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Change Of the Concept of Surgical Support For Wounded With Soft Tissue Defects at the Levels Of Medical Care

I.P. Khomenko[1], K.V. Gumenyuk[1], Korol S.O. [1], E.V. Tsema[1,2], V.V. Negoduiko[3] S.V. Tertishnyi[4], V.P. Maidanyuk[4], O.N. Popova[5], P.P. Yermuraki [6]

I.P. Khomenko[1], professor, doctor of medical sciences, hip65@ukr.net,
K.V.Gumenuk[1] , MD,PhD , gkv73@ukr.net *(067) 9763617*
S.O. Korol[1] , MD professor, doctor of medical sciences, sergej.korol72@gmail.com, (097) 690 9858 (050)3580279.
Ye. V. Tsema[1,2], professor, doctor of medical sciences, hemorrhoid@ukr.net, (063)7315995
V.V. Negoduiko [3], MD, professor, vol-ramzes13@ukr.net, (067)7593334
S. V. Tertyshnyi[4] , MD PhD, drug2008@ukr.net, (095)8122037
V.P. Maidanyuk [4], MD PhD, (067) 9503327
O. M. Popova [5] , MD, oksana.nikolaevna.popova@gmail.com, (095)7128008
P. P. Yermuraki [6], MD, PhD, archmage73@gmail.com, (063) 4257257
[1] National Military Medical Clinical Center of the Ministry of Defense of Ukraine, Kyiv City,
[2] National Medical University named after O.O. Bohomolets', Kyiv City
[3] Military Medical Clinical Center of the Nouthern Region . Ministry of Defense, Ukraine, City
[4] Military Medical Clinical Center of the Southern Region . Ministry of Defense, Ukraine, Odesa City
[5] Military Medical Clinical Center of the Eastern Region Ministry of Defense, Ukraine, Dnipro City
[6] Odesa National Medical University

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ABSTRACT: The aim : Improvement of the content and volume of medical care with the possibility of strengthening the first and second levels in order to bring surgical care closer to the combat zone, the introduction of differentiated surgical tactics for treating this category of wounded.

Materials and methods

By identifying thermographic areas with gunshot wounds of the soft tissues, we observed at the second level of medical care during 4 months of 2020 (from March to July) 37 cases.

Results : The introduction of the developed differentiated surgical tactics of medical care for the wounded with a multimodal approach to the reconstruction of soft tissue defects helped to reduce the proportion of complications of traumatic disease by 41.1%, the proportion of postoperative complications - from 48.6% to 21.3%, purulent destructive - from 21.5% to 14.3% and thromboembolic complications - from 2.3% to 0.9%, as well as reducing the duration of inpatient treatment by 9.3 ± 2.5 bed-days ($p < 0.05$).

Conclusions: Introduction of differentiated surgical tactics of providing medical care to servicemen of the Armed Forces of Ukraine with a multimodal approach to the reconstruction of soft tissue gunshot defects depending on the planimetric characteristics of wound defects and severity of injury using modern medical technologies in the summer of the Joint Forces , 1% to 8.6%.

Key words: gunshot defects of soft tissues, gunshot wounds, differentiated surgical tactics.

I. INTRODUCTION.

Scientific substantiation of the improved system of surgical care for the wounded with gunshot defects of soft tissues during the armed conflict has now acquired a new need. In the context of the Joint Forces operation in eastern Ukraine, the provision of surgical care, treatment and rehabilitation of the wounded with gunshot soft tissue defects using modern technology is one of the priorities of the state. An important direction in the development of the Armed Forces of Ukraine should be considered the transition of all key functions of the defense forces to NATO standards, including military medicine [2, 5, 6].

Aim of the work

Improving the content and scope of medical care with the possibility of strengthening the first and second levels in order to bring surgical care closer to the combat zone, the introduction of

differentiated surgical tactics for the treatment of this category of wounded.

