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CONTEMPORARY OPTIONS FOR SKIN SUBSTITUTION IN ACUTE WOUNDS

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Aim: Optimal treatment of acute extensive skin losses is always a big problem. The presentation aims to review possibilities for replacement of human skin in acute wounds by both classical methods and latest achievements of in vitro cell cultures and tissue engineering technologies.

Methods: Various biological skin substitutes have been used for treatment of extensive losses of skin including acute burns and traumatic wounds. In vitro cultures of human keratinocytes and fibroblasts have been routinely provided by the Bratislava Burn Center Central Tissue Bank since more than 15 years. At the same time a biosynthetic dermal equivalent composed of bovine collagen type I and hyaluronic acid* was developed and clinically tested. Commercially available skin/dermal substitutes** have been utilized in patients treatment as well.

Results: Correct initial diagnosis of the particular cases including assessment of the extent and depth of the defects was of utmost importance. Based on the findings, decisions on indications for the most appropriate treatment modalities and tactics have been provided. Optimal timing and provision of surgical procedures was an integral part of the comprehensive patients and wounds care. The advantages and disadvantages of the different treatment options have been evaluated and proposals for appropriate treatment method indications were recommended.

Conclusions: Skin substitutes proved to be extremely useful in treatment of acute extensive skin defects where the classical methods could not offer enough material for rapid wound coverage/closure. Their major disadvantages include relatively poor resistance to infection and higher costs.

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