

# AN OBSERVATIONAL STUDY TO ASSESS THE LEVEL OF PHLEBITIS AND CONTRIBUTING FACTORS AMONG PATIENTS WITH PERIPHERAL INTRAVENOUS CANNULATION

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**ABSTRACT:** The purpose of the study is to assess the level of phlebitis and contributing factors among patients with peripheral intravenous cannulation and to associate phlebitis with selected demographic variables. A total of 30 subjects were selected for this study by using convenient sampling technique. All subjects were evaluated by using grading scale for phlebitis and self-structured questionnaire to assess the contributing factors. The results of this studies revealed that 10(33.3%) of them 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. The overall mean level of phlebitis value is 2.3 with standard deviation of 0.16 & the mean percent is 57.5%. Further, the study results reveal that there is a significant association between selected demographic variables such as age, education and previous experience.

**Keywords:** level of phlebitis, contributing factors, peripheral, intravenous and cannulation

## INTRODUCTION

The globalized, competitive and demanding environment in which organizations are providing services in these era is driving health institutions to become increasingly concerned about the quality of care. In this perspective, quality is a multifaceted and polysemic phenomenon, permeated by a joint set of actions in effective, efficient, fair, acceptable, and secure health with regard to safety in health care, particularly in hospitals. It is clear that the nursing staff has an important role on the scope of desirable wellness, because it is the only professional category to monitor the hospitalized patient every day uninterrupted. Thus, each activity performed by nursing care tends to be a contribution to the security of hospital care.

There are many nursing care options exercised during the hospital stay of each user/patient and there should be necessary emphasis on care related to peripheral venous therapy, considering that a clear majority of assisted users will need at least one peripheral venous access during the hospitalization period; for infusion fluids, medications and/or nutritional support. Thus, nursing care in intravenous therapy is undoubtedly an element that deserves attention for the promotion of patient safety.

Intravascular devices are common and play very important role in modern day medical practice. One of the devices most used is the peripheral intravenous catheter (PIC) for IV fluids, IV medications, blood product administration, or blood sampling. About 50% of hospital patients require intravenous (IV) access. Although such catheter provides necessary intravascular access, their use puts client at risk for associated complications which may be local and systemic. One of the most common complications of PIC is phlebitis that may occur in up to 75% of hospitalized patients. It remains a significant problem in clinical practice and causes patient discomfort, catheter replacement, prolong hospital stay and health care cost. Many factors have been implicated in the genesis of phlebitis namely chemical factors such as irritant drugs and fluids and mechanical factors: such as catheter material, size of cannula, site of insertion, duration of cannulation.

## OBJECTIVES

- 1.To assess the level of phlebitis and contributing factors among patients with peripheral IV cannulation.
2. To associate phlebitis with selected demographic variables.

## ASSUMPTION

- The most of the patients who are on IV therapy tend to develop thrombophlebitis during their hospitalization.
- The risk of developing thrombophlebitis varies and severity increases between patient to patient for the patients who are in IV cannulation.

## DELIMITATION

- \* Study was limited to phlebitis patients who are undergoing drug therapy in IGGH&PGI.
- \* Study was limited to 4 hours to 72hours of time duration.

\* Study was limited to sample size of 30.

## METHODOLOGY

A descriptive approach was adopted to assess the level of phlebitis and contributing factors for developing phlebitis and non-experimental research design was used in the study. The study was conducted at Indira Gandhi Government General Hospital and Post Graduate Institute, Puducherry. There were 30 samples selected by using convenient sampling technique who fulfilled their inclusion criteria. Grading phlebitis scale was used to assess the level of phlebitis and the self-structured questionnaire was used to assess the contributory factors for phlebitis. The investigator obtained ethical clearance from the institution from where she is studying and from the setting of the study where the study is conducted.

## RESULT AND DISCUSSION

A total number of 30 samples were selected for the study. Data were collected by the researcher among the patients with IV cannulation by one to one interview method. According to the score, investigator had assessed the level of phlebitis among cannulated patients with peripheral line. Then all the samples were assessed for contributing factors of phlebitis individually by using self-structured questionnaire. Then the results of the study demonstrated as there were 2 samples (2.7%) in the age group of less than 30 years, 6 (20%) of them were in the age group of 31-40 years, 10 (31.3%) of them had their age between 41-50 years and 12 (40%) of them had the age 50 years and above. A total of 16 (53.3%) of them were male and 14 (46.7%) of them were female. Regarding educational status, 14 (46.7%) of them were illiterate, 16 (53.3%) of them were literate and in terms of occupation, 20 (66.7%) of them were working and 10 (33.3%) of them were not working. A total of 18 patients (60%) of them had previous experience of having IV line and 12 patients (40%) of them did not have experience of having IV line during their hospital visit.

Followed by the investigator assessed the samples for level of phlebitis and it was found finally there are about 10 (33.3%) patients had grade I, 8 (26.7%) samples had grade II, 7 (23.3%) samples had grade III and 5 (16.7%) of them had grade 4 level of phlebitis among 30 samples. Further, Mean level of phlebitis and Standard Deviation were assessed and it was found that the mean level of phlebitis was 2.3 with the mean percentage of 57.5 and with the standard deviation of 0.16 (table .1). The results of this study also is supported another study conducted by Prabhot Kanur, Ramesh Thakur (2011) on prevalence of phlebitis amongst intravenous cannulation and the prevalence was found as 113 (56.5%) among 200 subjects.