II. MATERIALS AND METHODS

The analysis of domestic and foreign literature made it possible to formulate provisions that characterize the current state of the problem of organizing the provision of surgical care to the wounded with gunshot defects of soft tissues. There is an increase in the proportion of gunshot wounds with soft tissue defects in the structure of combat surgical trauma (6.9-35.9%), significant severity and the number of unsatisfactory results of treatment of the wounded, a high level of complications (9.3-81.0%) and mortality (6.3-39.3%). The organization of surgical care in the medical support system of the Armed Forces of Ukraine is insufficiently developed and needs further improvement. The analysis of the quality of surgical care at the initial stage of the Anti-Terrorist Operation showed the inefficiency of the existing system of medical care for the wounded with soft tissue defects. There is a need to improve the content and scope of medical care with the possibility of strengthening the first and second levels in order to bring surgical care closer to the combat zone, the introduction of differentiated surgical tactics for the treatment of this category of wounded [1, 3].

Thus, it becomes obvious that today there is no scientifically substantiated and improved system of providing surgical care to the wounded with gunshot defects of soft tissues in the conditions of modern armed conflict. The low efficiency of the existing system at the initial stage of the Anti-Terrorist Operation convincingly indicated the need to improve it. This determined the need and relevance of the study. Its essence is to theoretically generalize and substantiate the methodological principles of improving the provision of surgical care to the wounded with gunshot defects of soft tissues in modern combat in the experience of the Joint Forces operation.

Achieving the goal required the development of a special program, which involved its implementation in four organizational stages using adequate methods, each of which performed interrelated tasks, which allowed to provide a systematic approach to the study and obtain representative results for evaluating the object of study. In order to analyze the effectiveness of a sound, developed and improved system of surgical care from the total mass of the study, 342 wounded with gunshot defects of soft tissues were selected. The wounded were divided into 2 groups of comparison, depending on the medical-organizational and sorting-evacuation features of surgical care. To calculate the structure of the wounded, an analysis of comparison groups was performed, which revealed no statistically significant differences ($p>0.05$) by Chi-square ($\chi 2$) between comparison groups: age, sex, type and mechanism of injury, degree of blood loss, frequency shock, the severity of combat surgical trauma. An adequate and modern set of scientific methods was used to conduct the study to the extent that ensures the representativeness of the results. Planimetric characteristics of soft tissue gunshot defects, the universal AdTS scale, and the perfusion index were used to assess the severity of combat surgical trauma and to predict survival. The array of samples for study and analysis was representative, the methods and methodology of collection and analysis of information were adequate to the objectives of the study [5, 16].

During the complex scientific research the actual scientific problem of improving the quality of the medical system of the Armed Forces of Ukraine during the Joint Forces Operation on the basis of theoretical improvement and scientific substantiation of providing surgical care to servicemen with gunshot defects of soft tissues based on differentiated surgical tactics was solved, which as a result of implementation has proved its effectiveness. Based on the experience of the Joint Forces Operation in Eastern Ukraine, an improved system of surgical care for servicemen with gunshot defects of soft tissues at the level of medical care was scientifically substantiated, developed and implemented, taking into account planimetric and thermographic characteristics of injuries, severity, trauma shock and anatomical and functional changes in the body of the wounded [6, 7].

It was found that in the structure of sanitary losses of the surgical profile, the proportion of wounded with gunshot defects of soft tissues was 16.7%. The anatomical and functional characteristics of the localization of soft tissue defects were as follows: chest – 14.0%, abdomen – 7.0%, pelvis – 4.1%, limbs – 74.9%. In the structure of gunshot defects of soft tissues, ultra-large injuries accounted for 6.1%, large – 33.7%, medium – 60.2%. Clinical and epidemiological and clinical and anatomical studies have shown that in soft tissue defects wounded with gunshot defects, non-severe combat surgical trauma was 36.8%, severe – 45.7%, extremely severe – 17.5%. The cause of soft tissue defects in 45.6% of servicemen was shrapnel wounds, bullet wounds in 38.0%, and

mines in 16.4%. Isolated combat surgical trauma was found in 28.9%, multiple – in 44.2%, combined – in 26.9% of wounded with gunshot defects of soft tissues. Impermeable combat surgical trauma was diagnosed in 62.9% of the wounded, penetrating into the pleural cavity – in 17.4%, in the abdominal cavity – in 16.3%, in the pelvic cavity – in 3.4% of servicemen.

