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Efficacy of skin-based grafts in burn wound treatment

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Biological coatings with dense structure, based on allogenic skin, could be used in burn wound treatment. Efficacy and safety of skin-based grafts was studied at 50 patients with 3nd degree burns. We used lyophilized skin, cryopreserved skin (cryoprotector - 10% DMSO), cell-free dermal matrix (DM). The first dressing was performed at 1-2 days after the necrectomy, subsequent dressings were performed 1 time every 3-4 days. Lyophilized skin grafts seemed to rapid disappear and weak contact with the wound at the first dressing, after 4-6 days all grafts had intensive suppuration and were removed. On the contrast, cryopreserved skin grafts retained original structure and were tightly soldered to the underlying tissues at the first dressing. After 6-7 days most of cryopreserved skin grafts completely lyzed and removed, longer exposition (10-12 days) required graft evaluation with dermatome and complicated granulation growth. DM formed dark, dry, dense scab, well-fixed to the underlying tissues without suppuration. Complete rejection of DM occurred on average at 10-14 days, followed by granulation tissue forming. The terms of autodermoplasty, using DM, cryopreserved skin grafts and traditional treatment, did not differ, whereas lyophilized skin grafts statistically prolonged autodermoplasty. Thus, acceleration of granulation tissue growth was not observed in skin graft studies. On the other hand, in the DM and lyophilized skin treatment groups purulent complications were not observed in most cases without antiseptics. The cryopreserved skin or DM is more preferable skin graft type for burn wound treatment.

Recent publications

1. Yu V Andreev, K K Il'yashenko, A K Evseev, et al. Features of disturbance of oxidative stress markers and venous blood cells apoptosis in the early stage of acute poisoning by corrosive substances. Toxicological Review №2 (2021), P. 23-32.
2. A S Mironov, N V Borovkova, M S Makarov, I N Ponomarev, Yu V Andreev. Tissue banks. World experience. The history of development and current approaches. Transplantologiya. The Russian Journal of Transplantation/ Vol 13, No 1 (2021) P. 49-62.
3. N V Borovkova, M S Makarov, Yu V Andreev, M V Storozheva, I N Ponomare. Comparing of cytokine content in serum and platelet soluble preparations, produced in different ways. Molecular Medicine/ Vol.19, №3 (2021) P. 51-57.

Speaker Biography

Andreev Yu V has completed his dissertation at the age of 29 years from N.V. Sklifosovsky Research Institute for Emergency Medicine, Russia. He graduated from the Moscow Institute of Medical and Social Rehabilitation with a degree in General Medicine. In 2011 he was the senior researcher of the scientific laboratory of cell transplantation and immunotyping. From 2018 he has been the senior researcher of the scientific department of biotechnology and transfusiology. Andreev Yu V is the author of more than 70 publications, 6 RF patents for inventions (Hirsch Index RSCI - 1, SCOPUS - 1, Web of Science - 1).

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