Table 1- mean level of phlebitis

Level of phlebitis	Frequency	Percentage (%)	Mean	Standard deviation	Mean percentage
Grade 0	0	0	2.3	0.16	57.5%
Grade I	10	33.3			
Grade II	8	26.7			
Grade III	7	23.3			
Grade IV	5	16.7			

Further researcher also assessed contributing factors, there are about 23 samples found to have phlebitis that had IV cannulation in cephalic vein. In terms of needle size used for starting IV line, the study results showed that the risk of phlebitis increases among the samples for whom the smaller needle sizes are used to start the IV line (23 in 16G, 4 in 18G and 2 in 20G respectively) as well as the same results were found for the samples that had IV cannulation for the longer duration than the samples had IV cannulation for shorter duration (1 in one day, 12 in 3 days and 10 in 4 days and more than that). Further, related the frequency of changing IV cannulation, the risk of phlebitis decreases among the samples for whom cannulation was changed more often. Then about ideal time for saline flush, there are only 12 samples found to have phlebitis for those saline flush was given every 4-6 hrs than the samples who had saline flush every 7-11, 12 and 24 hrs respectively. Similarly in the duration of IV cannulation, the study results showed that the risk of phlebitis increases among the samples with longer duration of IV cannulation. Finally regarding purpose of starting IV cannulation, the results of the study revealed that most of the samples (18) who had IV cannulation for the purpose of drug administration were found to have phlebitis than the samples had IV line for other purposes. The results of the above study results is consistent with the results of the similar study conducted by Dragana Simin et al (2015) on risk factors for phlebitis: a questionnaire study of nurse's perception and the results of the study revealed that the incidence of phlebitis increases with the usage of medicine, duration of cannulation and size of needle (fig.1).

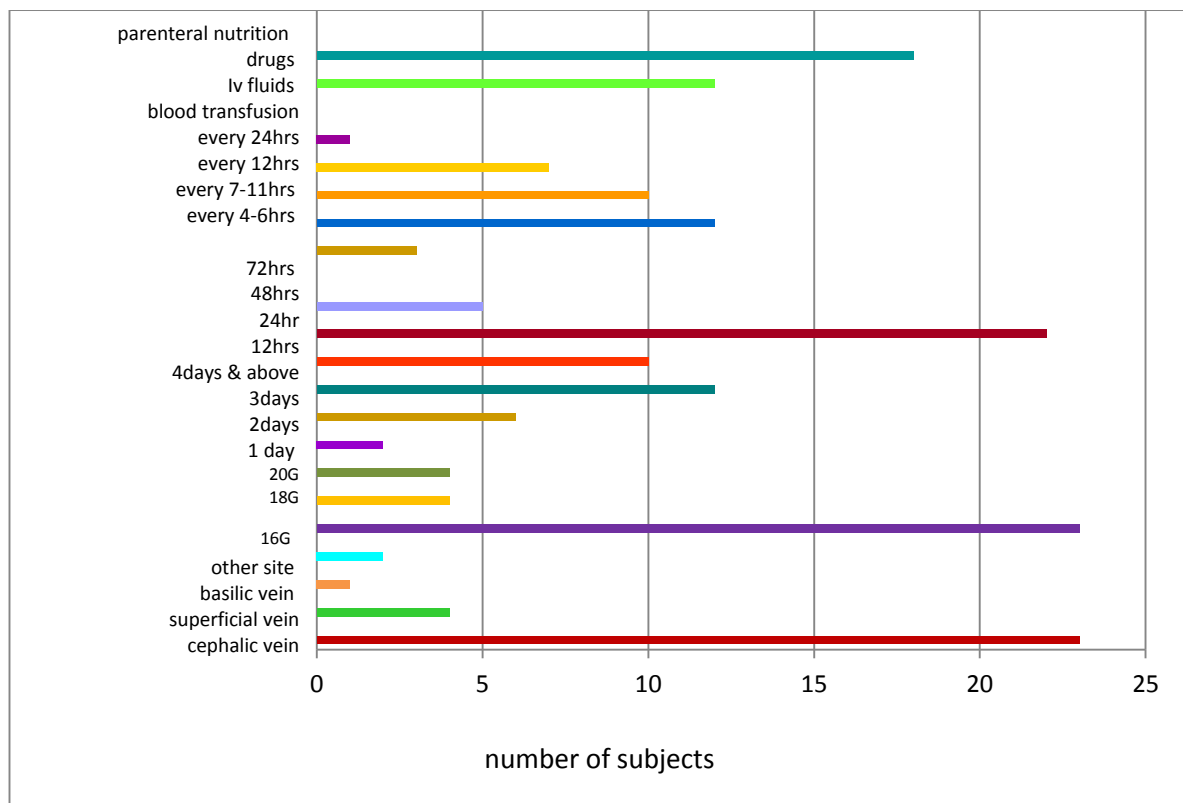


Fig.1-contributing factors for phlebitis

The association between the level of phlebitis and selected demographic variables was also assessed by using chi square test by the investigator and was statistically found that few of the selected variables had association such as age, education and previous experience of phlebitis with the the level of phlebitis.

## CONCLUSION

There is an increasing evidence of prevalence of phlebitis among hospitalized patients with IV cannulation since the procedure like opening IV access is an essential and unavoidable in many of the such hospitalized patients. Although it is necessary, it's use puts the client at high risk of adverse effect such as phlebitis. There are many factors can causes phlebitis in these situations. Such some of the factors are identified in this study. Hence, this study become an evident for developing phlebitis among the patients with IV cannulation.

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