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BURN CENTER OF ST. PETERSBURG RESEARCH INSTITUTE OF EMERGENCY CARE NAMED AFTER I.I. DZHANELIDZE: PAST AND PRESENT

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annotation

Introduction: The development of combustiology in the Russian Federation is inevitably associated with the name of I.I. Dzhanelidze and the St. Petersburg Research Institute of Emergency Medicine named after I.I. Dzhanelidze, which is rightfully considered the cradle of combustiology in Russia.

Purpose of the study: The purpose of the study was to assess the historical aspects of the development of combustiology in Russia. 7

Material and methods: Historical-analytical, regulatory, and statistical methods were used.

Conclusion: Today the St. Petersburg Research Institute of Emergency Medicine named after. I.I. Dzhanelidze is the largest scientific, medical and educational center in Russia. Burn Center St. Petersburg Research Institute of Emergency Medicine named after. I.I. Dzhanelidze has decent potential for further development.

Keywords:burns, thermal injury, St. Petersburg Research Institute of Emergency Medicine named after I.I. Dzhanelidze

HOW TO QUOTE: Parfenov V.E., Krylov K.M., Zinoviev E.V., Barsukova I.M. Burn Center of the St. Petersburg Research Institute of Emergency Medicine named after. I.I. Dzhanelidze: past and present. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:6-12

OPTIMIZATION OF TREATMENT TACTICS FOR PATIENTS WITH BURNS AND NEW CORONAVIRUS INFECTION COVID-19

Authors

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annotation

Introduction. In 2019, the world learned about a completely new highly contagious viral infection - Covid 19, which left its mark on the lives of ordinary people and medicine in general. This event allows us to assess the readiness and performance of the healthcare system during the epidemic.

Purpose of the study: To summarize the results of treatment of victims with thermal injury and confirmed new coronavirus infection COVID-19, and to develop recommendations for preventing the spread of infection among patients and staff of burn departments.

Material and methods: The medical histories of patients hospitalized in the department of thermal injuries of the State Budgetary Institution "St. Petersburg Research Institute of Emergency Medicine named after. I.I. Dzhanelidze" from March 11 to December 31, 2020.

Conclusions: Infection of burnt people with the SARSCoV-2 virus is accompanied by an increase in mortality by more than 2.5 times, which is due not only to the severity of the new coronavirus infection, but also to difficulties in providing specialized medical care in hospitals repurposed for the treatment of COVID-19.

Keywords: burns, necrectomy, skin grafting, new coronavirus infection, COVID-19, SARS-CoV-2

HOW TO QUOTE: Manukovsky V.A., Zinoviev E.V., Wagner D.O., Krylov P.K., Kozulin D.A., Soloshenko V.V. and others. Optimization of treatment tactics for patients with burns and the new coronavirus infection COVID-19. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;2:13-19

ORGANIZATIONAL MODEL AND PRINCIPLES OF PROVIDING MEDICAL CARE TO VICTIMS OF BURN TRAUMA IN EMERGENCY SITUATIONS

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Rationale: Information on treatment and evacuation measures for 238 victims who received a combined thermal inhalation injury during a fire in Perm at the Lame Horse nightclub on December 4, 2009 was studied and analyzed. A model and principles for organizing the provision of medical care to victims of burn injury in emergency situations were proposed.

Purpose of the study: Based on an analysis of the organization of medical care for victims of burn injury during a large-scale fire, develop a model and determine the principles of organizing the provision of medical care in emergencies.

Conclusion: Providing specialized and high-tech medical care for the mass arrival of victims of severe burn injury is possible only in a multidisciplinary medical institution for providing emergency medical care.

Keywords:burn injury, emergency, medical care, evacuation

HOW TO QUOTE: Shapovalov S.G.., Zinoviev E.V., Krylov K.M. Organizational model and principles of providing medical care to victims of burn injury in emergency situations. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:20-29

EXPERIMENTAL STUDY OF THE EFFECTIVENESS OF USING PANTOLEN GEL FOR LOCAL TREATMENT OF BURNS

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annotation

Rationale: Studies have been conducted on the effect of drugs on the healing of burn wounds in an experiment after inflicting II–III degree burns. The speed of the healing effect of drugs applied to the affected areas of the skin was taken into account.

Result:A direct trend was identified that healing depended on the degree of burn damage, on the structure of the applied drug and on the condition of the animal. The tested drug “Pantolen”, a gel based on an aqueous extract from antlers, showed the best healing effect (complete healing of the burn on the 15th day), compared with the “D-Panthenol” ointment, where complete healing occurred on the 32nd day. The experimental system of Pantolen gel + sea buckthorn oil did not contribute to a faster healing effect, as expected (complete healing of the burn occurred on the 20th day). At the same time, the best therapeutic effect was observed in animals with II-III degree burns.