The improved system of medical support of the Armed Forces of Ukraine Scientifically was substantiated and implemented, the central element of which were the elements of developed and substantiated surgical tactics of medical care for the wounded with a multimodal approach to the reconstruction of gunshot defects of soft tissues with the definitive and differentiative approach, based on preventive and modern treatment measures [8, 11].

The classification of gunshot defects of soft tissues, complex assessment of the severity of combat surgical trauma based on the anatomical-functional scale (AdTS – Admission trauma score) and the perfusion index at the level of medical care was approved and implemented.

Based on the measurement of the linear size of the wounds, the methods of determining the area and volume of wound defects with their division into small (<2 cm2), medium (2-50 cm2), large (51-200 cm2) and ultra-large (>200 cm2) were substantiated, taking into account the anatomical areas of damage to the chest, abdomen, pelvis, limbs. Tactics of surgical treatment of injuries at the levels of medical support in accordance with the multimodal approach to the reconstruction of soft tissue defects were proposed and implemented, which allowed to improve the definition of medical and evacuation purposes for wounded with combat surgical trauma [9, 10, 17].

It was proved that in the wounded with a minor injury (STGD of medium size, AdTS<5 points, perfusion index>4%) it was necessary to perform a full range of surgical care with primary and final correction of the injury; with severe trauma (STGD large size, AdTS 5-9 points, perfusion index 2-4%) – reduced medical care. It was also shown that emergency or urgent surgical interventions should be performed after anti-shock measures and after stabilization of hemodynamic parameters. In case of extremely severe trauma (STGD of extra large size, AdTS>9 points, perfusion index<2%) surgical care should be provided by the technology of "injury control" – resuscitation surgery should be performed in a reduced volume in parallel with anti-shock measures up to the complete normalization of hemodynamics with damage correction [12, 13].

III. DISCUSSION.

The introduction of the developed differentiated surgical tactics of medical care for the wounded with a multimodal approach to the reconstruction of soft tissue defects helped to reduce the proportion of complications of traumatic disease by 41.1%, the proportion of postoperative complications – from 48.6% to 21.3%, purulent destructive – from 21.5% to 14.3% and thromboembolic complications – from 2.3% to 0.9%, plus the duration of inpatient treatment was reduced by 9.3±2.5 bed-days ($p<0.05$). It was proved that the introduction of differentiated surgical tactics of medical care at the level of medical care allowed to reduce mortality from 12.1% to 8.6%, which allowed to recommend its introduction in medical institutions of other ministries ($p<0.05$). At the same time, the results improved due to a decrease in the number of wounded who were discharged from the ranks of the Armed Forces of Ukraine from 57.4% to 31.3% and an increase in the proportion of wounded who were returned to the military unit from 42,6% to 68.7% ($p<0.05$) [14, 15, 16, 17].

CONCLUSIONS.

1. The qualitatively new subsystem of medical support of the Armed Forces of Ukraine was developed and substantiated, based on the improvement of the provision of surgical care to the wounded with gunshot defects of soft tissues in combat, which helped reduce the proportion of complications of traumatic illness by 41.1%.
2. Differentiated surgical tactics of providing medical care to servicemen of the Armed Forces of Ukraine with a multimodal approach to the reconstruction of soft tissue gunshot defects depending on the planimetric characteristics of wound defects and severity of injury using modern medical technologies were introduced, which helped reduce the lethality from 12.1% to 8.6%.
3. Improved methods of medical sorting of wounded with gunshot defects of soft tissues by the means of substantiation, development and implementation of a comprehensive assessment of the severity of combat surgical trauma upon admission of servicemen helped reduce the proportion of postoperative complications at the level of medical care– from 48.6% to 21.3%, purulent-destructive – from 21.5% to 14.3% and thromboembolic complications – from 2.3% to

0.9%, as well as reduce the duration of inpatient treatment by 9.3±2.5 bed-days ($p<0.05$).
There is no conflict of interest.

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