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RESEARCH ARTICLE

Effectiveness of Proximal Massage and Palm Fisting Exercise on Prevention of Thrombophlebitis Among Intravenous Cannulated Patients

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Abstract: Thrombophlebitis is the formation of a thrombus in vein with blood clot formation inside the vein, can lead to complications such as thrombophlebitis. Non-pharmacological interventions like proximal massage and palm fisting may reduce these risks, the study objectives are 1. To assess the IV cannulated site for thrombophlebitis after intervention in experimental and control group. 2. To compare post test scores between experimental and control group. 3. To find out the association between post test score of experimental group and clinical variables. Methodology. A quasi-experimental study was conducted among IV cannulated patients. The experimental group received proximal massage and palm fisting exercises, while the control group received routine care. Data was collected using Visual infusion phlebitis score. Collected data were analysed by descriptive and inferential statistics. Results: The experimental group had a lower mean post-test score (0.3636) compared to the control group (1.2727). This suggests that the intervention may have been effective in reducing the outcome measured by the post-test and t-Value is -4.2186 indicates a significant difference between the two groups' means. The negativesign reflects the direction of the difference, with the experimental group scoring lower than the control group. and p- Value is 0.000066 is well below the conventional significance level of 0.05. This indicates that the observed difference is statistically significant.

Keywords: Effectiveness, Proximal massage, Palm fisting, Intravenous cannulation, Thrombophlebitis, visual infusion phlebitis score.

INTRODUCTION

In hospitals intravenous therapy, or IV therapy, is one of the most often used medical therapies vital for directly supplying a patient's circulation with nutrition, drugs, and fluids. However, a frequent complication associated with IV therapy is thrombophlebitis, an inflammatory condition that affects the veins due to the presence of a blood clot. This can lead to pain, redness, swelling, and discomfort, often requiring discontinuation of IV therapy and replacement of the cannula, which adds to the patient distress, increases healthcare costs, and prolongs hospital stays. To prevent IV-related thrombophlebitis, various interventions have been suggested, including pharmacological treatments (such as heparin or nonsteroidal anti-inflammatory drugs) and non-pharmacological methods like warm compresses, limb elevation, and exercise. Among the non-pharmacological approaches, proximal massage and palm fisting exercise have gained attention for their potential benefits in improving blood circulation, reducing venous stasis, and preventing thrombophlebitis.[1]

The term "proximal massage" refers to massage applied to the region closest to the cannula site in the direction of fluid flow. The activity known as "palm fisting" involves squeezing a soft ball to target the upper extremities that are IV cannulated. Patients who receive IV cannulation have a lower risk of thrombophlebitis; were activities that involve palm fisting and proximal massage improve blood circulation and reduce blood clots. Massage treatment can be used to avoid thrombophlebitis in people who have had cannulas since it has blood circulation advantages. Exercise for the hands is the most straightforward method to increase blood flow via the hands. During hand exercises, the hand's muscles and surrounding blood vessels will relax, allowing more oxygen-rich blood to pass through. In light of the aforementioned considerations and the reviews, it was determined that massage treatment is helpful and may be used in general nursing practice to lower the risk of thrombophlebitis in patients who have been cannulated.[2]

In clinical practice researcher observed that thrombophlebitis frequently occurred among patients who had peripheral intravenous cannula for extended periods, especially when cannula was not properly monitored. Despite routine care protocols, some patients still developed localized pain, redness, swelling. This situation highlighted gaps between theoretical knowledge and actual practice and made it clear that strict adherence to evidence-based protocols was ways happening. This experience motivated researcher to consider research on early detection signs, nursing vigilance as key factors in preventing thrombophlebitis.

LITERATURE REVIEW.

H. Regi Bai (2022) a study was conducted on the effectiveness of palm fisting and proximal massage in lowering the incidence of thrombophlebitis in intravenous cannulated inpatients was investigated by H. Regi Bai of the Hindustan College of Nursing's Department of Medical Surgical Nursing in Coimbatore, Tamil Nadu, India. This study sought to determine if proximal massage and palm fisting may lower the incidence of thrombophlebitis in inpatients with IV cannulation. An experimental research design was employed in conjunction with a quantitative research technique. Samples were gathered using a lottery-style random sampling approach. The visual infusion phlebitis (VIP) scale was used to gather the data palm fisting and proximal massage reduce thrombophlebitis, as shown by the research group's mean

VIP score of 1.21 +-0.73 and the control group's mean VIP score of 2.09 +-1.23. According to the study's findings, these interventions can effectively lower occurrence of thrombophlebitis in such patients.2

Jeba Bakhtiar and Manashi Sengupta (2021) At a particular hospital in Guwahati, Assam, a study was conducted to determine if proximal massage and palm fisting exercises could lower the danger of thrombophlebitis in IV cannulation patients. Method used a lottery method and a basic random sampling methodology; a quantitative research strategy and true experimental research design were carried out. Results demonstrated that the interventional group's mean VIP score (0.8) was lower than the control group's mean VIP score (1.67).Consequently, this suggests that palm fisting exercises and proximal massage reduced the incidence of thrombophlebitis. In conclusion, simple, non-invasive methods like massage and fisting exercise can effectively reduce the chances of thrombosis in patients with IV cannulation.[3]

METHODOLOGY

The research approach adopted for this study is a quantitative approach with quasi experimental post- test only research design. The target population of the study is intravenous cannulation on fore arm who are admitted in the hospital. In this study 22 IV cannulated patients both in the experimental and control group were selected by non-probability purposive sampling. Patient who are not willing to participate, who are critically ill and IV cannula on the Dorsum of the palm, wrist and elbow joint were excluded from the study.