Keywords:thermal burn, healing, dressing, Pantolen, D-Panthenol, sea buckthorn oil.

HOW TO QUOTE: Ostrovsky N.V., Bystrova A.S., Musatskova M.V. Experimental study of the effectiveness of using Pantolen gel for local treatment of burns. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:30-33

CONDITION OF THE HEMOSTASIS SYSTEM IN PATIENTS WITH BURN TRAUMA DEPENDING ON OUTCOMES

Authors

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annotation

Target:assessment of changes in hemostatic system parameters in patients with severe burn injury depending on outcomes.

Materials and methods: Based on a prospective study of data from 63 patients with severe thermal injury (Frank index more than 30 units), an analysis of changes in the hemostatic system in 2 groups of patients was carried out: with a favorable prognosis (41 patients), group 2 - patients with an unfavorable outcome (22 patients). 25 practically healthy people were examined as a control group (normal). Patients were examined on days 1, 3 and 10 from the moment of injury. Standard indicators of the hemostatic system were studied using the integral test "Thrombodynamics".

Result:A statistically significant difference in the activity of antithrombin III, protein C and D-dimer was revealed between groups during the entire observation period. A decrease in antithrombin III activity of less than 75% is a predictor of unfavorable outcome. Using the "Thrombodynamics" test, differences between both groups were assessed using a specially introduced coefficient, which is determined by the formula K = (Vst x 100)/ D. When a value of K>0.25 is obtained, an unfavorable outcome is predicted - from 4 to 10 days, with obtaining a K value of 0.1-0.2 predicts a favorable outcome in patients with severe thermal injury (RF Patent 2738303).

Keywords:burns, hemostasis, unfavorable outcome

HOW TO QUOTE: Klychnikova E.V., Tazina E.V., Borisov V.S., Bogdanova A.S., Vuymo T.A. The state of the hemostatic system in patients with burn injury depending on the outcome. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:34-41

DIVERSITY OF MICROBIAL COMMUNITIES OF BURN WOUNDS

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annotation

Introduction: The inflammatory process in the burn area is one of the main causes of local and general infectious complications. The microflora of burn wounds is distinguished by species polymorphism, associative nature, and the predominance of opportunistic microorganisms (OPM). Constant changes in the bacterial ecosystem of burn hospitals maintain the relevance of bacteriological research.

Purpose of the study:investigate the microbiocenosis of a burn wound using indices of species diversity.

Material and methods: The study of wound discharge was carried out in accordance with current regulatory documents for clinical diagnostic laboratories of medical institutions (HCI) [9]. Material was collected from the wound in compliance with aseptic rules. The skin around the wound was treated with an antiseptic, necrotic masses were removed, the material was taken using a sterile swab, using circular rotational movements from the center of the wound to the periphery.

Conclusions: The microbiocenosis of a burn wound has a pronounced species diversity and is distinguished by its associative nature; microbial combinations are very diverse.

Keywords:burn, microflora, infection, ESKAPE pathogens.

HOW TO QUOTE: Mitryashov K.V., Sharkova V.A., Usov V.V., Maksema I.G., Griban P.A. Diversity of microbial communities in burn wounds. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:42-46

DISORDERS OF BONE MARROW HEMOPOISIS IN SEVERELY BURNED PATIENTS

Authors

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Introduction: Treatment of severely burned patients and their rehabilitation remain a pressing medical problem, and therefore new diagnostic, therapeutic and preventive methods are being developed. One of the promising directions for solving this problem is the study, preservation and correction of bone marrow hematopoiesis.

Purpose of the study:improving the results of treatment of patients with severe thermal injury by studying the state of bone marrow hematopoiesis and correcting identified disorders.

Material and methods:53 patients were examined (37 men and 16 women; average age 34(18;56) years) with a total damage area of 43(17;63)% and an area of deep burns of 17(13;27)% of the body surface. Flame burns predominated (40 cases or 75.5%). The average Frank index was 74(62;89) units. The number of blood cells and the main populations of leukocytes was determined upon admission, on days 1, 3, 5, 10 and 20 of burn disease. Bone marrow puncture was performed upon admission (1-3 days after the burn), on days 5 and 10 of burn disease. Smears were prepared from the sternal punctate for microscopic examination. The myelogram assessed the cellularity of the bone marrow as a whole and individual hematopoietic germs, and the nature of cell maturation.

Results: Disorders of bone marrow hematopoiesis and ways of their correction have been identified.

Conclusion: Early initiation of pathogenetic treatment provides support for adaptive mechanisms and makes it possible to deploy long-term adaptation mechanisms, which will prevent the depletion of the body's reserve capabilities.

