

Nanomedicine. 2008 Sep;4(3):241-51. doi: 10.1016/j.nano.2008.04.006. Epub 2008 Jun 11.

Anti-inflammatory activity of nanocrystalline silver in a porcine contact dermatitis model.

Nadworny PL¹, Wang J, Tredget EE, Burrell RE.

Author information

¹Department of Chemical and Materials Engineering, University of Alberta, Edmonton, Alberta, Canada.

Abstract

The anti-inflammatory activity of nanocrystalline silver was examined using a porcine model of contact dermatitis. Inflammation was induced with dinitrochlorobenzene and then treated daily with nanocrystalline silver dressings, 0.5% silver nitrate, or saline. Erythema, edema, and histological data showed that nanocrystalline silver-treated pigs had near-normal skin after 72 hours, while other treatment groups remained inflamed. The decreased inflammation in the nanocrystalline silver-treated group was associated with increased inflammatory cell apoptosis, a decreased expression of proinflammatory cytokines, and decreased gelatinase activity. Silver nitrate treatments induced apoptosis in all cell types, including keratinocytes, resulting in delayed wound healing. These results demonstrate that nanocrystalline silver had a direct anti-inflammatory effect in the porcine contact dermatitis model that improved the overall outcome of the healing process. These data offer support that a species of silver (e.g., Ag(0)) that is uniquely associated with nanocrystalline silver may be responsible for the anti-inflammatory activity and improvement in healing.

Publication Types, MeSH Terms, Substances



LinkOut - more resources



PubMed Commons

[PubMed Commons home](#)

0 comments

[How to join PubMed Commons](#)