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The Relationship Between Knowledge of Novice Nurses and The Incidence of Phlebitis In Cipto Mangunkusumo Hospital, Jakarta

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ABSTRACT

***Background**: Phlebitis leads to increased discomfort for patients, longer hospital stays, and higher healthcare costs. One of the factors causing phlebitis is the lack of skilled nurses when performing infusions. **Aim**: The purpose of the study was to determine the relationship between novice nurses' knowledge about infusion therapy with the incidence of phlebitis. **Methods**: This type of research using questionnaire to the nurse was analytic-correlational with a cross-sectional approach, with a total sample of 52 nurses who were inpatients and 54 patients who were given intravenous drip. Univariate and bivariate analyses were performed in data analysis. **Results**: this research showed 38.5% of nurses had poor knowledge, the incidence of phlebitis was 32.7%, and 62.8% felt comfortable with infusion. There was a significant relationship between nurses' knowledge about infusion therapy with the incidence of phlebitis (p= 0.000; = 0.05), and with quality indicators (p= 0.000; = 0.05). **Conclusion**: It is recommended for nurses to improve their knowledge and skills of infusion so that complications and discomfort due to infusion can be reduced.*

ABSTRAK

Latar Belakang: Flebitis menyebabkan peningkatan ketidaknyamanan bagi pasien, lama rawat inap, dan biaya kesehatan yang lebih tinggi. Salah satu faktor penyebab flebitis adalah kurangnya tenaga perawat yang terampil saat melakukan pemasangan infus. **Tujuan**: Untuk mengetahui hubungan pengetahuan perawat pemula tentang terapi infus dengan kejadian flebitis. **Metode**: Jenis penelitian yang menggunakan kuesioner kepada perawat adalah analitik-korelasi dengan pendekatan cross sectional, dengan jumlah sampel 52 perawat yang rawat inap dan 54 pasien yang diberikan infus. Analisis univariat dan bivariat dilakukan untuk menganalisa data telah dikumpulkan. **Hasil**: penelitian ini menunjukkan 38,5% perawat memiliki pengetahuan yang buruk, kejadian flebitis 32,7%, dan 62,8% merasa nyaman dengan pemasangan infus. Ada hubungan yang signifikan antara pengetahuan perawat tentang terapi infus dengan kejadian flebitis (p= 0,000; = 0,05), dan dengan indikator kualitas (p= 0,000; = 0,05). **Simpulan**: Disarankan bagi perawat untuk meningkatkan pengetahuan dan keterampilan pemasangan infus sehingga komplikasi dan ketidaknyamanan akibat pemasangan infus dapat dikurangi.

***Keywords** : Novice nurse, nursing care, phlebitis*

Kata Kunci : Perawat pemula, asuhan keperawatan, flebitis

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INTRODUCTION

Vascular access cannulation using peripheral venous catheters (PVCs) is considered the most frequent therapy and the most common invasive procedure performed on inpatients with acute diseases (1, 26). The performance of this technique helps nurses to get quick access to the vascular system, and considered being less invasive and less complex than other techniques (2). The catheter selection is based on the estimated duration and type of treatment to be infused. The administration of PVCs is to help nurses administering fluid therapy, parenteral nutrition, blood products, and diagnostic tests (3, 17). However, this therapy may cause various infections, such as phlebitis; which considered the most common side effect of PVCs. Generally, phlebitis is described as acute inflammation of the wall of the blood vessels, indicated by irritation of the venous endothelium in the sectionor segment cannulated caused by the catheter (4). It is due to improper handling catheter or improper gauging of vein, infusion of drugs of extreme pH and osmolarity, catheter contamination, length of stay and the number of catheters inserted in patients (16, 29). In order to prevent the incidence of phlebitis, it is necessary for nurses to perform assessment of possible signs and symptoms present in the insertion area, such as erythema, tumefaction in the vein, pain, heat, and fever (5, 28). In this sense, the use of rating scales such as the Visual Infusion Phlebitis (VIP) scale, the Phlebitis scale, and the Maddox scale (6) may be useful.

