A QUASI EXPERIMENTAL STUDY TO EVALUATE EFFECTIVENESS OF GLYCERINE MEGNESIUM SULPHATE DRESSSING ON PHLEBITIS AMONG PATIENTS UNDERGOING PERIPHARAL INTRAVENOUS INFUSION

Dr. Ravindra H.N, *Professor, Sumandeep Nursing College, Sumandeep Vidyapeeth deemed to be University,Piparia, Vadodara, Gujarat, India.* ***Email-****ravindrahn23@rediffmail.com*

ABSTRACT

Background of the study-

Intravenous therapy is indicated for many reasons, It is estimated that in U.K 20-80% of patients with peripheral venous cannula develop phlebitis.Phlebitis that may occur in up to 75% of hospitalized patients, it occurs high concentration of drugs and strong stimulating drugs enter the vein, and the large plastic catheter may stay in situ for long time. There are different types of complications that occur frequently in patients with peripheral intravenous therapy include infusion phlebitis, infection, infiltration or extravasations. The effective means of management of phlebitis are application of warm Ichthammol glycerine magnesium sulphate dressing and Thrombophob ointment application and hot fomentation.

Material and method-

The research design used in this study was A quasi-experimental design is one in which full experimental control. the sampling technique used for this study was Non probability purposive sampling technique select the sample from the selected hospital.the sample were 60 hospitalised patients and who met the inclusion criteria was selected from the target population. The toll consists of The Socio Demographic Data Collection Tool and Jackson's visual infusion phlebitis scale about In this 0 to 5 score in different stagesdata analysis was planned on the basis of objectives of the study using descriptive and inferential statistics in consideration with hypothesis of the research study

Results

This study revealed thata smaller number of complications of phlebitis during hospitalization after the glycerine magnesium sulphate dressing on phlebitis was essential. Data analysis was

carried out using descriptive and inferential statistics method by using SPSS. It was observed that the mean post-test result is significantly higher than the pre-test result.,

Discussion and conclusion-

The present study was conducted to determine the effectiveness of glycerin magnesium sulphate dressing on phlebitis among patients undergoing peripheral intravenous infusion in selected hospital, Vadodara. This chapter discusses the major findings of the study and reviews them in terms of results from other studies.

Key words- Dressing, complication, peripheral intravenous therapy, phlebitis

INTRODUCTION

"The very first requirement of a hospital is that it should do the sick no harm"

Florence Nightingale (1863)

Peripheral venous cannula is a common procedure carried out in hospital to allow rapid and accurate administration of medication? However, the intravenous cannulation can have undesirable effects, the most of which is phlebitis, which is due to mechanical, chemical or infectious cause.[1]

A project was undertaken in Ball memorial Hospital to determine the incidence of peripheral intravenous therapy-related phlebitis in an adult population, results showed that phlebitis rate was 3.3%(10/305).[2]When patients are unable to take fluids and nutrients and are unable to make use of their gastrointestinal system effectively. The common practice is to feed patient through the vein. This method of feeding to patient is known as intravenous infusion[3]

In modern medical practice, up to 80% of hospitalized patients receive intravenous therapy at some point during their admission[4]There are different types of complications that occur frequently in patients with peripheral intravenous therapy include infusion phlebitis, infection, infiltration or extravasations, fluid overload, hypothermia, electrolyte imbalance and embolism. Infusion phlebitis is in almost all cases[5]Magnesium sulphate, when used through soaking, can soothe muscle pains and helps to improve rough patches in the skin Epsom salt is also available in a gel form for topical application in treating aches and pains[6]

Need For the study:

It is estimated that 150 million peripheral intravenous devices are placed each year in North America alone.[10] one of the most common complications of peripheral intravenous catheter is phlebitis that may occur in up to 75% of hospitalized patients[7]

