Wounds in this group remained deep enough and were covered with purulent-necrotic films on day 6, granulations appeared on 6.4 ± 0.7 days, and wound healing was observed on 27.8 ± 1.6 days. On the 5th day of the smear-fingerprint study in patients of the main group, it was noted that the number of altered neutrophils was small 14.1±1.9. Compared with the control group, neutrophils in a state of phagocytosis, mononuclear immature elements, macrophages and fibroblasts in small amounts were found more. Microflora, fibroblast and detritus filaments were determined in moderate amounts. The initial period of repair was indicated (day 7) by a significant increase in the number of immature mononuclear elements and macrophages, and this was a sign of a favorable course of the disease. The number of immature mononuclear elements and macrophages decreased on day 9, and vice versa, the number of young and mature fibroblasts increased. The number of young and mature fibroblasts increased in comparison with the previous period and the control group. Smears-prints recorded single altered neutrophils, accumulation of detritus, which was lower in comparison with the previous period, microflora was rarely detected. The observations showed a positive dynamics of the wound process on day 11-12, which was confirmed by the growth of elements of a number of fibroblasts and their mature forms. On the 3-5 day of treatment in the main group, the percentage of altered neutrophils and the amount of microflora decreases, neutrophilic and macrophage phagocytosis is present, the elements of repair also increased and they intensively matured and differentiated. The amount of microflora and sensitivity to antibiotics were determined by standard methods. St aureus played a leading role in bacterial complications of gunshot wounds. It was isolated both as a monoculture and in association (51.7%) with other microorganisms. Among them, 16.2% - PS aeruginosa (Pseudomonas aeruginosa), 12.9% - Pr vulgaris (Vulgar proteus) and in equal shares of 9.6% - B.fragilis (Bacteroides fragilis) and E colli (E. coli). The number of microbes (the total number of all types of microorganisms) in 1 g of tissue from the wound is 107- 109 degrees. After surgical treatment in the main group where LAT with radar was used, bacterial contamination with microorganisms decreased to 103-105 already on day 5-6. In the future, the decrease in the number of microbesdecreased to 103, below the critical level. In the control group, identical indicators were observed in patients only on the 17th-18th day of treatment. The positive result of the complex treatment we used in patients of the main group was objectively expressed in the cleansing and granulation of the wound, which

led to complete healing on the 18th-19th day. Starting from the 6-7 day of complex therapy, nineteen patients received primary delayed sutures in parallel, and six underwent free autodermoplasty. No complications were detected. The recovery of patients in the main group was 100%. Good results in terms of functional recovery were recorded in 20 patients. The severity of the injury affected various disorders of limb function. 2 patients had defects in bone diaphyses, and one of them additionally had damage to the capsular apparatus and joint-forming surfaces of bones. They underwent repeated operations in the longterm follow-up. Four patients with a bone defect underwent bone autoplasty and extramedullary osteosynthesis. All patients had positive results.

Conclusion. Early and rapid delivery of the wounded in a military-urban situation and the use of regional lymphotropic antibiotic therapy and lymphostimulation make it possible to make adjustments to the tactics of managing patients with gunshot wounds, which consists in providing a completed cycle of treatment of victims by applying a primary suture and the use of primary osteosynthesis. In case of admission of the wounded to the regional units of the EMF system, it is advisable to use the principle of "Damage control" (emergency service) aimed at temporarily stopping bleeding, immobilization of limbs, anti-shock measures and evacuation of victims to the regional EMF center to provide specialized assistance. Therefore, based on the data of clinical, microbiological and cytological analyses, we can conclude with a high degree of probability that the proposed complex therapy of LTA with radar for infectious complications of gunshot wounds of the extremities is justified from the point of view of pathogenesis. The nature of the action of LTA with radar is explained by the fact that penetrating quickly into the lesion, the maximum concentration of the drug in the blood and soft tissues is maintained for a long time. RADAR allows you to relieve swelling, improve lymph circulation and microcirculation, which stimulates local metabolism, improves tissue trophism and reparative processes in the area of commotion. Due to this, the complex treatment proposed by us has a positive effect on the key basic links of the pathogenesis of gunshot wounds and their infectious complications and has proven to be an effective method in the treatment of this severe pathology.

Literature:

1. Andijan today. Tashkent.: Uzbekistan; 2006: 183. Andijan segodnya. Tashkent.: Uzbekistan; 2006. 183. (In Rus.).

2. Artemyev A.A., Smirnov A.V., Ivashkin A.N., etc. Minimally invasive osteosynthesis of long tubular bones in patients with multiple fractures. Military

Medical Journal (VMJ). 2009;12: 41-43. Artem'ev A.A., Smirnov A.V., Ivashkin A.N. i dr. Maloinvazivnyj .osteosintez dlinnyh trubchatyh kostej u postradavshih s mnozhestvennymi perelomami. Voenno-med. zhurnal (VMJ). 2009;12: 41-43. (In Russ.). eLIBRARY ID: 22289572 EDN: STTVKH

3. Akhmedov B.A., Tikhilov R.M., Shubnyakov I.I., etc. Treatment of intraarticular gunshot injuries of large joints of the limb. Traumatology and orthopedics of Russia. 2008; 2: 5-13. Ahmedov B.A., Tihilov R.M., Shubnyakov I.I. i dr. Lechenie vnutrisustavnyh ognestrel'nyh povrezhdenij krupnyh sustavov konechnosti. Travmatologiya i ortopediya Rossii. 2008; 2: 5-13. (In Russ.). eLIBRARY ID: 12364599 EDN: KKOYGZ