The incidence of phlebitis is one of the nosocomial infections that is used as a benchmark for the quality of hospital services and a study conducted by WHO showed that about 8.7% of 55 hospitals from 14 countries originating from Europe, the Middle East, Southeast Asia, and the Pacific showed nosocomial infections and for Southeast Asia as much as 10.0% (7).

Nurses are the spearhead of hospital services so that the knowledge of nurses must be good so that treatment of patients can be fulfilled properly (8). Nurses' knowledge about the incidence of phlebitis is an important factor in preventing phlebitis complications and patient discomfort in the hospital.

Based on research on the knowledge of clinical nurses about phlebitis knowledge conducted the level of knowledge of clinical nurses about phlebitis before the seminar was 2.79 (46.4%) (very poor knowledge) and after the seminar 3.57(59.5%) (near enough knowledge). The results of a preliminary survey on the incidence of phlebitis which was carried out on the 6th floor of building A, RSUPN Dr. Cipto Mangunkusumo Jakarta on March 8, 2020, obtained 2 patients with phlebitis degree 2 from 54 patients who were on the 6th floor of building A which consisted of the HCU room, cardiology ward and class 1 ward and from the results of a preliminary study regarding knowledge about the incident. phlebitis nurse on the 6th floor of building A RSUPN Dr. Cipto Mangunkusumo on November 26, 2019 from 12 novice nurses on the 6th floor of building A RSCM, data obtained 6 nurses had a poor level of knowledge with a percentage (50%), 3 nurses had a good level of knowledge with a percentage (25%) and 3 nurses have a very good level of knowledge with a percentage (25%).Based on this, the researcher is interested in researching the research entitled “The Relationship Between Knowledge Of Novice Nurses And The Incidence Of Phlebitis In Cipto Mangunkusumo Hospital, Jakarta”.

METHOD

This study uses quantitative research methods with analytical descriptive. Analytical descriptive research is a research that looks for the relationship between the variables studied. The relationship between these variables was determined based on statistical tests (9).This study also uses a transverse (cross sectional) approach. Cross sectional is a study where data collection on several research variables is carried out at the same time (10).This study was to describe the level of knowledge of clinical nurses I as novice nurses (PK.I) about the incidence of phlebitis and its relation to age, gender, education level and years of service.

This study used a research questionnaire consisting of 3 parts, namely questionnaire A, questionnaire B and questionnaire C. Questionnaire A was used to collect demographic data and characteristics of novice nurses consisting of age, gender, education level and years of service of the respondents. Questionnaire B was used to assess the respondent's level of knowledge about the incidence of phlebitis. Questionnaire B contains questions regarding the knowledge of clinical nurse I (11) about the incidence of phlebitis as many as 30 questions, the measurement scale uses the Guttman scale with correct and incorrect answer choices. Questionnaire C contains the respondent's statement about the experience of phlebitis in patients managed by the respondent. The measurement scale uses a Likers scale with the criteria of never and never answers, scores for answers of never (1) and never (0). Prior to the data collection, this study had obtained ethical clearance approval from Faculty of Medicine of University of Indonesia, with protocol number 20-08-0917.

RESULTS

Table 1 Frequency Distribution of respondents' characteristics

	Frequency	Percentage
Age		
22	5	9.6
23	11	21.2
24	16	30.8
25	13	25.0
26	5	9.6
29	2	3.8
Total	52	100
Working period		
0	7	13.5
1	18	34.6
2	12	23.1
3	10	19.2
4	5	9.6
Total	52	100
Sex		
Female	44	84.6
Male	8	15.4
Total	52	100
Education		
Diploma	41	78.8
Bachelor	11	21.2
Total	52	100

Univariate data analysis contains data on respondents' knowledge and incidence of phlebitis in patients managed by respondents in the inpatient ward of building A Dr. Cipto Mangunkusumo Hospital, Jakarta. The average working period of the respondents is around 1.77 years or about 2 years with the highest working period of 4 years and the lowest being 0 years. Furthermore, in terms of sex, it can be seen that the majority of respondents are 44 female (84.6%), while only 8 people (15.4%) are male. Lastly, in terms of the education level, the majority of the respondents held D-III as many as 41 people (78.8%), while Bachelor only 11 people (21.2%). The data is presented in the form of a frequency distribution table as follows:

Based on data in Table 1, it can be seen that the number of respondents in this study was 52. The average age of the respondents was 24.23 years or about 24 years, with the highest age being 29 years and the lowest being 22 years.

