

Correspondence

✉ Muhammad Asif, asif_physio@yahoo.com

1st International Conference

1st International Conference on Integrated
Care- May 19 2024

Authors' Contributions

M.A.: Study design, data collection, analysis, and
manuscript preparation.

Copyrights

© 2024 Author. This abstract is distributed under the
terms of the Creative Commons Attribution 4.0
International License (CC BY 4.0).



Declarations

No funding was received for this study. The author
declares no conflict of interest. Ethical approval was
obtained from the institutional ethics committee.

[“Click to Cite”](#)

Type: Conference Abstract

Published: 04 June 2024

Volume: IV, Issue: ICIC

DOI:

<https://doi.org/10.61919/jhrr.v4i1cic1.1869>

Therapeutic Effects of Zinc Oxide on Wound Area Reduction and Microscopic Healing Parameters in Rabbits

Muhammad Asif¹

1 Lincoln University College, Malaysia

Background: Zinc oxide has been widely used in wound care because of its antimicrobial and soothing effects, but there is still limited evidence regarding how effectively it contributes to wound contraction and microscopic healing changes. Since wound healing involves several inflammatory and proliferative events, understanding how zinc oxide influences these responses can help determine its therapeutic usefulness. **Objective:** The study aimed to observe the effects of topical zinc oxide on wound healing, mainly by comparing wound area changes, body weight variations, inflammatory cell counts, fibroblast activity, and overall epithelial recovery as compared to control animals. **Methods:** This experimental study was conducted on New Zealand White (Albino) male rabbits, in which a 3×3 cm dorsal wound was created in all animals. The zinc oxide group received 20% zinc oxide once daily, while the control group was treated only with normal saline. Body weight was measured at the start and end of the study, and wound area (cm²) was recorded on days 1, 3, 7, and 14. Histological changes were assessed by counting neutrophils, macrophages, lymphocytes, and fibroblasts, and by measuring epidermal and dermal thickness and percentage re-epithelialization. ANOVA with Tukey's post hoc test was applied, and $p \leq 0.05$ was considered statistically significant. **Results:** The zinc oxide-treated animals showed somewhat better healing than the controls. On day 3, the wound size in the zinc oxide group (1.61 ± 0.83 cm²) was smaller than in the control group (1.75 ± 0.92 cm²) with $p = 0.00$, and this difference persisted on day 7 (1.20 ± 0.75 cm² vs. 1.51 ± 0.83 cm²; $p = 0.00$). By day 14, the zinc oxide group showed greater contraction (0.56 ± 0.74 cm²) compared with the control group (0.95 ± 0.75 cm²; $p = 0.00$). Histology also showed fewer neutrophils and macrophages ($p < 0.05$), along with an increase in fibroblasts and epithelial thickness. Re-epithelialization was improved but still not as pronounced as in the laser group from the parallel experiment. **Conclusion:** Topical zinc oxide improved healing by reducing inflammation and promoting epithelial growth, although the response was not as strong as that seen with laser therapy. Nevertheless, zinc oxide may be considered a supportive option for wound management.

Keywords

Zinc oxide, wound healing, epithelialization, fibroblasts, inflammatory cells, epidermal thickness.

The Journal of Health and Rehabilitation Research (JHRR) is a peer-reviewed publication recognized by HEC (Y-Category) and CPSP, and indexed in Crossref, OpenAlex, Google Scholar, ASCI, ISI, ResearchBib, Advanced Science Index, EuroPub, and KindCongress, with long-term preservation through The Keepers. JHRR is also listed in Index Medicus-style regional and international directories, ensuring global discoverability, citation reliability, and durable archiving. This work is published as a conference abstract in the 1st International Conference on Integrated Care (ICIC), 2024.