A study was conducted to assess the occurrence of intravenous catheter complication in the hand and forearm in Orthopedic Surgery Department, University of Oklahoma and Integris Baptist Medical Centre. The records of 67 patients who developed intravenous catheter related complications were reviewed The most common sites for developing complications in order of frequency were the forearm, hand, wrist, and antecubital fossa. There were 56 minor and 11 major complications. More than 50% of minor complications occurred in the hand and wrist, and more than 50% of major complications occurred in the hand. In 68% of minor complications, the patients were aged 50 years or older and 68% were women. Minor complications comprised 26 intravenous infiltrations, 23 cases of thrombophlebitis, and 7 cases of cellulitis. Ninety percent of major complication patients were aged 50 or older and 82% were women. Major complications included septic thrombophlebitis in three cases, hematomas resulting in skin necrosis in two cases and infiltration related complications in six cases, compressive nerve lesions in two cases, digital stiffness in one case, and compartment syndrome in one case. Result shows the hand is a common site for minor and major intravenous catheter complications[8].

METHODOLOGY

The research design used in this study was A quasi-experimental design is one in which full experimental control. the sampling technique used for this study was Non probability purposive sampling technique select the sample from the selected hospital. The sample was 60 hospitalised patients and who met the inclusion criteria was selected from the target population. A data collection toll includes two section the first A. Demographic Data Collection B. Jackson's visual infusion phlebitis scale about In this 0 to 5 score in different stages data analysis was planned on the basis of objectives of the study using descriptive and inferential statistics in consideration with hypothesis of the research study. Socio demographic variables which include age, gender, Patient admitted with the condition, site of intravenous cannula, no. of prick did during the intravenous cannulation, size of intravenous cannula, duration of peripheral intravenous cannula, No. of IV bottles infused per day and No. of IV injection administered per day. Second one consists Jackson's visual infusion phlebitis scale.

Jackson's visual infusion phlebitis scale is use for measure the phlebitis according to score. In this 0 to 5 score in different stages. Score 0 is No signs of phlebitis. Score 1 is possibly first signs of phlebitis. Score 2 is Early stage of phlebitis. Score 3 is Medium stage of phlebitis. Score 4 is Advanced stage of phlebitis or start of thrombophlebitis. Score 5 is Advanced stage Thrombophlebitis. Patients who are getting score 3, 4, 5 according to scale those patients apply glycerine magnesium sulphate dressing at affected site.

FINDINGS:

Total 60 samples were analysed under study. Identified frequency percentage distribution of sample characteristics, grading and difference between pre and post result score. The analysis of the data was organized and presented under the following headings based on objectives of the study.

Section A: - Frequency and percentage distribution of demographic variable in experimental and control group

Section B: - level of phlebitis among hospitalized patients in pre- test and post- test among experimental and control group

Section C: - Description of observational score on effectiveness of glycerin magnesium sulphate dressing on phlebitis among patient

SECTION A: FREQUENCY AND PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLE IN EXPERIMENTAL AND CONTROL GROUP

In this section, demographic data and medical data of the respondents have been displayed to show the frequency distribution of the various attributes of demographic variables. The majority of subjects (33.3%) of experimental group belonged to 33-42 years age group and (33.3%) of the subjects of control group belonged to 23-32 years age group.Most of the subjects (60%) of Experimental Group and 56.7% of the subjects of control group were males. And (40%) of Experimental Group and 43.3% of the subjects of control group were Females. most of the subject, in experimental Group 46.7% of the subjects from surgical department, 26.7% of subjects admitted in medical department and 13.3% of the subjects admitted in gynecology and orthopedic department. In control subjects 50% of the subjects admitted in surgical department, 26.7% of the subjects admitted in medical department,

13.3% of the subjects admitted in orthopedic department and 10% of the subjects admitted in gynecological department. most of the subjects (100%) in experimental Group have upper limbs intravenous cannula. In control group 93.3% of the subjects have upper limb intravenous cannula and 6.7% of the subjects have lower limb intravenous cannula. Depicts majority of the subjects of experimental group 46.7% and control group 46.7% of sample pricked one time by IV cannula. percentage distributions of the patient that shows about in experimental group 33.3% has 18 G intravenous cannula, 40% has 20 G intravenous cannula, 26.7% has 22 G intravenous cannula. In control group 36.7% has 18 G intravenous cannula, 33.3% has 20 G intravenous cannula, and 30% has 22 G intravenous cannula. (60%) in experimental Group and control group 60% of the subjects having duration of peripheral intravenous cannula since 11 to 15 days. control group, 46.7%of the sample having more than 5 IV bottles infusion per day and 6.75% of the sample having one or two IV bottle infusion per day. In experimental group 40% of the sample having more than 5 IV bottles infusion per day, 33.3% of the sample having 3 to 4 IV bottles infusion per day and 26.7% of the sample having 1 to 2 bottles IV infusion. Experimental group 36.7% of the sample having more than 3 IV injection administered per day, 33.3% of the sample having 3 IV injection administered per day and 30% of the sample having more 2 IV injection administered per day. In control group 40% of the sample having 2 or more than 3 IV injection administered per day, and 20 % of the sample having 3 IV injections per day.

