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A DESCRIPTIVE STUDY TO ASSESS THE INCIDENCE OF PHLEBITIS ASSOCIATED WITH PERIPHERAL INTRAVENOUS CANNULA AMONG PATIENTS ADMITTED IN MATA KAUSHALYA HOSPITAL, PATIALA, PUNJAB

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ABSTRACT:

Nursing is one of the challenging professions in the health sector. A nurse has to provide 24 hours service in shifts and has to take care of many patients. This study aimed to assess the incidence of phlebitis associated with peripheral intravenous cannula among patients admitted in Mata Kaushalya Hospital Patiala, Punjab. A quantitative research approach with descriptive research design was adopted. 100 patients were selected using convenient sampling technique. Incidence of phlebitis was assessed by using standardized tool. Study showed that 53% had no sign of phlebitis, 33% had possible first sign of phlebitis, 12% had early stage of phlebitis and 2% had medium stage of phlebitis. There was no significant association of phlebitis score with gender, education, area of residence, source of information at p-value <0.05. Moreover, there were significant association of phlebitis score with age, monthly income at p –value<0.05.

Keywords: Incidence, Phlebitis, Peripheral Intravenous Cannula, Patients.

Introduction:

A peripheral intravenous cannula (PIVCs) is a short catheter inserted into the vein on the peripheral areas of the patients. It is the most frequently used invasive clinical/hospital procedure for the patients admitted to the hospital. Around 33%–67% of patients have a PIVC inserted during their hospitalization with the cannula remaining in place for considerable duration. It provides access to the administration of intravenous fluids, medications, blood products, and nutrients to the patient.[1]

The exploratory descriptive study proposed to identify the rate of infection and phlebitis associated with peripheral intravenous (PIV) therapy at the Royal Hobart Hospital, and uncover factors that may be associated with a higher incidence of each. The study investigated 275 PIV cannula. Almost one third (n=94) of those were cultured, with 33% (n=31) positive for bacterial growth, most predominantly Coagulase Negative Staphylococcus (CNS). The findings did not produce evidence to support a connection between the presence of clinical signs and symptoms of phlebitis and catheter colonization. However, the study revealed a high incidence of colonization in cannula inserted by ambulance personnel, a lower incidence of colonization in PIV cannula routinely resited, and a higher rate of colonization in cannula insitu longer than 4 days.[3]

Need of the Study:

Peripheral vein infusion phlebitis, the most frequent complication of peripheral venous infusion is characterized by pain, erythema, swelling and palpable thrombosis of the cannulated vein. Its pathogenesis is thought to be inflammation of the vein wall that leads to thrombus formation. Cannula related incidences, such as age, Gender, Education, Area of residence, Monthly income and Source of information may increase the risk of peripheral vein infusion Phlebitis. Patient related risk factor have received less attention, but biologic vulnerability to developing peripheral vein infusion phlebitis may vary from patient to patient.[4]

According to the Infusion Nurses Society, the sustainable rate of infiltration in patients is 5% or less. In the hospital most patients suffer from phlebitis, but very less incidents have been reported, may be due to improper observation skills of health care workers. It is necessary to identify the correlation between incidence of phlebitis for quality care of patient. This condition can be avoided by adequate and timely supervision of patient's IV site by health care workers.

Research Problem:

A descriptive study to assess the incidence of phlebitis associated with peripheral intravenous cannula among patients admitted in Mata Kaushalya Hospital Patiala, Punjab.

Aim of the Study:

The aim of the study is to assess the incidence of phlebitis associated with peripheral intravenous cannula among patients admitted in Mata Kaushalya Hospital Patiala, Punjab.

Objectives:

To assess the incidence of phlebitis associated with peripheral intravenous cannula among patients admitted in Mata Kaushalya Hospital Patiala, Punjab.

Assumptions:

It assumed that there was high incidence of phlebitis among patients admitted in Mata Kaushalya Hospital Patiala, Punjab.

Material and Methods:

Research Approach: A Quantitative research approach was used in this study.

Research Design:

Descriptive observational research design was considered appropriate for this study.

Research Setting:

The study was conducted in Mata Kaushalya Hospital Patiala, Punjab. The reasons for selecting area were availability of samples, investigator convenience and expected cooperation from Medical superintendent and patients to conduct the study.

Target Population:

The target population of the study comprised of patients admitted in Mata Kaushalya Hospital Patiala, Punjab.

Sample and Sampling Technique:

The sample consisted of 100 patients admitted in Mata Kaushalya Hospital Patiala, Punjab selected by convenient sampling technique.

Description of Tool:

It consists of the following sections:

Section A: Socio-Demographic Variables

There were 6 extraneous variables in the study such as age (in years), gender, education, area of residence, monthly income, source of information.

Section B: Standardized Tool

This section consists of standardized tool (Visual Infusion Phlebitis Scale).

Plan of Data Analysis:

The data was collected, organized, tabulated and analyzed by descriptive statistics such as mean, median, frequency, percentage, standard deviation and inferential statistics such as chi- square and Karl Pearson Correlation Coefficient on the basis of the objectives of the study was used for findings.

