

# The Factors Contributed of incidence phlebitis cases with patients by using cannula in National Hospital Guido Valadares Dili, Timor Leste

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## ABSTRACT

Phlebitis is defined as inflammation of the vein wall where 2 complications that may develop as a result of phlebitis are: infection resulting from an accumulation of neutrophils; and thrombus, which may lead to complete occlusion of the vein. As healthcare professionals cannot look inside veins during IV therapy, they must rely on what they can see, feel and ask, i.e. detectable changes in skin color, texture, temperature and sensitivity, to identify the development of phlebitis. The absence of a good blood flow and the presence of a poor infusion rate have also been cited as clinical indicators of phlebitis. Observation of the patient for clinical signs and symptoms of phlebitis is therefore the key to preventing serious venous damage. Health professional hands are a common of spreading microorganisms, thus very important for health workers followed one of precaution is to attention wash your hands of properly. Phlebitis is caused by chemical factors (type of net liquids), mechanical factors (insertion measures in place), and the most common factors (hand washing techniques including the factors of the patient's age), have been caused by phlebitis. The same results in some research conducted by some researchers show that the causes of phlebitis, among them, the types of liquidity and knowledge of nurses, type of therapy, and development of children, the location and the application of these measures were not yet put in place. The design of research is a quantitative study, with a cross-sectional approach. The sampling technique in this study was accidental sampling, with a sample of 56 respondents. The study was conducted on November 2022 in National Hospital Guido Valaradres Dili, Timor Lest. The result of study showed that the cannula factor influence the phlebitis of the correlations is 0.605 and significant P value is 0.000, time/duration using cannula factor influence the phlebitis of the results correlations is 0.633 and significant P value is 0.000 and the age factor influence the phlebitis of the correlations = 0.736 and significant P value is 0.000

**Keywords:** Cannula, Incidences, Patient, Phlebitis.

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## INTRODUCTION

Health professional hands are a common of spreading microorgtanism, thus very important for health workers followed one of precaution is to attention wash hands of properly (Kozier, 2016)

Also the results of a survey conducted by (WHO, WHO guidelines on hand hygiene in health care., 2011) in 2011 of 28 hospitals in America and Europe showed 13 to 20 incidents of nosocomial infections out of 1000 patients treated with details of 83% of patients infected with VAP (Ventilator Associated Pneumonia), urinary tract infections as much as 97%, and bloodstream infections/phlebitis as much as 81%

According to the World Health Organization (WHO, 2017), health is a physical, mental or psychological status and prosperity for productive people in social and economic conditions. Among both a healthy term in a day-to-day life, it is often used to show that what is happening normally and also in view of the report of the (WHO, 2018), number of phlebitis that in every year is 5%. The prevalence survey by the WHO into 15 hospitals out of 14 countries representing four regions, with the Eastern Mediatory, Southeast Asia and the Western Pacific), shows 8,7% of patients with phlebitis. The number of phlebitis in the four regions is Europe (7,7%), the Western Pacific (9%), Timor Mediatorean (11,8%), with Southeast of Asean Region (10%). Also, the number of phlebitis in other developed countries such as Iran (14,20%), Malaysia (12,70%), Philippines (10,10%), Taiwan (13,8%), Nigeria (17,5%) and Indonesia (9,80%)

The research realized by Luis Carlos Fortado in the Division hospital Espirito Santo Portugal revealed several reasons for the removal of intravenous shopping occurring. The incidence of phlebitis bites has a total of 61,5% (Carlos and Furtado, 2011). Similar issues also occurred in the research realized by Anabela Salgueiro-Oliveira at the Portuguese hospital center showed many reasons that the removal of intravenous shopping took place with a total of 43,8% of the 315 cases (Oliveira, 2012)

Research realized in King Abdulaziz Medical City (KAMC) in Saudi Arabia demonstrates that phlebitis is the most common type of complications compared to other complications caused by intravenous therapy. Of the 190 patients who have obstetric complications, there are 148 patients with phlebitis (White and Balky, 2014).

The Infusion Nursing Standers of Practice (INSP, 2006), phlebitis is caused by chemical factors (type of net liquids), mechanical factors (insertion measures in place), and the most common factors (hand washing techniques including the factors of the patient's age), have been caused by phlebitis. The same results in some research conducted by some researchers show that the causes of phlebitis, among them, the types of liquidity and knowledge of nurses, type of therapy, and development of children, the location and the application of these measures were not yet put in place.

