

Research of effectiveness of Dermal equivalents intended for treatment of serious burn wounds

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Abstract

The problem of the treatment of wounds resulting from thermal damage to the soft tissues of the body remains scientifically essential and, undoubtedly, relevant in the modern world, despite the huge quantity of works in this field.

One of the most perspective efficient method to overcome this problem is to use biotechnological wound coverings (the artificial equivalents of the natural skin). The aim of our research work was to estimate the efficiency of a new dermal equivalent in vivo.

In our institute, we have obtained the new human cell line 4BL from lymphocytic fraction of peripheral blood of adult healthy donor (cell line 4BL is stable immortalized line)

When we have added 4BL cell line to our biotechnological construction, and have tried to use this formation on the researching groups, we have obtained the great results, in which were indicated that the wound healing rates were significantly increased.

Apart 4BL cells, have been used another human cell lines for experimental therapeutic formulation- human newborn foreskin fibroblast line MSU-1.1

Additionally, we have tried to use samples, which contained defrosted live cell cultures and cell-free preparations based on complex of active compounds secreted by growing cell culture.

Gels containing 4BL and MSU-1.1 cell suspensions were shown to accelerate the epitelization process beginning.

All the cell cultures have been tested significantly improved the wound healing on the couple days after of the experiment - the most critical and dangerous period of disease.

Concludently, the clinical result of investigation, which was performed at the Center of thermal burns and plastic surgery confirmed effectiveness and beneficial effects of our dermal coverages on skin regeneration. In patients after treatment, the processes of vascularization and epithelialization of the wound started earlier and more efficient.

Biography

I am currently in my final year of university, I am a student of Taras Shevchenko National University of Kyiv, Educational and Scientific Center "Institute of Biology and Medicine, Ukraine. I am interested in starting a career in stem cells research and their application in regenerative medicine. I have participated in a number of city and regional biotechnology competitions, where I often took prize places.

Furthermore, I am working at Department of Human Genetics and have gotten essential and interesting, from scientific point of view, results.



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