

## Effectiveness of Glycerin Magnesium Sulphate dressing on superficial thrombophlebitis among patients receiving intravenous therapy in a selected hospital, Erode

Rohini M<sup>1</sup>, Sangeetha T<sup>2</sup>

<sup>1</sup> Assistant Professor, TN Dr.M.G. R Medical university, Chennai, Tamil Nadu, India

<sup>2</sup> TN Dr.M.G. R Medical university, Chennai, Tamil Nadu, India

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### Abstract

Peripheral intravenous therapy is a common nursing procedure in hospitalized patients. Superficial thrombophlebitis remains one of the most frequent complications associated with intravenous cannulation. Effective nursing interventions are essential to reduce inflammation, pain, and patient discomfort.

**Aim:** To evaluate the effectiveness of Glycerin Magnesium Sulphate (GMS) dressing on superficial thrombophlebitis among patients receiving intravenous therapy.

**Methods:** A quantitative quasi-experimental pre-test and post-test design was adopted. Sixty patients with superficial thrombophlebitis receiving intravenous therapy were selected using convenience sampling. Jackson's Visual Infusion Phlebitis Scale was used to assess thrombophlebitis severity before and after intervention. GMS dressing was applied twice daily for two days.

**Results:** The mean pre-test thrombophlebitis score was  $4.05 \pm 0.82$ , which reduced to  $1.52 \pm 0.59$  after intervention. The paired t-test value was 19.1 ( $p < 0.05$ ), demonstrating a statistically significant reduction in thrombophlebitis severity.

**Conclusion:** GMS dressing was highly effective in reducing superficial thrombophlebitis among patients receiving intravenous therapy and can be incorporated into routine nursing practice.

**Keywords:** Intravenous therapy, superficial thrombophlebitis, Glycerin Magnesium Sulphate, nursing intervention, phlebitis management

### Introduction

Intravenous therapy is one of the most frequently performed procedures in hospitals for administration of medications, fluids, electrolytes, and nutritional support. Although beneficial, intravenous therapy is associated with complications such as infiltration, infection, and thrombophlebitis. Superficial thrombophlebitis is characterized by inflammation of a superficial vein accompanied by thrombus formation. It commonly presents with redness, tenderness, swelling, and warmth around the cannulation site. If left untreated, it may progress to severe complications and prolonged hospitalization. Glycerin Magnesium Sulphate dressing is widely used as a topical anti-inflammatory intervention. Magnesium sulphate helps reduce edema and inflammation through osmotic action, while glycerin acts as a hygroscopic agent promoting local healing. Despite its routine clinical use, limited evidence exists regarding its effectiveness among hospitalized patients receiving intravenous therapy. Therefore, the present study was conducted to evaluate the effectiveness of GMS dressing in reducing superficial thrombophlebitis.

### Materials and Methods

#### Research Design

A quantitative quasi-experimental pre-test and post-test design was adopted for the study.

#### Setting

The study was conducted at Senthil Multispeciality Hospital, Erode, Tamil Nadu.

#### Population and Sample

The study population consisted of patients receiving intravenous therapy who developed superficial

thrombophlebitis. A total of 60 participants meeting the inclusion criteria were selected through non-probability convenience sampling.

#### Inclusion Criteria

- Patients receiving intravenous therapy through peripheral venous access.
- Patients with Jackson's VIP score of 3–5.
- Patients willing to participate in the study.

#### Data Collection Tool

Jackson's Visual Infusion Phlebitis Scale was used to assess the severity of thrombophlebitis. The scale consists of scores ranging from 0 to 5, indicating increasing severity of phlebitis.

#### Intervention

GMS dressing was prepared using 20 grams of magnesium sulphate mixed with 100 ml glycerin. The dressing was applied over the affected site twice daily for two consecutive days while maintaining limb elevation. Post-test assessment was conducted after completion of intervention.

#### Statistical Analysis

Data were analyzed using descriptive and inferential statistics. Frequency, percentage, mean, standard deviation, paired t-test, and chi-square test were utilized. Data Analysis and Interpretation

A total of 60 patients receiving intravenous therapy and diagnosed with superficial thrombophlebitis participated in the study. Descriptive and inferential statistics were used to analyze the collected data. Frequency, percentage, mean, standard deviation, paired t-test, and chi-square test were employed.