Prior permission was obtained from ethical committee and hospital management. The IV cannulated patients were explained about the purpose of the study in a manner and informed consent was taken to provide privacy and confidentiality, after explaining the procedure to the participants, their written permission was obtained and samples were selected based on inclusion criteria. In experimental group proximal massage was given 2 centimeters proximal to the intravenous cannula for 5 minutes and palm fisting exercise was given with soft ball for 5 minutes for every 12 hourly and for control group intervention is not provided.

Visual infusion phlebitis scoring scale was used to assess the effectiveness of proximal massage and palm fisting exercise. Post test was conducted after 72 hr. and assessment was done every 12 hr. Descriptive statistics were used to analyses the frequency, percentage, mean and standard deviation of various variables.

RESULTS AND OBSERVATIONS

Table no.1. Frequency and percentage distribution of demographic variables. N=22+22

Variables	Category	Experimental Group		Control group	
		frequency	%	frequency	%
Age	20-29	3	14%	3	14%
	30-39	6	27%	3	14%
	40-49	3	14%	1	5%
	50-59	1	5%	7	32%
	60-69	7	32%	3	14%
	70-79	2	9%	5	23%
Gender	Male	11	50%	12	55%
	Female	11	50%	10	45%

Table 1 shows that age group in experimental group the majority participants were in the 60 to 69 years age group (32%) where as in control group the majority participants were in the 50 to 59 years age group (32%) and in gender the experimental group there is equal distribution of male (50%) and female (50%) and in control group the majority were male (55%).

Table no.2. Frequency and percentage of post test score in experimental group and control group.

VIP score levels	Experimental Group	Control Group

	frequency	%	frequency	%
Grade 0	16	73%	4	18%
Grade 1	4	18%	8	36%
Grade 2	2	9%	10	45%
Total	22		22	

Table 2 shows that,in the experimental group, the majority of participants (73%) were observed with a grade 0 score, indicating no signs of phlebitis, while 18% had grade 1 and only 9% had grade 2 whereas in the control group showed a higher incidence of phlebitis, with the majority of participants (45%) presenting with grade 2, followed by 36% with grade 1, and only 18% with grade 0.

Table no.3. Comparison of post test score between experimental and control group.n=22+22

Post test score	Mean	SD	t-value	P-value	Significance
Experimental group	0.3636	0.6579	-4.2186	0.000066	Significant
Control group	1.2727	0.7626			

Table no.3 shows that,the post-test comparison between the experimental and control groups revealed a significant difference in mean scores. The experimental group demonstrated a lower mean score (M = 0.36, SD = 0.65) compared to the control group (M = 1.27, SD = 0.76). The independent t-test value was -4.21 with a corresponding p-value of 0.000066, which is highly significant ($p < 0.001$). These findings indicate that the intervention administered to the experimental group was effective in reducing post-test scores when compared with the control group.

DISCUSSION

A similar study was conducted by R. Regi Bai (2022), assessed the effectiveness of proximal massage and palm fisting exercises, findings were that the mean VIP Score in experimental group is 0.21 whereas in control group the mean VIP score is 1.09 research found a statistically significant which reveals that proximal massage and palm fisting exercises prevents from occuring thrombophlebitis2. The association between the post test score and clinical variables such as type of medication and frequency of medication are found to be not significant. The consistency between both studies confirms the clinical utility of these simple techniques. These results indicate that simple, cost-effective interventions like proximal massage and palm fisting exercise can be easily incorporated into routine nursing care to minimize the risk of thrombophlebitis, especially in patients requiring long-term IV therapy.

CONCLUSION

The study's findings suggest that the implementation of proximal massage and palm fisting exercises significantly reduces the incidence and severity of thrombophlebitis in IV cannulated patients. The intervention group demonstrated a higher proportion of patients without phlebitis and lower post-test scores, indicating its effectiveness. These results support the incorporation of such non-pharmacological interventions in clinical practice to enhance patient outcomes and prevent IV-related complications.

CHALLENGES AND LIMITATIONS.

The study faced certain challenges and limitations. Participant cooperation varied as some patients experienced anxiety or discomfort during IV cannulation. Individual differences in pain tolerance and perception affected the uniformity of responses. The limited sample size and short duration of the study restricted the generalizability of findings. Environmental factors such as noise, temperature, and ward conditions may have influenced comfort levels. The effectiveness of proximal massage and palm fisting exercise also depended on the consistency and skill of the researcher performing the intervention. Since pain and comfort levels were self-reported, subjective bias could not be completely eliminated. Additionally, psychological and physiological factors, along with variations in the timing of the intervention, may have influenced the overall outcomes.

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