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QUALITY OF EPITHELIAL REGENERATION IN THE TREATMENT OF SPLIT-THICKNESS SKIN GRAFT DONOR SITES WITH THE INNOVATIVE BILAYERED WOUND DRESSING MADE OF SILK AND GELATIN

Abstract:

Split-thickness skin grafting (STSG) is a surgical procedure to reconstruct a wound by harvesting the healthy skin and using it to cover the wound. The site where the healthy skin is removed is called STSG donor site. STSG donor site heals by re-epithelialization. Therefore, effective wound dressing for STSG donor site treatment should achieve good quality of epithelial regeneration. Paraffin gauze dressing (Bactigras®) is commonly used for STSG donor site treatment. Disadvantage of this type of wound dressing is that it usually stick to the wound surface and disrupt of re-epithelialized surface. In our previous study, the innovative bilayered wound dressing made of silk and gelatin with non-adherent property has been developed. Therefore, this study aimed to investigate the quality of epithelial regeneration in the treatment of STSG donor sites with the bilayered wound dressing in comparison with Bactigras®. The STSG donor site was divided into cephalad half and caudal half of equal size, each site was randomized to receive the bilayered wound dressing or Bactigras®. The side treated with our innovative bilayered wound dressing made from silk and gelatin healed much faster compared to the side treated with paraffin gauze dressing. The morphology of epithelial cells left on the wound dressing after peeling off was analyzed by polarized light microscope. Shape and size of epithelial cells left on the bilayered wound dressing were comparable to cells from normal skin. In contrast, cells left on the Bactigras® had unclear border of cells. Our findings support the use of the innovative bilayered wound dressing as a STSG donor site dressing.

Keywords:

Bilayered wound dressing, silk, epithelial regeneration, split-thickness skin graft donor site