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EFFECT OF LOW MOLECULAR WEIGHT TOPICAL HYALURONATE ON WHITE RAT SUPERFICIAL WOUNDS EPITHELIZATION TREATED WITH FREEZE-DRIED AMNION MEMBRANE

Abstract

Partial/superficial thickness wounds frequently seen in clinical practice, whereas in major burns lead to the devastating effects. The freeze-drying method for amnion preservation was mostly acceptable and became standard method in Dr. Soetomo Biomaterial Centre and Tissue Bank Surabaya with sterile condition granted by Gamma irradiation. Unfortunately, several research had shown no superiority of freeze-dried amnion (FD) compared with other modalities. These due to significant decreased amount of growth factors. Recently revealed that FA contain of High Molecular Weight Hyaluronate which contributed to wound healing by its natural degradation into Low Molecular Weight. Addition of Low Molecular Weight Hyaluronate (LMWHA) were expected to enhance wound healing by FD. Twenty four Wistar rats (Rattus norvegicus) were wounded superficially on the back torso in 3 locations of each. One was covered with fresh amnion (FA Group), one covered with freeze-dried amnion (FD Group), the other covered with freeze-dried amnion + LMWHA 1% (HA Group). Samples collected randomly at day 1, 3, 5 and 7 with 6 rats sacrificed at once. Histological changes were observed for the amount of epithelial layer, epithelial thickness and maturation. Data were distributionally analyzed by Kolmogorov-Smirnov and colleration analyzed by Anova and Kruskal-Wallis test. No epithelization demonstrated at day 1 in all groups. HA group had epithelization rate more inferior than FA group in day 3, but showed superiority in day 5 and 7 (p<0,05). HA group had epithelization rate more superior than FD group in day 3, 5 and 7 (p<0,05). FA group had epithelization rate more superior than FD group in day 3 and 7 (p<0,05) but not in day 5 (p>0,05). FA group showed better in epithelial maturation compared in two other groups but there is not significant (p>0,05).

Keyword : LMWHA, Fresh, amnion, Freeze-dried, amnion, growth, factors, enhance, wound, healing,

Daftar Pustaka :