SECTION B

LEVEL OF PHLEBITIS AMONG HOSPITALIZED PATIENTS IN PRE- TEST AND POST- TEST AMONG EXPERIMENTAL AND CONTROL GROUP

TABLE 1: score interpretation of pretest score of experimental group and control group

		EXPERIMENTAL		CONTROL	
		Frequency	Percent	Frequency	Percent
PRE - TEST	Medium stage of phlebitis	20	66.7	9	30.0
	Advanced stage of phlebitis or start of thrombophlebitis	9	30.0	0	0.0
	Advanced stage Thrombophlebitis	1	3.3	0	0.0
	Possibly first signs of phlebitis	0	0.0	5	16.7
	Early stage of phlebitis	0	0.0	16	53.3

	Total	30	100.0	30	100.0

Table 1. depicts the classification of phlebitis among hospitalized patient in pretest among experimental group and control group.

The pretest of experimental group that majority 20(66.7%) hospitalized patient had medium stage of phlebitis, 9(30%) hospitalized patient had Advanced stage of phlebitis or start of thrombophlebitis and 1(3.3%) hospitalized patient had Advanced stage Thrombophlebitis.

The pretest of control group that majority 9(30%) hospitalized patient had medium stage of phlebitis, 5(16.7%) hospitalized patient had possibly first signs of phlebitis and 16(53.3%) hospitalized patient had Early stage of phlebitis.

TABLE 2: SCORE INTERPRETATION OF POST TEST SCORE OF EXPERIMENTAL GROUP AND CONTROL GROUP

		EXPERIMENTAL		CONTROL	
		Frequency	Percent	Frequency	Percent
POST TEST	No signs of phlebitis	6	20.0	0	0.0
	Possibly first signs of phlebitis	15	50.0	3	10.0
	Early stage of phlebitis	9	30.0	10	33.3
	Medium stage of phlebitis	0	0.0	15	50.0
	Advanced stage of phlebitis or start of thrombophlebitis	0	0.0	2	6.7
	Total	30	100.0	30	100.0

Table .2 depicts the classification of phlebitis among hospitalized patient in posttest among experimental group and control group.

The post test of experimental group that majority 15(50%) hospitalized patient had possibly first signs of phlebitis, 9(30%) hospitalized patient had Early stage of phlebitis and 6(20%) hospitalized patient had no sign of phlebitis.

The post test of control group that majority 15(50%) hospitalized patient had medium stage of phlebitis, 10(33.3%) hospitalized patient had Early stage of phlebitis had possibly first signs of phlebitis, 3(10%) hospitalized patient had possibly first signs of phlebitis and 2(6.7%) hospitalized patient had Advanced stage of phlebitis or start of thrombophlebitis.

