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A STUDY TO ASSESS THE KNOWLEDGE OF NURSES ON THE RISK FACTORS AND PREVENTION OF PHLEBITIS

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ABSTRACT

In the practice of modern medicine, peripheral venous cannulation is a must. Endothelial damage and trauma caused by intravenous catheters can lead to venous thrombosis. Peripheral vein infusion thrombophlebitis affects 25-35 percent of hospitalized patients who have intravenous catheters and it has both patient-related (e.g., sepsis) and financial implications (e.g., extra nursing time). This study was designed to assess the knowledge of nurses on the risk factors and prevention of Phlebitis. A cross sectional descriptive study was used among 30 nurses. The questionnaire was a modified Lanbeck *et al*[1]. Questionnaire which had 17 closed-ended questions about phlebitis risk factors. The questionnaire was circulated to the nurses as Google sheets and the data was analysed**.** Nurses with a diploma, as opposed to nurses with a higher education, were unaware that the material of the cannula ($p = 0.05$) and the time it took to replace the infusion system ($p = 0.01$) had an impact on the incidence of phlebitis. According to a large proportion of nurses qualified with diploma education, the intravenous cannula should be updated based on clinical indications, according to a large proportion of nurses with diploma education ($p = 0.01$). Similarly, the work experience of the nurses played a significant role in choosing the appropriate cannula size for their patients to reduce the chances of phlebitis ($p = 0.001$). The study emphasised a regular need based in-service education for nurses.

KEYWORDS

Knowledge, Nurses, Risk factors, Prevention and Phlebitis.

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INTRODUCTION

Peripheral venous cannulation (PVC) is a frequent treatment used in hospitals to allow for quick and accurate medication administration (Endacott *et al*, 2009)[2]. The implantation of an intravenous cannula, on the other hand, might have negative

consequences, the most common of which is phlebitis. Phlebitis is derived from the Latin term Phlebo, which means vein and it is, which means inflammation. It stands for inflammation of the vessel wall and can be traced back to John Hunter's first description of the condition. When venular inflammation is combined with the formation of thrombus in the same area, the term thrombophlebitis is used.

The inflammation of the tunica intima of a superficial vein causes peripheral catheter-related phlebitis. The inflammation is caused by mechanical, chemical, or bacterial irritation of the tunica intima. It might lead to infection or thrombus formation if left untreated (Royal College of Nursing, 2010). In the United Kingdom, it is believed that 20-80% of people with PVC develop phlebitis.

This wide range has also been found in research from other countries (Uslusoy and Mete, 2008)[3], implying that phlebitis is misdiagnosed or that reporting standards are inadequate. It is critical for nurses to be able to recognize patients who are at risk of phlebitis. As a result, early diagnosis will allow for timely response, reducing treatment disruption. Age, gender, and accompanying disorders are the most common patient-related risk factors. Phlebitis is more common as people get older, with most studies revealing that apparent indications of phlebitis were present in about half of patients over the age of 60. Furthermore, phlebitis is increased by illnesses that impair circulation (e.g., peripheral vascular disease and smoking status) as well as disorders that induce a loss of sensation (peripheral neuropathy). Other disorders, particularly diabetes, can play a substantial role in the development of phlebitis[4].

Phlebitis is influenced by the physicochemical qualities of the peripheral venous cannula (PVC) material and its size[5]. A smaller diameter PVC that accommodates the patient's veins and prescribed medication reduces the risk of phlebitis[6,7]. The risk of phlebitis and other phlebitis-related problems can be considerably reduced by properly stabilizing and securing the insertion site[8-10]. Most existing standards and best practice guidance point out that PVC replacement should be considered every 72 to 96 hours.

The installation and care of a PVC by poorly trained employees or staff with less work experience is one of the significant concerns for phlebitis incidence[11]. Nurses' understanding of and early recognition of risk factors for phlebitis can help to prevent consequences. This increases the quality of service, patient safety, and patient satisfaction ratings while also shortening hospital stays and lowering overall health-care costs. Therefore, the aim of this study was to assess the nurses' level of knowledge on risk factors and prevention of phlebitis in a selected hospital.

