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NURSING PRACTICE ON PREVENTION OF PERIPHERAL VENOUS CATHETER (PVC) COMPLICATION AMONG NURSES .

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ABSTRACT

BACKROUND

About 25 million people worldwide receive IV therapy by means of peripheral cannula yearly. Intravenous (IV) access is the very common and frequent invasive procedures done in health care settings. This has several complications some of which are serious in nature. However, the incidence and seriousness of these complications as well as the burden of this complication on patient management are often underestimated. Identification of IV complication and the risk factors are important to ensure for better outcomes and patient safety and satisfaction.

OBJECTIVES:

1.To assess the level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses.

2.To associate the selected demographic variables with level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses.

MATERIALS AND METHODS:

A descriptive cross sectional research design was adopted. 150 staff nurses were selected by non probability purposive sampling technique who met the sampling criteria. The data collection period was from September 2021 to February 2022 in a selected Hospital.

RESULTS

Among 150 samples, Majority 93% of samples were female and 76 % of them in the age group of 21-30 years, 82 % of them had B.Sc Nursing qualification. Majority 87 % of the samples had 2 to 3 years experience. Out of 150 samples 95(63%) had good practice and 50 (33%) had Average practice and 5 (4%) had poor practice. The practice of IV therapy and complication were observed, out of 6613 cannulation 187 complication were observed and immediately corrected. Due to conscious observations the phlebitis grade 2 were observed nil in the month of December ,January and February 2022.

CONCLUSION

Out of 150 samples 95(63%) had good practice and 50 (33%) had Average practice and 5 (4%) had poor practice. Need for additional training for the novice nurses and training programs to ensure the nurses have adequate knowledge and practice regarding PIVC technique, complications and its management. The Phlebitis score also comedown due to conscious observation of the procedure and Practice .

Key words: nursing practice, Peripheral Venous Catheter (PVC) complication, Nurses.

I. INTRODUCTION

Intravenous therapy (IVT) is the procedure that needs manual skills, professional competency, knowledge about the anatomy and physiology of vascular system. It is used more frequently for administration of different drugs, fluids, blood, nutrition for sampling and other purposes.

In clinical setting, nurses are believed to be accountable and responsible for handling and managing patient with IV therapy. About 25 million people worldwide receive IV therapy by means of peripheral cannula yearly. Fluid and electrolyte replacement through IVT is the important component for critical patient to maintain hemodynamic status. **Up to 50% of peripheral IVs don't meet their therapy goals** largely due to complications like infections, Phlebitis, Occlusion and Infiltration. Thrombophlebitis is a common complication associated with IVT due to the infection and responsible reason for increased morbidity and mortality.

The most common complication associated with PIC insertion is phlebitis with reported incidence ranges from 25% to 59%. Phlebitis not only causes patient discomfort and frequent catheter change it may also cause further complications like cellulitis, septicemia, DVT, and make the patient stay in the hospital for a longer time and increase the cost of healthcare.

Various complications related to IVT should be prevented by health worker especially nurses. To avoid these complications, the nurse needs to have competence in knowledge as well as practice of intravenous therapy. Trained nurses have adequate knowledge of prevention of risk factors of infections and skillful to care for patient with peripheral intravenous. Knowledge and practice regarding IVT among nurses is important key component to provide quality care to the patient with IVT and prevent complications related to IVT.

Very few studies were addressed regarding this issue in hospital setting previously. So, investigator was interested to conduct this study to find out the practice regarding intravenous therapy and its complication among nurses.

STATEMENT OF PROBLEM

A descriptive study to assess the level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses at a tertiary care hospital in Chennai

OBJECTIVES:

1.To assess the level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses.

2.To associate the selected demographic variables with level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses.

Null Hypothesis NH_1: There is no significant association between the selected demographic variables and level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses

II. MATERIALS AND METHODS:

A descriptive cross sectional research design was adopted. 150 staff nurses were selected by non probability purposive sampling technique who met the sampling criteria. The data collection period was from September 2021 to February 2022 in a selected Hospital.

DESCRIPTION OF THE TOOL:

The data collection tool consists of 2 parts

Part 1

Demographic variables consist of age, gender, Educational qualification , Years of Experience

Part 2

The tool used in this study is structured observational check list and Tracking sheet include VIP scale. It consists of Two sections

Part 2.1

It is an observational check list used to assess the IV Cannulation procedure. The check list includes, Sterile tray, Aseptic techniques, hand hygiene, transference dressing, flushing, cannulation date and time.