Survey by Enes et all (2016), the number of complications from the setting of children took place in a total of 31, 1% of which influence a range of factors such as: the characteristics of the patient including age, sex, color and condition of the disease, and the characteristics of therapy through intravenous as long as the cut-off duration, type of liquid and medicines provided. The incident of phlebitis in Asean region especially in Indonesia (2017) showed 50, 11% of the public hospital and to privatete hospital is 32,70% (Risky, 2017).

Statistical data at the HNGV has not yet been recorded in the case of phlebitis but according to the primary data obtained by the researcher through the research at Medical Department HNGV which has a total duration of two weeks received a total of 56 cases phlebitis in the HNGV

## **METHODS**

The Design of research is a descriptive study, using a cross-sectional approach. The sampling technique in this study was accidental sampling with 56 patients where in patient at Medical Surgical ward and data analysis is using SPSS version 21.

## **RESULT**

The result study in National Hospital showed 39,3% of patient in Medical ward has incidence phlebitis base on canulla size and 26,8% with aged and duration is 37,5%. And Findings by bivariate analysis show that the cannula factor influence the phlebitis of the correlations is 0.605 and significant P value is 0.000, time/duration using cannula factor influence the phlebitis of the results correlations = 0.633 and significant P value is 0.000 and the age factor influence the phlebitis of the correlations = 0.736 and significant P value is 0.000. It's mean the canulla size, aged and time using canulla are influence to incedence phlebititis. Normal time used canulla is 72 hours must to change but in realtime more than standart time. T

## DISCUSSION

### **Phlebitis influence by using cannula factor**

Phlebitis is a part of the nosocomial infection, which is an infection by microorganisms experienced by patients obtained during hospitalization, followed by clinical manifestations that appear at least 3x24 hours. The incidence of phlebitis is very influential in measuring the standard of service in a hospital (Demang, 2018)

Analysis of cannula factors influence for phlebitis based on the analysis of the research results found respondents in this research were patients in National Hospital Guido Valadares with a total of 56 samples and shows that the results of the correlation analyzed by pears on product moment show a result 0.605. When compared to the table of coefficient interpretation of the value differentials into the category between 0.60-0.799 with a significant strong correlation and value significant of P value = 0.05 with the value of P = 0,000 means that there is significant influence between the cannula factors with incidence phlebitis. There are influences of cannula factor influence to incidence of phlebitis that are confirmed or true.

According to (Scales, 2008)the cannula measures are at high risk to cause phlebitis. The small cannula measures have little possibility to cause mechanical phlebitis (irritation into the vein, caused by cannula) and have little possibility of closing the flow to the plant. The vein will be traumatized from physical contact with cannula. It is therefore important to consider the choice of intravenous reading measures before giving therapy. The reading measures 18 G are of large size. This is a waste story easier to direct contact with cannula, which occurs phlebitis.

The phlebitis is classified in four degrees, according to the clinical signs presented by the patient: Degree 1: Reddening (erythema) around the peripheral intravenous catheters (CIP), with or without local pain; Degree 2: Local pain with reddening (erythema) and / or swelling; Degree 3: Local pain with erythema, hardening and palpable venous cord formation; Degree 4: Local pain with erythema, hardening and palpable venous cord formation > 1 inch in length (2,54 cm) with purulent drainage(7). Phlebitis can be classified, according to the causative factors in; mechanical phlebitis, bacterial phlebitis, post-infusion phlebitis and chemical phlebitis (2,7). (Urbanetto JS, 2017)

### **Phlebitis Influence by time factor**

Based on the analysis of the results of the research, respondents were patients in National Hospital Guido Valadares with a total of 56 samples and shows that the results of the coefficient correlation analyzed by pears on product moment show a result of 0.633. When compared to the table of coefficient interpretation of the value differentials into the category between 0.60-0.799 with a significant strong correlation and a significant amount of P value = 0.05 with the value of P = 0.000 means that there is significant influence between a variable time or duration using cannula and phlebitis. There is a time/duration using cannula influence for the incidence of phlebitis that is confirmed or true. This Result suppor by Infusion Nursing Standard of Practice recommended that the cannula must be replaced every 72 hours and attend as soon as possible when discourages in contamination, complications (Alexander. M. Corrigan, 2010). The duration of the using cannula can influence an infection between an infections, which is phlebitis, because at the time when you put the cannula to the patient, we introduce strange substances to the patient, which has a long duration of infection. For example, at a time when the using cannula will cause trauma and it is easy to enter the patient, especially at a time cannula treatment and installation (Enes SMS, 2016)

