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Article

A Pre-experimental Study to Assess the Effect of Structured Teaching Program on Knowledge regarding Intravenous Cannulation and Its Complications among Staff Nurses Working in a Selected Hospital of Bhopal, M.P.

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Introduction

Intravenous therapy is important in modern medicine. Millions of patients are receiving infusion therapy for life saving and for correcting the metabolic disorders through drugs, nutrition, solutions and blood products.

Eighty percent of the patients receive infusion therapy during their hospital stay. Many patients require intravenous therapy when oral intake is impossible (e.g., during and after surgery). The availability of intravenous access allows the practitioner to administer medications that can immediately relieve airway obstruction, reverse bradycardia, and administer specific reversal drugs for patients who become inadvertently over sedated with benzodiazepines or opioids. Peripheral intravenous cannulation is a simple procedure, but it tests the skill and the experience of both medical and nursing personnel

Need for the Study

Gupta et al. conducted a study to assess the incidence of intravascular cannula-associated infections and correlate it with cannula insertion techniques and ward practices. The study was carried out in the wards of a tertiary care hospital. The study was divided into two phases, each phase comprising of 50 patients. In phase 1, cannula insertion was carried out after normal ward cleaning practices. In phase 2, cleaning of the site was done by standard surgical cleaning procedure. The cannula samples after removal were cultured and local signs of thrombophlebitis looked for at the site of insertion. Thrombophlebitis was considered a surrogate marker of local infection in the vessel wall. The relative risk of acquiring thrombophlebitis is increased by 2.18 times (applying univariate analysis) by existing methods as compared to the standard method. Use of standard cleaning protocol had a significant effect on decreasing the incidence of cannula-associated infections and cannula-related morbidity.

Objectives

- Assess the pre-interventional knowledge of staff nurses regarding IV cannulation and its complications.
- Assess the post interventional knowledge of staff nurses regarding IV cannulation and its complications.
- Find out the significant difference between pre-test and post-test knowledge regarding IV cannulation and its complications.
- Associate the pre-interventional knowledge of staff nurses with selected demographic variable regarding IV cannulation and its complications.

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Hypotheses

H1: There is a positive increase in mean post-test score than mean pre-test knowledge score regarding intravenous cannulation and its complications among staff nurses working at the selected hospital.

H2: There is a significant difference in post-test level of knowledge score regarding Intravenous cannulation and its complications among staff nurses working at the selected hospital at 0.05 level.

Assumptions

- Staff nurses will have some knowledge on intravenous cannulation and its complications.
- Staff nurses are practicing intravenous cannulation in their routine care.

Conceptual Framework

The conceptual frame work of the study was based on *Modified Inductive Model of Teaching* by Hilda Taba regarding intravenous cannulation and its complications .

Review of Literature

The review literature related to the present study is presented under the following headings:

Section A: Literature related to theoretical information
Section B: Literature related to empirical information

Carson, in his article, mentioned that a number of complications including phlebitis, thrombophlebitis, infiltration, extravasation, and infections are associated with IV therapy. Among other factors, the knowledge and experience of the nurse inserting the cannula can play a major role in preventing these complications. The most frequent complication of PIV infusion is phlebitis, which may occur at rates as high as 50% or even as high as 75% in patients with infectious diseases; however, the incidence rate in patients who do not have diabetes, burns, or a need for urgent catheter insertion is approximately 20%. A number of risk factors have been implicated in the development of phlebitis. 11–13 patients who were female or who had poor-quality peripheral veins, insertion in the lower extremity, or the presence of underlying medical conditions, including cancer and immunodeficiency, were at increased risk for phlebitis. Nurses who have the skill and expertise required for insertion of IV catheters, as well as knowledge regarding their post-insertion care and maintenance, can significantly influence patient outcomes.

McCallum. Common sites of insertion are the cephalic or basilic veins of the lower arm, or the dorsal venous arch located on the back of the hand (Lavery, 2007). The superficial veins of the lower limbs may also be cannulated, but these tend to be avoided as they are associated with a higher risk of infection and embolism. The risk for infection and phlebitis can be minimized by considering the general condition of the vein, avoidance of point of flexion and the size of the cannula versus the size of the vein and duration of therapy.