Keywords:burn injury, bone marrow hematopoiesis, intensive care

HOW TO QUOTE: Orlova O.V., Pivovarova L.P., Merkulova E.V., Osipova I.V. Disorders of bone marrow hematopoiesis in severely burned patients. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:47-53

COMPARISON OF EXISTING METHODS FOR DETERMINING INTRAOPERATIVE BLOOD LOSS WHEN PERFORMING SURGICAL NECRECTOMY IN PATIENTS WITH DEEP BURNS

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annotation

Introduction: The priority method of treating victims with deep burns is radical excision of dead tissue with immediate closure of the resulting wound defects with split skin grafts. The main factor limiting the use of this pathogenetically based technique is the significant amount of intraoperative blood loss. The amount of expected blood loss plays a significant role when planning surgical treatment of burned patients.

Purpose of the study:to evaluate and compare the results obtained by various methods for determining the volume of blood loss when performing early surgical necrectomy with simultaneous skin grafting with split grafts in patients with deep burns.

Material and methods: Our study included 12 victims with burns covering 20% of the body surface. All patients underwent fascial surgical necrectomy with simultaneous plasty with split perforated skin grafts in the period from 2 to 5 days after the burn. When assessing the volume of intraoperative blood loss, the following methods were used: visual, empirical and calculated.

Results: We obtained the minimum values of lost blood based on the results of a visual assessment. The maximum rates of blood loss in the same clinical cases were identified using calculation methods. In 6 out of 12 patients, the difference between the minimum and maximum results obtained using various methods was more than 1000%.

Conclusion:A comparison of the listed methods for determining intraoperative exfusion indicates significant variability in the results obtained, which casts doubt on their reliability. To obtain representative results, it is necessary to create formulas that will take into account not only the dynamics of laboratory parameters, but also the characteristics of the surgical intervention performed, the volume of infusion and transfusion therapy, anthropometric data and other variables that directly depend on the volume of blood lost.

Keywords:burns, burn disease, bleeding, volume of blood loss, necrectomy, skin grafting, hemodilution.

HOW TO QUOTE: Zinoviev E.V., Vagner D.O., Chukharev A.E. Comparison of existing methods for determining intraoperative blood loss when performing surgical necrectomy in patients with deep burns. Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:54-6

PREDICTING THE DEVELOPMENT OF PATHOLOGICAL SCAR TISSUE AT THE STAGE OF TREATMENT OF BURN INJURY

Authors

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annotation

Purpose of the study:to establish a connection between the perfusion indicator (M) of the burn defect zone at the stage of treatment of burn wounds and the development of the type of pathological scar tissue of various origins during the period of convalescence. A study of burn wounds and scar deformities was carried out in 25 patients with thermal injury in the postoperative period and the period of convalescence during the year. The values of perfusion of burn defects were determined using laser Doppler flowmetry, which are informatively significant for predicting the outcomes of treatment of burn wounds.

Results:if the perfusion rate is below 4 PU or above 10 PU, then a high risk of developing pathological scar tissue is predicted; if the perfusion rate varies between 4 and 10 PU, then the risk of developing pathological scar tissue is minimal. The perfusion indicator is an important criterion for the selection of early preventive measures and specialized treatment of burn defects in order to reduce the likelihood of developing pathological scars and, as a result, obtain good cosmetic and functional effects. Based on the results of the study, methods have been developed to prevent the development of pathological scar tissue.

Keywords:deep burns, prediction of scar type, scars, microcirculation, laser Doppler flowmetry, burn wounds, outcome of burn treatment

HOW TO QUOTE: Yurova Yu.V. Prediction of the development of pathological scar tissue at the stage of treatment of burn injury Journal. "Emergency surgery named after. I.I. Dzhanelidze". 2021;1:62-67

INNOVATIVE TECHNOLOGY OF FREE SKIN TRANSPLANT WITH A SPLITTED PERFORATED GRAFT WITH AN ADDITIONAL EPITHELIZATION LINE (according to V.A. MENZUL)

Authors

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annotation

Purpose of the study:to evaluate the effectiveness of the treatment system for deep burn wounds during autodermoplasty with mesh grafts with a bridge in a rhombus using a moisture-saving dressing with vitamin B2 and new domestic, import-substituting models of skin perforators and dermatomes with disposable ultra-thin disk knives according to V. A. Menzul.

Result: Based on a comparative study that included 273 victims with deep third-degree burns, an option was developed for preparing burn wounds for free autodermoplasty, which allows for a reduction in hospitalization and improved treatment outcomes for burnt patients.

Keywords:deep burns, autodermoplasty, skin perforator, electrodermatome

HOW TO QUOTE: Menzul V.A., Guban V.I., Kovalev A.S., Chervyakov A.V., Bukhtoyarov V.I., Fedorchenko V.E. and others. Innovative technology of free skin transplantation with a perforated graft with an additional line of epithelialization (according to V.A. Menzul). Journal "Emergency Surgery named after. I.I. Dzhanelidze". 2021;1:68-77