MATERIAL AND METHODS

A cross sectional, survey method was used to assess the knowledge of nurses on the risk factors and prevention of Phlebitis. Thirty nurses were selected from a hospital by convenient sampling technique. The questionnaire was a modified Lanbeck *et al*[1]. Questionnaire which had 17 closed-ended questions about phlebitis risk factors and one open-ended question: "Do you know of any other risk factor for phlebitis that has not been cited?" If the answer was "yes" respondents were asked to name the other risk factors. In this self-administered questionnaire, the nurses graded the drugs such as antibiotics and solutions from 1 to 5 as very rarely (grade - 1) cause phlebitis to very often (grade -5). The reliability of the tool was assessed and the r =0.81. Institutional ethical approval and consent from the nurses were obtained prior to the study. The questionnaire was circulated to the nurses as Google sheets and the data was analysed by descriptive and inferential statistics.

RESULTS AND DISCUSSION

The nurses were 27.1 years old on average (SD=1.8) while the majority of the nurses (63.3%) finished diploma, 8(26.7%) graduated from college, and three (10%) earned a master's degree in nursing. The survey found that nearly 46.7% of nurses worked in medical ward, 30% in surgical and 10% were in intensive care units whereas 13.3% were in emergency department. The nurses' average work

experience was 4.87 years (SD= 0.87), with a range of one to 10 years (Table No.1).

The majority of nurses thought phlebitis was a serious problem (67.6%), and that its occurrence indicated the quality of nursing care (65.7%), whereas one-third thought it was a moderate problem in patient care. Good venipuncture procedure, regular and proper recordkeeping, and delivering short-term infusions of drugs are all factors that may affect the occurrence of phlebitis. More than half of the nurses, on the other hand, were unaware that the material and width of the cannula could increase the risk of phlebitis and could differentiate the phlebitic prospective of the flushing solution on IV catheters, such as heparin and 0.9% NaCL.

Higher medication concentrations and medications or solutions with a higher pH, as well as thromboembolic disorders, diabetes mellitus, and venous insufficiency, also were factors that the nurses thought could cause phlebitis. Nurses with a diploma, as opposed to nurses with a higher education, were unaware that the material of the cannula ($p = 0.05$) and the time it took to replace the infusion system ($p = 0.01$) had an impact on the incidence of phlebitis. According to a large proportion of nurses with diploma education, the intravenous cannula should be updated based on clinical indications, according to a large proportion of nurses with diploma education ($p = 0.01$).

Similarly, the work experience of the nurses played a significant role in choosing the appropriate cannula size for their patients to reduce the chances of phlebitis ($p = 0.001$). Most of the nurses (70%) thought that the administration of antibiotics such as vancomycin and high osmolality fluids may lead to phlebitis among their patients. Similar study findings were also reported in few studies which conclude that the nurses level of education and years of experience place a significant role in their knowledge towards the risk factors and prevention of phlebitis. These studies also emphasise the need for regular in- service education for the nurses to prevent phlebitis and improve the quality of health care.

Table No.1: Distribution of demographic variables of nurses

S.No	Demographic Variables	Frequency	%
1	Gender (Female)	22	73.3
2	Age in years (Mean and SD)	27.1 ±1.8	
Qualification			
3	Diploma	19	63.3
4	B.Sc	8	26.7
5	M.Sc	3	10
Area of work			
6	Medical Ward	14	46.7
7	Surgical Ward	9	30.0
8	ICU	3	10.0
9	Emergency Department	4	13.3
10	Years of experience(Years) (Mean and SD)	4.87±0.87	

CONCLUSION

Nurses who took part in this study thought phlebitis, a common local complication of peripheral intravenous treatment, was a major problem in clinical practice. However, numerous risk factors associated with its occurrence, particularly those related to the cannula, were not thoroughly identified. Hence, frequent need based in-service education to be given to the nurses for quality nursing practice.

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DECLARATION OF CONFLICTING INTEREST

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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