Criterion Measure:

A detail for scoring of the tool is as follows:

Scoring	Symptoms
0	No sign of phlebitis
1	Possible first sign of phlebitis
2	Early stage of phlebitis
3	Medium stage of phlebitis
4	Advance stage of phlebitis and start of thrombophlebitis
5	Advance stage of thrombophlebitis

Results:

Table 1: Frequency and percentage distribution of selected socio- demographic variables among patients

N=100

Sr. No.	Socio demographic variables	Frequency (f)	Percentage (%)
1.	**Age**		
	19-35 years	59	59
	36-52 years	27	27
	53-69 years	10	10
	Above 70 years	4	4.0
2.	**Gender**		
	Male	23	23
	Female	77	77
	Others	0	0.0
3.	**Education**		
	Primary	36	36
	Secondary	38	38
	Higher Secondary	14	14
	Graduate and above	12	12
4.	**Area of residence**		
	Rural	52	52
	Urban	48	48
5.	**Monthly Income**		
	<10000	28	28
	10,000-20,000	51	51
	20,001-30,000	14	14
	>30,000	7	7
6.	**Source of Information (regarding care of IV Site)**		
	Doctor	4	4.0
	Nurse	71	71
	Attendant	15	15
	Family Member	10	1

Table 2: Findings related to the incidence of phlebitis associated with peripheral intravenous cannula among patients

N=100

S. No.	Criteria measure of Phlebitis score		
	Level of Scores	**Frequency (f)**	**Percentage (%)**
1.	No signs of phlebitis (0)	53	53
2.	Possible first sign (1)	33	33
3.	Early stage of phlebitis (2)	12	12
4.	Medium stage of phlebitis (3)	2	2
5.	Advance stage of phlebitis and start of thrombophlebitis (4)	0	0.0
6.	Advance stage of thrombophlebitis (5)	0	0.0

Maximum=5
Minimum=0

Table 2: depicts that majority of patients i.e. 53% had no sign of phlebitis, 33% had possible first sign of phlebitis, 12% had early stage of phlebitis and 2% had medium stage of phlebitis

Table 3: Association between incidence of phlebitis with selected socio-demographic variables

N=100

DEMOGRAPHIC DATA		LEVELS						ASSOCIATION
Variables	**Options**	**No signs of phlebitis**	**Possible first sign**	**Early stage of phlebitis**	**Medium stage of phlebitis**	**Advance stage of phlebitis and start of thrombophlebitis**	**Advance stage of thrombophlebitis**	**x^2, df, p-value**
Age (in years)	**19-35 years**	33	22	5	0	0	0	25.549 9 0.002*
	36-52 years	16	8	2	0	0	0	
	53-69 years	5	2	2	1	0	0	
	Above 70 years	0	1	2	1	0	0	
Gender	**Male**	13	6	4	1	0	0	2.349 3 0.503^{NS}
	Female	41	27	7	1	0	0	
	Other	0	0	0	0	0	0	
Education	**Primary**	20	13	2	1	0	0	8.528 9 0.482^{NS}
	Secondary	22	11	5	0	0	0	
	Higher Secondary	5	7	2	0	0	0	
	Graduate & above	7	2	2	1	0	0	
Area of residence	**Urban**	28	16	6	2	0	0	2.051 3 0.562^{NS}
	Rural	26	17	5	0	0	0	
Monthly income	**< 10000**	18	9	0	1	0	0	18.698 9 0.028*
	10,000 -20,000	28	17	6	0	0	0	
	20,001-30,000	4	7	2	1	0	0	
	> 30000	4	0	3	0	0	0	
Source of	**Doctor**	2	2	0	0	0	0	9.349

Information	**Nurse**	39	21	10	1	0	0	9 0.406^{NS}
	Attendant	10	5	0	0	0	0	
	Family Member	3	5	1	1	0	0	

NS-Not Significant
***- Significant at p<0.05**

Table 3: depicts that there was no significant association of phlebitis score with gender, education, area of residence, source of information at p-value<0.05. Moreover, there were significant association of phlebitis score with age, monthly income at p – value<0.05.

Discussion:

Objective 1: To assess the incidence of phlebitis associated with peripheral intravenous cannula among patients admitted in Mata Kaushalya Hospital Patiala, Punjab.

Present study showed that 53% had no sign of phlebitis, followed by 33% had possible first sign of phlebitis, 12% which was further early stage of phlebitis and 2% had medium stage of phlebitis. Similar study was conducted by **Ms. Usha.B, DR. K.Nivethitha (2018),** patients admitted showed that 10(33.3%) of had phlebitis at grade I level, 8 (26.7%) of them had grade II level of phlebitis, 7 (23.3%) of them were found to have the level of phlebitis at grade III and 5 (16.7%) of them were found to have grade IV level of phlebitis.27 and another similar study was conducted by **Dhatchayani M., Sharon Jude, Alphonsa George (2023),** showed that total of 192 patients, 128 patients(66.67%) had score 1 in VIP scale while 64 patients (20.47%) had score 2 and 3.21

A similar study conducted by **Anand L, Valarie Lyngdoh W, Lily Chish (2020),** showed that the phlebitis incidence was found to be higher for peripheral venous cannula placed in the upper left limb (51.72%) with a relative risk of 1.03. Also, risk increased significantly with increased duration of cannulation (50.94%) and use of 20-gauge cannula size (61.54%). It found that the administration of IV antibiotics substantially increases the risk of developing phlebitis 58.33%.

Conclusion:

As per findings of the present study, 53% had no sign of phlebitis. There was no significant association of phlebitis score with gender, education, area of residence, source of information at p-value <0.05. Moreover, there were significant association of phlebitis score with age, monthly income at p – value<0.05.

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