

Advances in Tissue Engineering and Biomaterials Science

June 17-18, 2019
London, UK

J Biomedical Sci 2019, Volume 08

Development of a chitosan-vaseline gauze dressing with wound- healing promoting properties

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Infectious complications and profound fluid loss can lead to shock or even death after trauma, wound dressings are always needed for better treatment^{1,2}. Although some dressings have been produced, some are not effective in killing bacteria or controlling other situations, while some are useful but at great expense^{3,4}. Our group developed a chitosan-based dressing with potent antimicrobial and improved healing properties. The chitosan-vaseline dressing (CVG) was developed by coating chitosan mixture and vaseline on sterile gauze and subsequent drying. Infrared spectroscopy investigated the miscibility of this system and functional group interaction. The structure of the dressing was revealed by scanning electron microscopy. The cytotoxicity of the

material was tested in vitro, which showed no significant difference in the dressing extract groups and the negative control group. The increased water retention rate was in the range of 8-12% after applying CVG for two hours. The CVG also showed good antimicrobial nature against both gram positive and gram negative bacteria. Wound healing and tissue compatibility studies were carried out over a period of 14 days on rat models. It was observed fast healing in the CVG treated wounds, comparing to the control group. These results indicate that vaseline with chitosan based dressing material could be promising candidates for wound dressings.

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