Part 2.2

Tracking sheet is a checklist where ever the patient transferred, tracked by this sheet to observe the PVC complication. The tracking sheets includes the number of cannulation day, Size of the cannula, cannula removal due to hospital protocol, removal due to complications, Flushing practices, Visual Infusion Phlebitis scale grade 1 to 5 .

Data Collection Procedure

Formal permission obtained from the Hospital authority to conduct the study. The samples were selected according to the sampling criteria and technique. Informed consent was obtained from each sample. The purpose of the study was explained and assured the confidentiality. All the ethical principles were followed. The structured observational check list and tracking sheets were used to observe the practice. 150 nursing Staff

from 14 units were selected as per criteria. Check list were explained and doubts were clarified. All the unit nursing officers were trained to use the checklist to observe the IV Cannulation and practice on Prevention of Peripheral Venous Catheter (PVC) complication. Each IV cannulation procedure observation took 10 minutes.

III .RESULTS

Among 150 samples, Majority 93% of samples was female and 76 % of them in the age group of 21-30 years, 82 % of them had B.Sc Nursing qualification. Majority 87 % of the samples had 2 to 3 years experience.

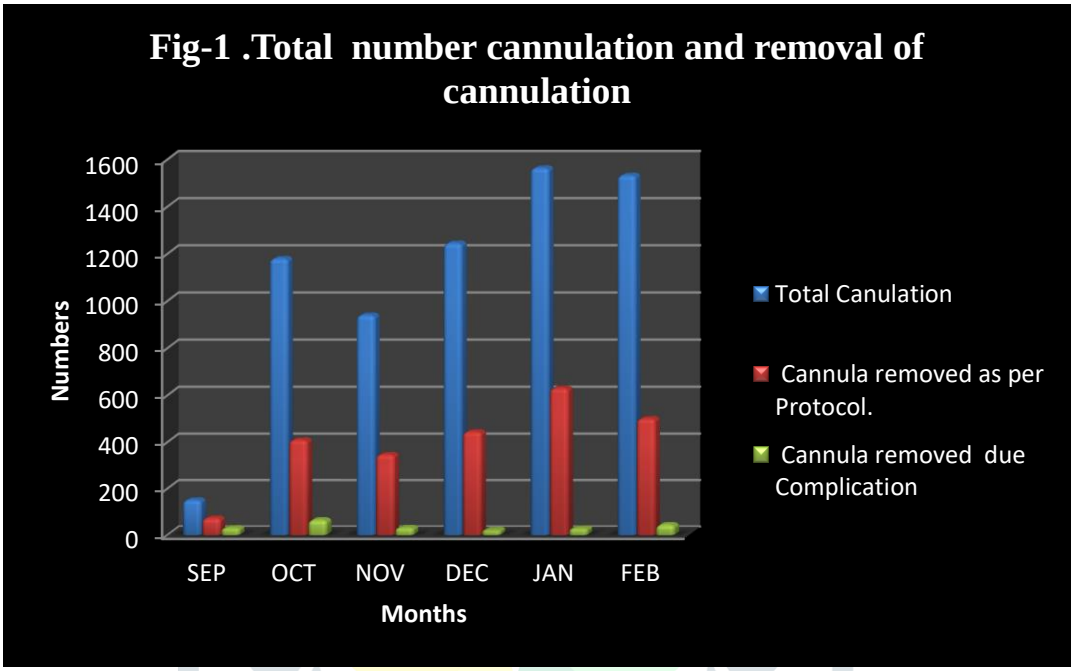

Figure 1 Shows the total number of cannulation and removal of cannulation from September 2021 to February 2022.

150 samples were observed for their practice regarding Prevention of Peripheral Venous Catheter (PVC) complication. 6613 practices were observed over 6 months.In the month of October 409 cannulation removed as per protocol and 30 removed due to complication. Month of Jan 630 cannulation removed as per protocol and 28 removed due to complication.