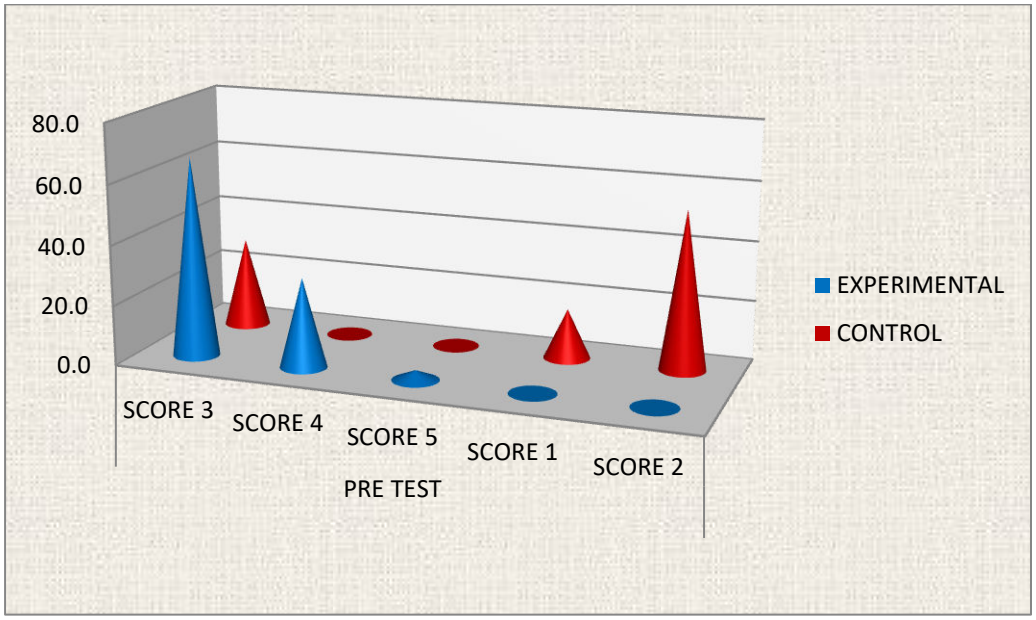

Figure 1:- Cone diagram showing Pre Test Phlebitis Level among Experimental Group and Control Group

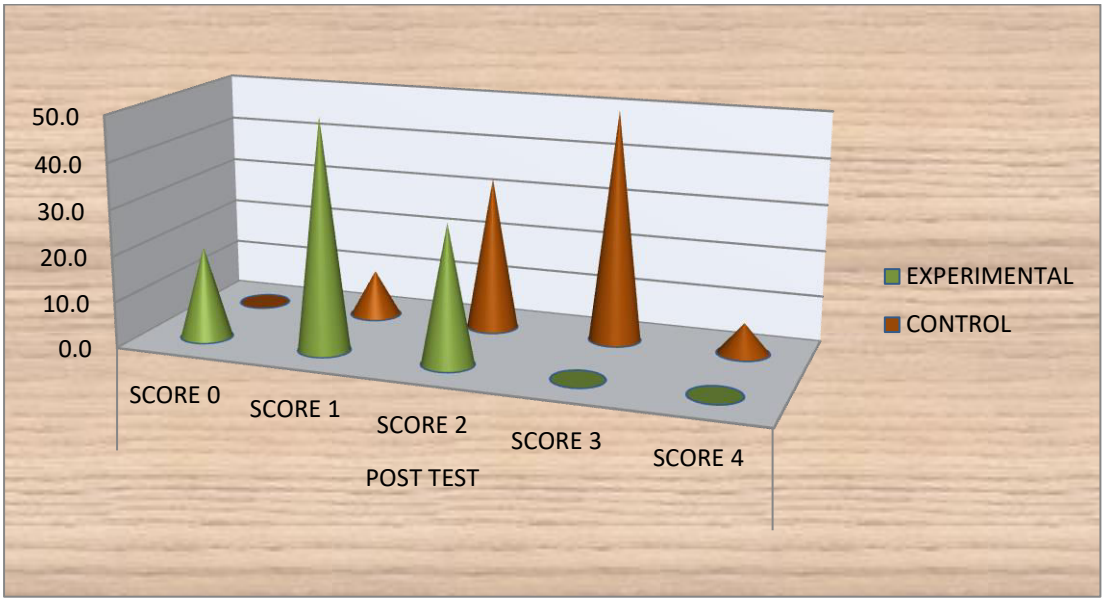

Figure 2:- Bar diagram showing Post Test Phlebitis Level among Experimental Group and Control Group

SECTION C

ANALYSIS OF OBSERVATIONAL SCORE ON EFFECTIVENESS OF GLYCERIN MEGNESIUM SULPHATE DRESSING ON PHLEBITIS AMONG PATIENT

H1 - There will be significant difference between post intervention phlebitis among the experimental group and control group

TABLE 3:- ANALYSIS OF OBSERVATIONAL SCORES IN EXPERIMENTAL GROUP AND CONTROL GROUP

	GROUP	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	alue	p value
Post Test	EXPERIMENTAL	30	1.10	0.71	.130	-1.43	454	.001
	CONTROL	30	2.53	0.78	.142			

Table 3 shows that **in experimental group** post test mean score 1.10, SD was 0.71 respectively. **In control group** post test mean score 2.53, SD was 0.78 respectively.