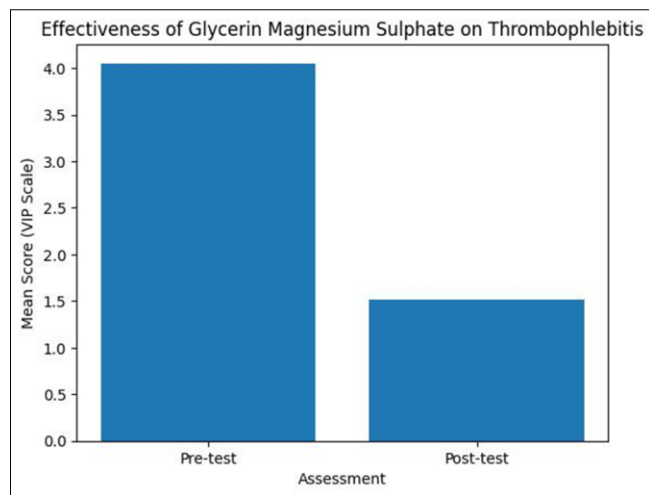
### Demographic Characteristics of Participants

Among the 60 participants, 20 (33.33%) belonged to the age group of 41–50 years, followed by 19 (31.66%) in the age group of 31–40 years. Females constituted 53.33% of the sample, while males accounted for 46.66%. Most participants had intravenous cannulation at the wrist (40%) and cubital fossa (38.33%). The majority (60%) had an 18G cannula and 80% had a hospital stay.

### Results

Variable	Mean	SD	Mean Difference	Paired t-value
Pre-test	4.05	0.82	2.53	19.1*
Post-test	1.52	0.59	-	-

Significant at  $p < 0.05$



### Interpretation

The findings clearly demonstrate that Glycerin Magnesium Sulphate dressing was effective in reducing the severity of superficial thrombophlebitis among patients receiving intravenous therapy. The significant reduction in mean thrombophlebitis scores from pre-test to post-test supports the effectiveness of the intervention. Therefore, the research hypothesis was accepted, and it was concluded that Glycerin Magnesium Sulphate dressing is an effective nursing intervention for managing superficial thrombophlebitis.

### Severity of Thrombophlebitis Before Intervention

Before intervention:

- 31.66% had medium-stage phlebitis.
- 31.66% had early thrombophlebitis.
- 36.68% had advanced thrombophlebitis.

### Severity of Thrombophlebitis After Intervention

After GMS dressing:

- 53.34% had only possible first signs of phlebitis.
- 41.66% had early-stage phlebitis.
- Only 5% remained in medium-stage phlebitis.

### Effectiveness of GMS Dressing

The mean thrombophlebitis score decreased from  $4.05 \pm 0.82$  during pre-test to  $1.52 \pm 0.59$  during post-test. The mean difference was 2.53. The paired t-value was 19.1, which was statistically significant at  $p < 0.05$ .

### Discussion

The findings revealed a significant reduction in thrombophlebitis severity following GMS dressing. The

substantial decline in mean thrombophlebitis scores indicates the anti-inflammatory effectiveness of magnesium sulphate combined with glycerin. The findings are consistent with previous studies that demonstrated reduced pain, inflammation, and phlebitis severity following GMS application. The osmotic action of magnesium sulphate likely contributed to reduction in edema and improved local circulation. The study supports the use of GMS dressing as an inexpensive, easily available, and nurse-led intervention for management of superficial thrombophlebitis.

### Nursing Implications

**Nursing Practice:** GMS dressing can be incorporated into routine nursing care protocols for management of superficial thrombophlebitis.

**Nursing Education:** Nursing students should be trained regarding evidence-based management of intravenous therapy complications.

**Nursing Administration:** Hospitals can develop standard operating procedures for early identification and management of thrombophlebitis.

**Nursing Research:** Further randomized controlled trials with larger sample sizes are recommended.

### Conclusion

The study concluded that Glycerin Magnesium Sulphate dressing significantly reduced the severity of superficial thrombophlebitis among patients receiving intravenous therapy. The intervention was safe, economical, and effective, making it suitable for incorporation into routine nursing practice.

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