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Research Article

NEGATIVE PRESSURE WOUND THERAPY AS EFFICIENT TOOL FOR WOUND HEALING

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ABSTRACT

Background: Acute and chronic wounds pose significant challenges in medical treatment. This study evaluates the efficacy of Negative Pressure Wound Therapy (NPWT) in enhancing wound healing. **Methods:** A time-bound observational study was conducted with 30 patients at IGMC Shimla. Wound characteristics, reduction in surface area, and bacterial bioburden were assessed using the Pressure Ulcer Scale for Healing (PUSH Tool v3.00). Results: The study observed a 52.6% reduction in wound size, faster granulation tissue formation, and a significant reduction in bacterial bioburden post-NPWT treatment. Minimal complications were reported. **Conclusion:** NPWT is effective in enhancing wound healing, reducing bacterial bioburden, and minimizing complications.

INTRODUCTION

Acute and chronic wounds remain a significant medical challenge due to variable treatment responses. NPWT, also known as Vacuum Assisted Closure (VAC), provides sub-atmospheric pressure to wounds, promoting faster healing and reducing bacterial load. This study aims to evaluate the efficacy of NPWT in various types of wounds.

MATERIALS AND METHODS

Study Design

A time-bound observational study was conducted from 2021 to 2024 at IGMC Shimla. The sample size included 30 patients with acute and chronic wounds.

Inclusion and Exclusion Criteria

Patients with acute and chronic non-healing wounds, diabetic wounds, and wounds associated with peripheral vascular disease were included. Patients with collagen vascular disorders, on immunosuppressive medications, or pregnant were excluded.

Procedure

NPWT was applied following thorough initial debridement. Wound characteristics were documented using the PUSH Tool v3.00. Dressings were changed every 5 days.

Data Collection and Analysis

Data were recorded in a master chart. Statistical analysis was performed using Paired T-test and Chi-square test.

RESULTS

Demographics

The study included 30 patients aged between 11 to 90 years. 76.6% were male, and 63.3% were smokers.

Wound Characteristics and Healing

The average wound size reduced from 107.55 cm^2 to 56.6 cm^2 post-NPWT application, representing a 52.6% reduction. Smokers showed a 36.25% reduction, while non-smokers exhibited a 71.9% reduction.

Bacterial Bioburden

A significant reduction in bacterial bioburden was observed, with sterile cultures obtained in 73.3% of cases post-NPWT treatment.

Complications

Minimal complications were reported, with only one patient experiencing pain during therapy.

DISCUSSION

The study demonstrated the efficacy of NPWT in enhancing wound healing, reducing wound size, and lowering bacterial bioburden. These findings support broader adoption of NPWT in clinical practice, especially in resource-limited settings.

CONCLUSION

NPWT significantly improves wound healing outcomes, reduces complications, and enhances patient recovery. Further research is recommended to explore long-term outcomes and cost-effectiveness.

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Appendices

Appendix A: Informed Consent Form

I, _____, consent to participate in the study titled "Efficacy of Negative Pressure Wound Therapy in Various Types of Wounds at IGMC Shimla." The study's aims, risks, and benefits have been explained to me.

Appendix B: Patient Information Sheet

Purpose: To study the efficacy of NPWT in various types of wounds.
Procedure: NPWT will be applied to admitted patients, and wound healing will be monitored.

Benefits: Potential improvements in wound healing and reduced complications.
Confidentiality: Patient information will be kept confidential.

Author Biography

Dr Gunjan Jain is a postgraduate student in the Department of General Surgery at Indira Gandhi Medical College, Shimla. His research focuses on advanced wound healing techniques, particularly NPWT.

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