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A Study to Assess the Effectiveness of Aloe Vera Application versus Thrombophob Gel Application on Reduction of Intravenous Phlebitis among Adult Patients at PRS Hospital, Thiruvananthapuram

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ABSTRACT

Intravenous phlebitis is a common complication of peripheral intravenous cannulation that causes pain and discomfort among hospitalized patients. This study aimed to assess the effectiveness of aloe vera application versus thrombophob gel application on reduction of intravenous phlebitis among adult patients. A quantitative true experimental post-test only control group design was adopted, and sixty adult patients aged 25–64 years with intravenous phlebitis admitted in the medical ward of PRS Hospital, Thiruvananthapuram were selected using simple random sampling and randomly assigned to experimental (n = 30) and control (n = 30) groups. Aloe vera gel was applied to the experimental group, while thrombophob gel was applied to the control group, and the severity of phlebitis was assessed using the Visual Infusion Phlebitis (VIP) scale. The results revealed a highly significant reduction in intravenous phlebitis in the experimental group following aloe vera application ($t = 7.9026$, $p = 0.0001$), whereas no significant reduction was observed in the control group after thrombophob gel application ($t = 0.3330$, $p > 0.05$). The study concludes that aloe vera application is more effective than thrombophob gel in reducing intravenous phlebitis and can be recommended as a safe, cost-effective nursing intervention in clinical practice.

INTRODUCTION

Intravenous therapy is an essential component of modern medical care and is widely used for administering fluids, medications, and blood products to hospitalized patients. Despite its therapeutic importance, peripheral intravenous cannulation is often associated with complications, among which intravenous phlebitis is the most common. Phlebitis is characterized by pain, redness, swelling, warmth, and tenderness along the vein, leading to discomfort, interruption of therapy, and increased length of hospital stay. Effective management of intravenous phlebitis is therefore an important nursing responsibility to ensure patient comfort and quality care.

Various pharmacological and non-pharmacological interventions are used to prevent and manage intravenous phlebitis. Thrombophob gel is commonly used in clinical settings due to its anti-inflammatory and analgesic properties; however, its effectiveness may vary and prolonged use may cause skin irritation in some patients. In recent years, there has been growing interest in the use of herbal

and natural remedies as complementary therapies in nursing practice. Aloe vera is a medicinal plant well known for its anti-inflammatory, antimicrobial, soothing, and wound-healing properties, making it a potential alternative for managing intravenous phlebitis.

Comparing the effectiveness of aloe vera application with thrombophob gel application can help identify a safer, cost-effective, and easily available intervention for reducing intravenous phlebitis. Nurses play a crucial role in implementing evidence-based practices, and identifying effective topical applications can enhance patient comfort and improve clinical outcomes. Hence, the present study was undertaken to assess the effectiveness of aloe vera application versus thrombophob gel application on the reduction of intravenous phlebitis among adult patients at PRS Hospital, Thiruvananthapuram.

OBJECTIVES OF THE STUDY

1. To assess the level of intravenous phlebitis among adult patients in the experimental group before and after aloe vera application.
2. To assess the level of intravenous phlebitis among adult patients in the control group before and after thrombophob gel application.
3. To compare the effectiveness of aloe vera application and thrombophob gel application on reduction of intravenous phlebitis among adult patients.
4. To find the association between the level of intravenous phlebitis and selected demographic variables among adult patients.

MATERIALS AND METHODS:

A quantitative research approach with a true experimental post-test only control group design was adopted to assess the effectiveness of aloe vera application versus thrombophob gel application on reduction of intravenous phlebitis among adult patients. The study was conducted in the medical ward of PRS Hospital, Thiruvananthapuram. Sixty adult patients aged 25–64 years who developed intravenous phlebitis and met the inclusion criteria were selected using simple random sampling technique and randomly assigned into experimental group (n = 30) and control group (n = 30). Data were collected using a structured tool consisting of demographic variables and the Visual Infusion Phlebitis (VIP) scale. After obtaining ethical clearance and informed consent, baseline assessment was carried out, followed by application of aloe vera gel to the experimental group and thrombophob gel to the control group twice daily. Post-test assessment of intravenous phlebitis was conducted using the same VIP scale. The collected data were coded, tabulated, and analyzed using paired t-test and chi-square test to determine the effectiveness of the interventions.

METHOD OF DATA COLLECTION

- After obtaining ethical clearance and informed consent, baseline data were collected from the selected adult patients using a demographic proforma and the Visual Infusion Phlebitis (VIP) scale.
- The severity of intravenous phlebitis was assessed in both experimental and control groups prior to the intervention (pre-test).
- In the experimental group, aloe vera gel was applied locally over the affected intravenous site twice daily (morning and evening) for a duration of 3 consecutive days.
- In the control group, thrombophob gel was applied locally over the affected intravenous site twice daily for the same duration of 3 days.