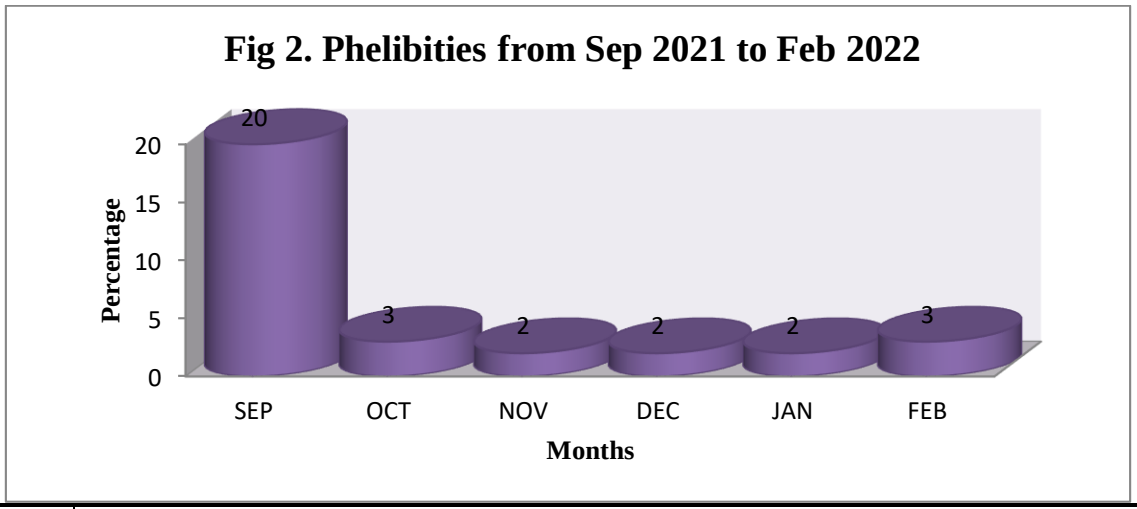

Figure-2 shows the number of Phlebitis from September 2021 to February 2022

Total Number of Phlebitis in the month of September was 20, where as in the month February it was only 3.The practice of IV therapy and complication were noted from Sep to February 2022. Out of 6613 cannulation 187 complication were observed and immediately corrected.

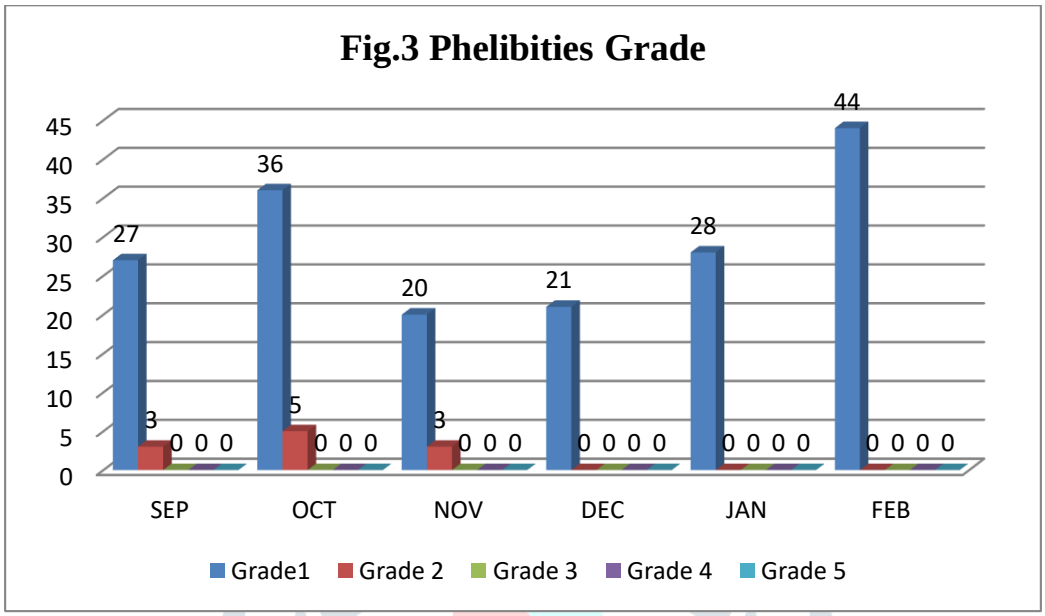

Figure 3 shows the phlebitis grade from September to February 2023.

In month of September phlebitis grade 1 was 27 and grade 2 was 3. From September to November there was grade 2 phlebitis where as in December, January and February there was Nil in Grade 2.