Table 2 Frequency Distribution of Respondents' Knowledge Level About Phlebitis Incidence

Category	Frequency	Percentage%
Good	32	61,5%
Not Good Enough		38,5%
Total	52	100%

Based on the frequency distribution of the level of knowledge in table 2, respondents who have good knowledge are 61.5% (32 respondents) and 38.5% are less good (20 respondents).

Table 3 Frequency distribution of phlebitis in patients managed by respondents

Phlebitis	Frequency	Percentage%
Yes	17	32,7
No	35	67,3
Total	52	100

Based on table 3, it can be seen that the incidence of phlebitis was experienced by 17 respondents (32.7%). While never as many as 35 respondents (67.3%).

Table 4 The results of bivariate analysis

		Levene's Test for Equality of Variances		*t-test for Equality of Means*						
									95% Confidence Interval of the Difference	
Total_S		*F*	*Sig.*	*t*	*Df*	*Sig. (2 tailed)*	*Mean difference*	*Std. erors difference*	*Lower*	*Upper*
	Equal variances assumed	4.163	.047	8.959	50	.000	3.847	.429	2.985	4.710
	Equal variances not assumed			11.263	49.983	.000	3.847	.342	3.161	4.533

The bivariate analysis in this study was conducted to see the relationship between the independent variable, namely the level of knowledge and the dependent variable, namely the incidence of phlebitis in the inpatient ward of building A, RSUPN Dr. Cipto Mangunkusumo Jakarta. From the normality test of the knowledge value data using skewness and kurtosis by comparing the value of the skewness ratio and the kurtosis value of the data normality value of ± 2. then the knowledge value data is normally distributed. So the statistical test used is the dependent t test (pairs) because the two data are related/paired and the types of data used are numeric and categorical.

Table 5 Statistical Tests on Respondents Who Have or Have Never Had Phlebitis Experience in Their Managed Patients

	Plebitis	N	*Mean*	*Std. Deviation*	*Std. Error Mean*
Total_S	No	35	22.20	1.677	.283
	Yes	17	18.35	.786	.191

Based on statistical tests, it was found that 17 people with an average of 18.35 had phlebitis patients who were managed within a year, namely in 2019 while 25 people with an average of 22.2 had never experienced phlebitis in their managed patients.

The Relationship between Respondents' Knowledge Level of Phlebitis

From the results of statistical data in table 5.8 regarding the relationship between the level of knowledge and the incidence of phlebitis, the value of p = 0.000 (<0.05) indicates a significant relationship between the knowledge of PK.I nurses and the incidence of phlebitis.

DISCUSSION

The results showed that the level of knowledge was good 61.5% (32 respondents) while not good was 38.5% (20 respondents) and the results of the relationship between the level of knowledge and the incidence of phlebitis using the T dependent test, p value = 0.000 (<0.05) showed there is a relationship between the knowledge of PK 1 nurses on the incidence of phlebitis in the inpatient ward of building A Dr.Cipto General Hospital Mangunkusumo Jakarta. It can be said that the higher the level of knowledge of PK.I nurses about the incidence of phlebitis, the lower the incidence of phlebitis in patients managed by respondents. These results are in accordance with the results of previous studies finding the relationship between knowledge and prevention of infections associated with peripheral venous catheters (18). However, it is contrast to the results of research from (7) the relationship between nurses' knowledge about phlebitis and phlebitis rates did not show a statistically significant relationship. Researchers suspect this is because there are other aspects of nurses that were not examined in this study such as compliance (affective) and skills (psychomotor) (12, 25). As it is argued that adherence to the best standards of nursing practice also contributes to prevent nursing procedure-related infections (19).