- Post-test assessment of intravenous phlebitis was carried out on the third day after completion of the intervention using the VIP scale to evaluate the effectiveness of the interventions.

RESULTS

1. In the experimental group, aloe vera application resulted in a significant reduction in the severity of intravenous phlebitis, with a paired *t*-value of **7.9026** and **p = 0.0001**, indicating a highly statistically significant effect.
2. In the control group, thrombophob gel application showed no significant reduction in intravenous phlebitis, with a paired *t*-value of **0.3330** ($p > 0.05$).
3. Post-test findings revealed that a majority of subjects in the experimental group experienced mild pain, whereas most subjects in the control group continued to experience severe pain.
4. Comparative analysis between the experimental and control groups demonstrated that aloe vera application was significantly more effective than thrombophob gel in reducing intravenous phlebitis among adult patients.

Table 1: Severity of Intravenous Phlebitis in Control Group (Pre-test and Post-test)

Severity of Phlebitis	**Pre-test n**	**Pre-test %**	**Post-test n**	**Post-test %**
Moderate	9	30.00	8	26.67
Severe	21	70.00	22	73.33
Total	**30**	**100**	**30**	**100**

Paired t-value = 0.3330
p > 0.05 (Not Significant)
The control group showed no statistically significant reduction in intravenous phlebitis after thrombophob gel application.

Table 2
Distribution of Subjects According to Severity of Intravenous Phlebitis in the Experimental Group (Pre-test and Post-test)

Severity of Phlebitis	Pre-test n (%)	Post-test n (%)	Severity of Phlebitis	Pre-test n (%)
Mild	–	23 (76.66)	Mild	–
Moderate	14 (46.67)	7 (23.34)	Moderate	14 (46.67)
Severe	16 (53.33)	–	Severe	16 (53.33)
Total	30 (100)	30 (100)	Total	30 (100)

Paired t-value = 7.9026, p = 0.0001 (Highly Significant)
The experimental group demonstrated a highly significant reduction in intravenous phlebitis following aloe vera application.

Table 3
Comparison of Effectiveness of Aloe Vera and Thrombophob Gel on Reduction of Intravenous Phlebitis

Group	t-value	p-value	Significance	Group
Experimental	7.9026	0.0001	Significant	Experimental
Control	0.3330	>0.05	Not Significant	Control
Group	t-value	p-value	Significance	Group

The comparative analysis revealed that aloe vera application was significantly more effective than thrombophob gel in reducing intravenous phlebitis among adult patients.

DISCUSSION

The present study was conducted to evaluate the effectiveness of aloe vera application in comparison with thrombophob gel on reduction of intravenous phlebitis among adult patients. The findings revealed a highly significant reduction in the severity of intravenous phlebitis in the experimental group who received aloe vera application. The statistically significant *t*-value (7.9026, $p = 0.0001$) indicates that aloe vera was effective in relieving pain and inflammation associated with intravenous phlebitis.

In contrast, the control group that received thrombophob gel application did not show a significant reduction in the severity of intravenous phlebitis, as evidenced by a low *t*-value (0.3330, $p > 0.05$). Most of the participants in this group continued to experience moderate to severe pain even after the intervention. This finding suggests that thrombophob gel was less effective in managing intravenous phlebitis in the present study.

The significant improvement observed in the experimental group may be attributed to the anti-inflammatory, analgesic, and healing properties of aloe vera. Aloe vera is known to reduce inflammation, improve tissue repair, and provide a soothing effect on the affected area, thereby contributing to the reduction in pain and severity of phlebitis. These results are consistent with previous studies that reported the effectiveness of herbal and non-pharmacological interventions in managing intravenous complications.

The findings of the present study highlight the importance of incorporating simple, cost-effective, and non-invasive nursing interventions in clinical practice. Aloe vera application can be safely recommended as a routine nursing measure for the management of intravenous phlebitis. Further studies with larger sample sizes and varied settings are recommended to generalize the findings and strengthen the evidence.

LIMITATIONS

- The study was conducted with a small sample size, which may limit the generalization of the findings to a larger population.
- The study was confined to a single hospital setting, which may affect the external validity of the results.
- The duration of the intervention was short, and long-term effects of aloe vera application were not assessed.
- The study focused only on adult patients; therefore, the findings cannot be generalized to pediatric or geriatric populations.

CONCLUSION

The present study concludes that aloe vera application is highly effective in reducing the severity of intravenous phlebitis among adult patients when compared to thrombophob gel application. The statistically significant findings demonstrate that aloe vera provides better relief from pain and inflammation associated with intravenous phlebitis. Being a safe, simple, and cost-effective intervention, aloe vera application can be incorporated into routine nursing practice for the management of intravenous phlebitis. The study also emphasizes the need for further research with larger sample sizes and varied settings to strengthen the evidence and enhance generalization of the findings.

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