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TITLE Comparative Study of Wound Irrigation and Gauze Compression Techniques on Matrix Metalloproteinase-9 Level in Diabetic Foot Ulcers: Implications for Nursing Practice in a Dual Wound Washing Comparison

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ABSTRACT (maximum 450 words. Please use the following or similar headings: Background/Methods/Results/Conclusions)

Abstract
Background: Diabetic foot ulcer (DFU) management involves various strategies, including wound irrigation and gauze compression techniques for wound cleansing, aimed at promoting wound healing and preventing infections. However, the specific impact of these cleansing methods on MMP-9 levels in DFUs remains largely unexplored. The research aims to determine differences in MMP-9 levels in DFUs between the two intervention groups undergoing irrigation and gauze compression for wound cleansing.
Methods: This quasi-experimental study allocated patients into two groups: Group I received wound irrigation, while group II underwent gauze compression for five minutes. Both interventions utilized a wound cleaning solution of 0.1% Poly hexamethyl biguanide. The primary outcome measure assessed was the difference in MMP-9 levels in DFU between the two groups. MMP-9 levels were evaluated using ELISA with wound tissue samples collected before and after interventions.
Result: This study revealed a significant effect of the irrigation technique on MMP-9 levels (p=.038), indicating its impact on wound healing process in DFUs. Conversely, the gauze compression showed no significant effect on MMP-9 levels (p=.97). Furthermore, no significant difference in MMP-9 levels was observed between the two groups (p=.377), suggesting comparable outcome in wound management strategies.
Conclusion: Overall, clinical findings suggest that irrigation techniques exhibit greater efficacy in reducing MMP-9 levels compared to gauze compression. Although the observed changes in MMP-9 levels were modest, these results provide valuable insights for refining treatment approach in DFU management. Adjustments based on this finding may enhance therapeutic outcomes and optimize care for DFU patients.
Keywords: MMP-9, wound cleansing, wound irrigation, gauze compression, diabetic foot ulcer

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