Cultured autologous keratinocytes in fibrin glue suspension, exclusively and combined with STS-allograft (preliminary clinical and histological report of a new technique.

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Abstract:

The use of cultured epidermal cell sheets has become a recognized method for the coverage of extensive burns. The disadvantages are a long time-lag until the cells are available, the fragility and difficult handling of the grafts an unpredictable 'take' and extremely high costs. In three patients with deep partial and full skin thickness burns we have applied cultured autologous keratinocytes suspended in fibrin glue. In two of these patients the keratinocyte culture in the fibrin matrix (GS) was overgrafted with allogeneic, glycerine-preserved split thickness cadaver skin. The area thus covered ranged from 3 to 15 per cent TBSA. Cultured grafts were available between 2.5 and 3 weeks. The non-confluent cells developed a continuous epithelial layer within the 4 days until the first dressing change. Histological examination showed a stratified neoepidermis. Clinically the new skin had satisfactory stability and mechanical quality. The epidermis of the allogeneic overgrafts desquamated within a few days without signs of inflammation, but there are indications that the STS-allograff dermis is at least partly integrated into the new skin and may serve as a scaffold for the grafted cell culture. The fibrin glue matrix seems to give sufficient adherence stability to keratinocytes that are grafted in an actively proliferating state. Further advantages are the easy repetition and application, as well as a reduction in operating time and costs in these severely injured patients.