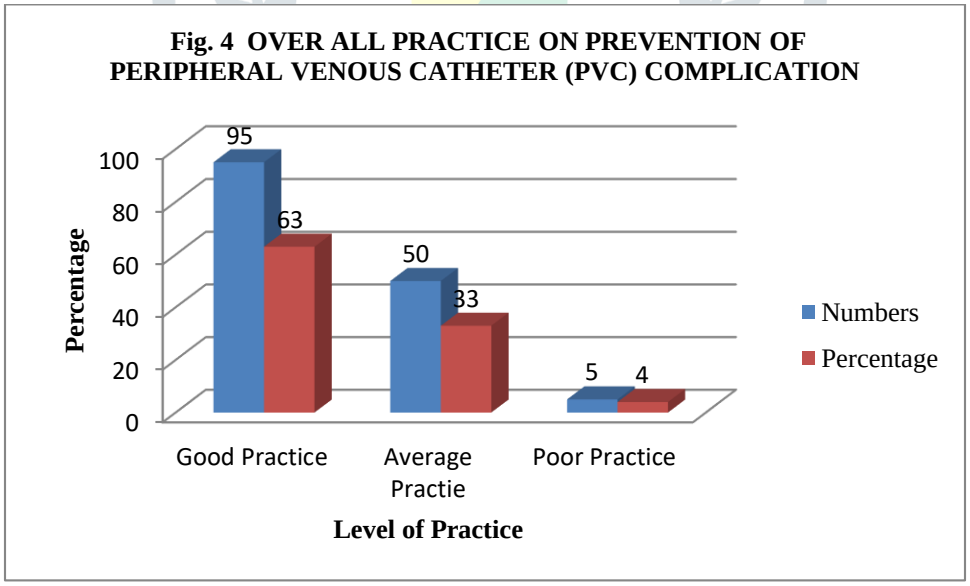

Figure 4 shows the overall practice on prevention of peripheral venous catheter (pvc) complication.

Out of 150 samples 95(63%) had good practice and 50 (33%) had Average practice . 5 (4%) had poor practice.

IV. DISCUSSION

OBJECTIVE-1 To assess the level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses.

Every Peripheral Venous Catheterization was observed with checklist and tracking sheets with the aim of reducing the PVC complication. Out of 6613 cannulation 187 complication were observed and immediately corrected. Phlebitis grade also come down from grade 2 to 1.

The overall level of practice on **Prevention of Peripheral Venous Catheter (PVC) complication was 63 % good practice, 33 % had coverage practice and 4% had good practice.**

The present study supported by a study conducted by **Dr.Rajani** on knowledge and practice on IV cannulation among nurses **.** Study result revealed that the samples of 33(68.8%) had average and 10 (20.8%) had poor knowledge on IVC. Regarding practical performance, 27(56.3%) had average, 16 (33.3%) had good skills in IVC. Whereas 5(10.4%) had very poor practical skills on IVC.

Another study conducted by **Chandini et** al ,on Knowledge and practice towards care and maintenance of peripheral intravenous cannula among nurses in Chitwan Medical College Teaching Hospital, Nepal. The study findings revealed that 84.72% respondents were doing correct practices despite the fact that only 82.47% respondents had proper knowledge. Most nurses have good knowledge of caring and maintaining peripheral intravenous cannulation but there were some without proper knowledge and practice. This could be a potential risk factor for patient safety.

OBJECTIVE-2 To associate the selected demographic variables with level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses.

There is no significant association between level of practice on Prevention of Peripheral Venous Catheter (PVC) complication and the selected demographic variables such as age, gender, Educational qualification , Years of Experience. **Hence the nullhypothesis NH_1**: There is no significant association between the selected demographic variables and level of practice on Prevention of Peripheral Venous Catheter (PVC) complication among the nurses was accepted.

Implications

•The nurse educator can be taught regarding IV Cannulation procedure ,Complication of IV therapy , Hands on training regarding IV Cannulation for Novice nurses

•Researchers can further conduct this study as a comparison between Expert and Novice Nurses.

•The effectiveness train the trainer approach through IV Therapy nurse can also be tested among nurses.

Limitations

The time constraints and small sample size were the limitations of the present study.

V.CONCLUSION

In the month of October 409 cannulation removed as per protocol and 30 removed due to complication. Month of Jan 630 cannulation removed as per protocol and 28 removed due to complication.

In month of September phlebitis grade 1 was 27 and grade 2 was 3. From September to November there was grade 2 philibities where as in December, January and February was Nil in Grade 2. Need for additional training for the novice nurses and training programs to ensure the nurses have adequate knowledge and practice regarding PIVC technique, complications and its management.

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