

Cell technologies for replacement of skin defects at the patient with local radiation injuries.G. Kosovskij^a, A. Bushmanov^b, N. Nadezhina^a and E. Kosovskaya^c

^a*A.I.Burnasyan Federal Medical Biophysical Center, Zhivopisnaya str. 46, marshal Novikov str. 23, 123182 Moscow, Russian Federation;* ^b*A.I.Burnasyan Federal Medical Biophysical Center, Zhivopisnaya str., 46, 123182 Moscow, Russian Federation;* ^c*A.I.Burnasyan Federal Medical Biophysical Center, marshal Novikov str. 23, Otyabrskaya str., 42-83, 127018 Moscow, Russian Federation*
gkosovsky@yahoo.com

Treatment of local radiation injuries (LRI) is one of challenges of radiation medicine, at the same time tactics and strategy of therapy of these pathologies remain up to the extremity not developed. Recently the increasing place in a clinical practice is borrowed with various methods of cellular and tissue therapy. The certain successes in development and clinical application of the various biomaterials stimulating reparative processes and replacing defects of a skin are reached. The epidermis is one of the important functional units of a skin as organ, and its ability to self-renewal is defined by presence stem cells (Terskih V.V. et al., 2001). As a result of damage which can wear chemical, mechanical, thermal or radiative character, the structure of a epidermis and a derma varies, structurally functional units disappear, and keratinocytes and fibroblasts get a new phenotype. However, not looking at huge quantity of works of the proliferative abilities devoted to studying keratinocytes and fibroblasts and as to their use with the purpose of replaceable therapy at influence of various injuries factors, experience of clinical application of these technologies at patients with LRI for today is absent. We for the first time used a method of replacement of defect of a skin with use autological keratinocytes and fibroblasts at the patient with LRI. With the purpose of application of cellular technologies to the patient the intraoperative biopsy of a healthy dermal graft is made. In the further it was carried out growth autological keratinocytes and fibroblasts. Creation of a design includes 4 stages: a biopsy of a donor material; growth cells in vitro; creation tissue engineering designs; transplantation tissue engineering designs in area of injury. Use of cell technologies alongside with traditional surgical and therapeutic methods of treatment LRI shows high efficiency and perspectivity of this direction. Thus, studying of specificity of radiative influences on cells of a skin and as use autologic keratinocytes and fibroblasts in the program of treatment of patients with local radiation injuries for replacement of defects, represents appreciable scientific and practical interest, and their application with the purpose of optimization of current reparative processes has a pathogenetic substantiation.