Nanoparticles for the Treatment of Wounds

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Resumen

The treatment of skin wounds represents an important research area due to the important physiological and aesthetic role of this tissue. During the last years, nanoparticles have emerged as important platforms to treat skin wounds. Silver, gold, and copper nanoparticles, as well as titanium and zinc oxide nanoparticles, have shown potential therapeutic effects on wound healing. Due to their specific characteristics, nanoparticles such as nanocapsules, polymersomes, solid lipid nanoparticles, and polymeric nanocomplexes are ideal vehicles to improve the effect of drugs (antibiotics, growth factors, etc.) aimed at wound healing. On the other hand, if active excipients are added during the formulation, such as hyaluronate or chitosan, the nanomedicine could significantly improve its potential. In addition, the inclusion of nanoparticles in different pharmaceutical materials may enhance the beneficial effects of the formulations, and allow achieving a better dose control. This paper aims at reviewing significant findings in the area of nanoparticles and wound treatment. Among the reviewed topics, we underline formulations comprising inorganic, polymeric, surfactant self-assembled, and lipid nanosystems. Among the drugs included in the nanoformulations, the paper refers to antibiotics, natural extracts, proteins, and growth factors, among others. Finally, the paper also addresses nanoparticles embedded in secondary vehicles (fibers, dressings, hydrogels, etc.) that could improve their application and/or upgrade the release profile of the active.

Palabras clave

Palabras clave de autor: Nanoparticles; nanocarriers; metal nanoparticles; nanomedicines; wound treatment; wound dressing
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