4. Beschastnykh V.V., Maramokhin V.N. A new method of active treatment of purulent soft tissue wounds. News of higher educational institutions. Medical sciences. 2010; 3: 17-22. Beschastnyh V.V., Maramohin V.N. Novyj sposob aktivnogo lecheniya gnojnyh ran myagkih tkanej. Izvestiya vysshih uchebnyh zavedenij. Medicinskie nauki. 2010; 3: 17-22. (In Russ.). eLIBRARY ID: 15520596 EDN: NBQOPZ

5. Badalov V.I., Zhumanazarov B.Ya., Ozeretskovsky L.B., Grebnev D.G., Golovko K.P., Samokhvalov I.M. Features of modern peacetime gunshot wounds in a large city. Emergency medical care.2016;17(2):49-56. Badalov V.I., Zhumanazarov B.YA., Ozereckovskiy L.B., Grebnyov D.G., Golovko K.P., Samohvalov I.M. Osobennosti sovremennyh ognestrel'nyh ranenij mirnogo vremeni v usloviyah krupnogo goroda. Skoraya medicinskaya pomoshch'.2016;17(2):49-56. (In Russ.). https://doi.org/10.24884/2072-6716- 2016-17-2-49-56 6. Bryusov P.G., Samokhvalov I.M., Petrov A.N. Problems of military field surgery and injury surgery in the program of the 47th World Congress of Surgeons. VMZH. 2018; 2:93-9

6. Bryusov P.G., Samohvalov I.M., Petrov A.N. Problemyi voenno-polevoy hirurgii i hirurgii povrejdeniy v program 47-go Vsemirnogo kongressa hirurgov. VMJ. 2018; 2:93-96. (In Russ.). eLIBRARY ID: 32825385 EDN: YWMQJG

8. Gumanenko E.K., Samokhvalov I.M. Military field surgery of local wars and armed conflicts.: Geotar-media. 2011:672 Gumanenko E.K., SamohvalovI.M.Voenno-polevaya hirurgiya lokal'nyh vojn i vooruzhennyh konfliktov.: Geotar-media; 2011:672eLIBRARY ID: 23787559 EDN: UAOCZD

9. Dzhumabaev E.S. Gunshot injury of extremities in emergency situations. Andijan: Sprint; 2017: 218. Dzhumabaev E.S.Ognestrel'naya travma konechnostej v chrezvychajnyh situaciyah. Andizhan: Sprint; 2017: 218.

10. Kotiv B.N., Samokhvalov I.M., Badalov V.I., Singaevsky A.B., Panov V.V. Explosion of a military hospital in Mozdok (2003):surgical lessons of a terrorist act. Almanac of the Vishnevsky Institute of Surgery.2016;2:157-158.[Kotiv D.N., Samohvalov I.M., Badalov V.I., Singaevsky A.B., Panov V.V. The explosion of the millitari hospital in Mozdok(2003): surgical of the terrorist attack. Al'manah Instituta hirurgii im. A.V. Vishnevskogo. 2016; 3: 157-158. (In Russ.).]

11. Petrovsky B.V. Selected lectures on military surgery (military field and military-urban surgery).M.:Medicine; 1998: 112. Petrovskiy B.V. Izbrannye lekcii po voennoj hirurgii (voenno- polevaya i voenno- gorodskaya hirurgiya). M.:Medicina;1998: 112. (In Russ.).

12. Rozinov V.M., Goncharov S.F., Petlakh V.I. Lessons of Beslan: organizational and clinical aspects. Almanac of the A.V. Vishnevsky Institute of Surgery.2016; 2: 136-138.[Rozinov V.V., Goncharov S.F., Petlakh V.I. Lessons of Beslan: organizationaland clinical aspects. Al'manah Institute hirurgii im.A.V. Vishnevskogo.2016; 2: 123-138(In Russ.).]

13. Samokhvalov I.M., Badalov V.I., Petrov A.N., Golovko K.P., Severin V.V. Application of the principles of military field surgery in the surgery of injuries and assistance in terrorist acts. Almanac of the A.V. Vishnevsky Institute of Surgery. 2016; 2: 158-159.[Samokhvalov I.M., Badalov V.I., Petrov A.N., Golovko K.P., Severin V.V. Application of the principles of military surgery in the Surgery of gemages and assistance in terrorist attacks. Al'manah Institute hirurgii im. A.V. Vishnevskogo.2016; 2: 158-159. (In Russ.).]

14. Sokolov V.A. "Damage control" is a modern concept of treatment of victims with critical polytrauma. West. traumatology and orthopedics. 2005; 1: 81-84. Sokolov V.A. «Damage control»- sovremennaya koncepciya lecheniya postradavshih s kriticheskoj politravmoj. Vest. travmatologii i ortopedii. 2005; 1: 81-84. (In Russ.).

15. Eck K., Hultman L., One-sided violence against civilians in war: insights from new fatality date. Journal of Peace Research. 2007; 2(44): 233-246. 16. Emergency war surgery Ed T.E. Bowen, R.F.: Bellamy- US Department of Defense, Washington; 2018: 225.