Bivariate analysis results obtained p-value = 0.000 in the relationship between types of intravenous fluids with the incidence of phlebitis; p-value = 0.040 in the relationship between the location of intravenous cannula insertion and the incidence of phlebitis; p-value = 0,000 in the relationship between the duration of intravenous cannula and the incidence of phlebitis; and p-value = 0.021 on the relationship between intravenous cannula dressing treatment with the incidence of phlebitis (Amrullah, 2020)

### **Analysis of Age Factors Influence of Phlebitis**

Based on an analysis of the results of the research, respondents were patients in National Hospital Guido Valadares with total of 56 respondents and shows that the results of the coefficient correlation analyzed by Pearson Product moment show a result 0.736. When compared to the table of

coefficient interpretation of the value differentials into the category between 0.60-0.799 with a significant strong correlation and a significant amount of P value = 0.05 with the value of P = 0,000 means that there is significant influence between the variable age factors and phlebitis. There is age factor influence for incidence of phlebitis that are confirmed or true. This Result supported by (Bare, 2008), the factors cause phlebitis to the elderly groups are usually related to the decrease of the system of immunity, the reduction of functions of the body, the nutritional status, the history of disease. The lack of a functioning immunity system will also take place with the increase of age, in which a patient aged >60 has a fragile, unpredictable and hard workload to waste, while at least in small, toxic and hard work to waste away, this issue will influence the phlebitis happening. The increased age of age can be reduced to the body immunity system so that the risks of attacks against illnesses are severe. For old age there is a change in the body's immunity system, particularly in the area of absence of a single organization. For the elderly (> 60 years) the surveys are also fragile, unpredictable and easy to collapse, which will cause phlebitis (Fitritiyanti., 2015)

## CONCLUSION

The Health professional hands are a common of spreading microorganism, thus very important for health workers followed one of precaution is to attention wash hands of properly. The factor cannula size, time or duration and age of respondents influence to incidence of phlebitis in National Hospital Guido Valadares Dili in Timor Leste.

## REFERENCES

- Alexander. M. Corrigan, A. G. (2010). *Infusion Nursing Society, Infusion Nursing: An evidence-based approach, 3rd edition, St. Louis Dauders Elviesier*. St. Louis Dauders : Elviesier.
- Amrullah, M. S. (2020). Faktor-Faktor Yang Mempengaruhi Kejadian Phlebitis Di RSUD Encik Mariyam.
- Bare, S. &. (2008). Prevalensi Phlebitis Pada Pasien Rawat Inap dengan Infus di RUSD Tugurejo Semarang. *Jurnal Kesehatan Masyarakat, Vol 4, No.4*.
- Campbell, L. (2018). IV-related phlebitis, complications and length of hospital stay: 1. *British journal of nursing, 2304*.
- Demang, F. Y. (2018). Faktor-Faktor Yang Berhubungan Dengan Kejadian Flebitis Pada Pasien Rawat Inap Di Ruang Melati Blud Rsud Dr. Ben Mboi Ruteng. *Jurnal Wawasan Kesehatan, Volume: 3, Nomor 1*.
- Enes SMS, d. (2016). Analisis Pelaksanaan Standar Operasional Prosedur Pemasangan Infus Terhadap Kejadian Phlebitis di Ruang Rawat Inap Rumah Sakit Haji Medan.
- Fitritiyanti., S. (2015). Faktor yang Mempengaruhi Terjadinya Flebitis di Rumah Sakit Bayangkara TK II. H. Samsuery Mertoso Surabaya vol 03 no 02. *Jurnal Berkala Epidemiologi, 2(2)*.
- Kozier, B. (2016). *Buku Ajar Fundamental Keperawatan: Konsep, Proses & Paktik, Ed.7, Vol, 2*. Jakarta : EGC.
- Oliveira, S. a. (2012). Incidence of phlebitis in patients with pheriperar intravenous catheters: The influence of some risk factors. *Australian Journal of Advanced Nursing, Vol, 30. No. 30., 2105*.
- Scales. (2008). Intravenous Therapy: a guide to good practice. *British Journal of Nursing, Vol 17, no.19*.
- Urbanetto JS, F. A. (2017). Risk factors for the development of phlebitis: an integrative review of literature. *Rev Gaúcha Enferm, 7489*.
- WHO. (2011). *WHO guidelines on hand hygiene in health care*. WHO.
- WHO. (2018). Retrieved from Http: [www.who.int/surveillance-prevalence-phlebitis](http://www.who.int/surveillance-prevalence-phlebitis)