It is found that good knowledge of nurses in IV cannula administration protocols results in adherence to evidence-based guidelines for preventing IV catheter-related infections (22). Previous studies suggest that nurses' knowledge and their ability in recognizing the risk factors of development of phlebitis can reduce complications, increase patient safety rate, and reduce length of hospital stay (23, 27).

From the results of this study, it is known that the average age of respondents in pk 1 nurses is 24 years, the results are that ages >24 years have good knowledge, namely 60% and <24 years have poor knowledge 40%. Nurses aged >31 years have good knowledge compared to nurses aged <31 years.

This is in line with the statement in (7) that a person's soul is influenced by age to reprocess understandings or responses. So it can be analyzed that the higher a person's age, the better his thought process is to take action, in this case nursing actions to prevent phlebitis.

A person's knowledge is increasingly influenced by the number of experiences that make people know how to solve problems from previous experiences that have been experienced (13, 20). From the results of the research, respondents who worked pk 1 nurses averaged 2 years of service, as many as 37 respondents with a working period of <2 years, 20 respondents with a good level of knowledge and 17 respondents less well, while 15 respondents with a service period > 2 years, with a good level of knowledge. as many as 12 respondents and 3 respondents with a poor level of knowledge. Based on the results, it shows that one's knowledge is increasingly influenced by increasing experience.

The higher a person's level of education, the higher the level of knowledge and the easier it is to understand knowledge (9, 21). This is in line with the results of the research that the respondents of PK 1 nurses with an undergraduate background were 11 respondents and obtained 9 respondents with good knowledge level and 2 respondents with poor knowledge level, while respondents with DIII background as many as 41 respondents obtained 23 respondents with good knowledge and 18 respondents have poor knowledge.

From the results of the study, the level of knowledge of respondents on the incidence of phlebitis was divided into 2 good and bad categories. Overall data obtained by respondents who have good knowledge 61.5% (32 respondents)

and 38.5% less well (20 respondents). Level of knowledge of novice nurses about phlebitis before in-house training was given was 46.42% in the interpretation of knowledge that was very lacking for novice nurses. meaning inexperienced, resulting in very less knowledge (14).

In order to be not misled by the term inexperienced, this term cannot always be associated with the year of clinical practice. Physician and other medical workers with many clinical practice years are likely to be more difficult to adapt to changes and update their knowledge (30). Therefore, looking at the importance of knowledge in preventing phlebitis or other infections associated with PVC, previous studies suggest that nurses continue update their knowledge and practice through various in-service educational program (24)

This study was conducted in a small sample group which limits the research findings from generalization in other contexts. Besides, it only focused on analyzing the relationship between knowledge of nurses and incidence of phlebitis resulting in less comprehensive discussions. Therefore, further studies with a larger sample size on different factors are necessary to be conducted.

CONCLUSIONS

This study finds that the knowledge of novice nurses of phlebitis in the inpatient room of building A, Dr. Cipto Mangunkusumo was high (61.5%) and only few novice nurses had experiences with patients experiencing phlebitis. This study also finds that there was a relationship between knowledge of novice nurses and the incidence of phlebitis in the inpatient ward of building A, Dr. Cipto Mangunkusumo proven by the value of sig (2 tailed) = 0.000(<0.05). The r value shows that there was a significant mean difference between nurses who had good knowledge of phlebitis and nurses who had poor knowledge of phlebitis.

Based on the research findings, it is suggested that the management can provide in-house trainings on phlebitis and management of patients with phlebitis, particularly for novice nurses during their orientation. A regular monitoring and supervision to prevent the incidence of phlebitis is also suggested.

As for the development of nursing sciences, this research findings are expected to be useful for nursing courses development particularly on nursing care quality and patient safety to improve professional skills of nurses in providing health services.

CONFLICT OF INTEREST

The authors, hereby, declare that there is no conflict of interest in this research.

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