The obtained value 7.454 statistically was significant at 0.001 level. So **research hypothesis was accepted**. So there was significant difference between post intervention phlebitis among the experimental group and control group.

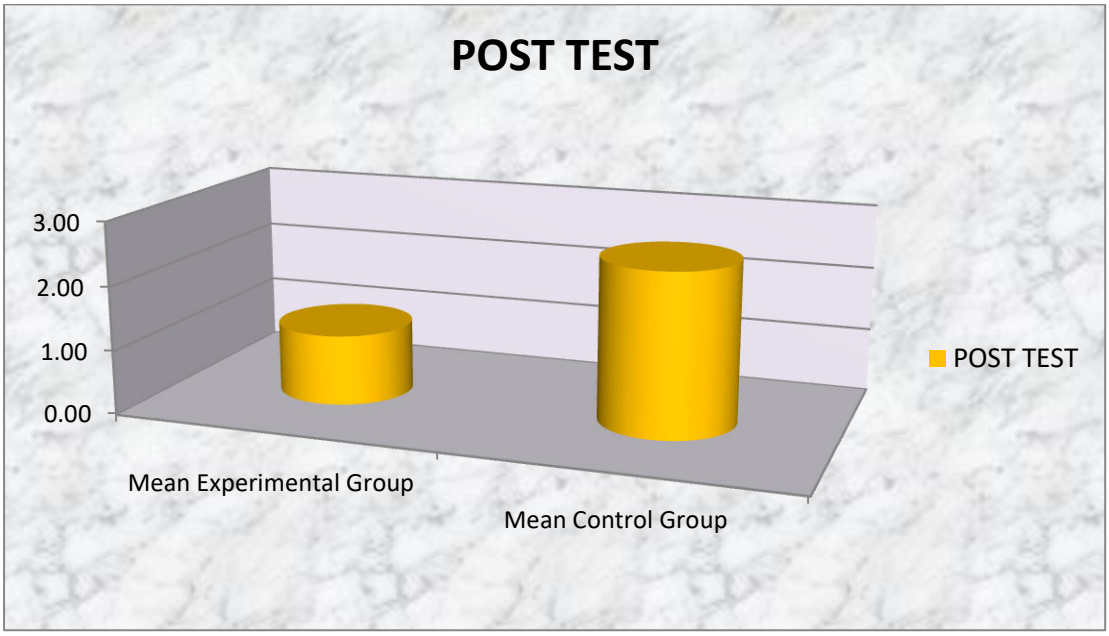

Figure 3:- Bar diagram showing percentage of Experimental Group and Control Group on effectiveness of activities for reducing Phlebitis

DISCUSSION-

The present study was conducted to determine the effectiveness of glycerin magnesium sulphate dressing on phlebitis among patients undergoing peripheral intravenous infusion in selected hospital, Vadodara. This chapter discusses the major findings of the study and reviews them in terms of results from other studies

CONCLUSION-

The study shows effective out comes of Glycerinmagnesium sulphate dressing on phlebitis among patient undergoing peripheral intravenous infusion, phlebitis refers to the It is the inflammation of the veins**.** In this study, phlebitis means a painful swelling and raised temperature at the intravenous infusion site along with hardness (in duration), redness (erythematic), and palpable vein as measured of Jackson's visual infusion phlebitis scale. Minimize the effect of the phelebites with the help of Glycerin magnesium sulphate dressing

Conflict of Interest

There was no conflict of interest.

Source of Funding

The study is not funded by any external sources as it is self-funded research project.

Ethical clearance

Ethical clearance has been obtained from the Sumandeep Vidyapeeth institutional ethical committee and willingness has been obtained from participants before data collection

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