Research Methodology

Research Approach: The study utilized an evaluative approach. The study is conducted in a selected hospital of Bhopal, M.P.

Research Design: A Pre-experimental one group pre-test post-test research design was used for this study.

Research Setting: The present study was conducted in Mahaveer Institute of Medical Science and Research, Bhopal, M.P.

Sample: In this study, the samples were staff nurses who were working in ICU, medical ward, surgical ward and other wards of the selected hospital.

Sample Size: 60

Sampling Techniques: Simple random sampling technique was used in this study.

Development and Description of Data Collection Tools

Section A: Demographic variable proforma.

Section B: A Self-structured knowledge questionnaire on intravenous cannulation and its complications.

Scoring Interpretation

The interpretation of level of knowledge score was classified into five ranges, i.e., poor (0–6), average (7–12), good (13–18), very good (19–24), and excellent (25–30) which is described below.

Data Collection Procedure

The investigator had obtained written permission from the Medical Superintendent of MIMS Hospital, Bhopal. The data collection period was extended from 10th June to 20th June 2016. Verbal consent was obtained from the subjects. Introduction about self and study was given to staff nurses. The samples were assured that data collection would be kept confidential. 60 staff nurses from MIMS Bhopal who satisfied the inclusive criteria were selected using simple random sampling technique. The researcher assessed pre-interventional knowledge and then provided the structured teaching program regarding intravenous cannulation and its complications to staff nurses working

in ICU, medical ward, surgical ward and other wards. It was continued by post-interventional knowledge on 7th day of pre-intervention. In private setting good environment, proper facility was provided which helped to provide good teaching. The data collected was compiled for data analysis.

Major Findings

Description of sample characteristics:

- In relation to the age, 40% of total sample belonged to the age group of 21–25 years 30% to the age group of 26–30 years, 16.7% to the age group of 31–35 years and 13.3% belonged to the age group above 35 years
- On the basis of gender ratio, majority of the samples were females, i.e., 53.3% and remaining were males, i.e., 46.7%.
- As per professional qualification, majority of the staff nurses were GNM (51.7%), from the remaining sample 25 5 belongs to the qualification of BSc Nursing and 23.3% were Post basic BSc Nursing
- Most of the staff nurses (75%) had attended in-service education on IV cannulation and its complications, 21.70% from other sources like journals, books and internet, and 3.30% from their friends and relatives.
- The study depicts that majority 33.30% of staff nurses had 1-3 years of experience, 30% had less than 1 year and 20% of staff nurses had 4–6 years of experience and remaining 16.70% were in the category of more than 6 years.
- As per the area of working, majority of the samples were working in ICU (35%), 30% were working in medical ward, 20% in surgical ward, and 15% in other units.

Effect of Structured Teaching Program

The comparison between pre-intervention and post-intervention scores depicts that the pre-intervention knowledge scores show that maximum of the staff nurses 29 (48.3%) had poor level of knowledge, 18 (30%) had average level of knowledge, 7 (11.7%) had good level of knowledge and 6 (10%) had very good level of knowledge regarding IV cannulation and its complications.

Post-intervention knowledge scores reveal that almost all the samples gained knowledge after administering of structured teaching program. It is observed that more than half of the staff nurses 27 (45%) had good level of knowledge, 18 (30%) average level of knowledge, 13 (21.70%) very good level of knowledge, while 9 (15%) had excellent level of knowledge regarding intravenous cannulation and its complications.

Recommendations

Nursing research is a widely expanding area with need for validating conservative interventions and development of new knowledge. The study recommends the following for achieving this end:

- A descriptive study can be carried out to assess the factors leading to the development of IV infection.
- The study can be conducted in a larger sample for better generalization.
- The same study may be done in patients having extravasations following chemotherapeutic agents.
- A comparative study can be conducted to compare the knowledge of staff nurses regarding IV cannulation

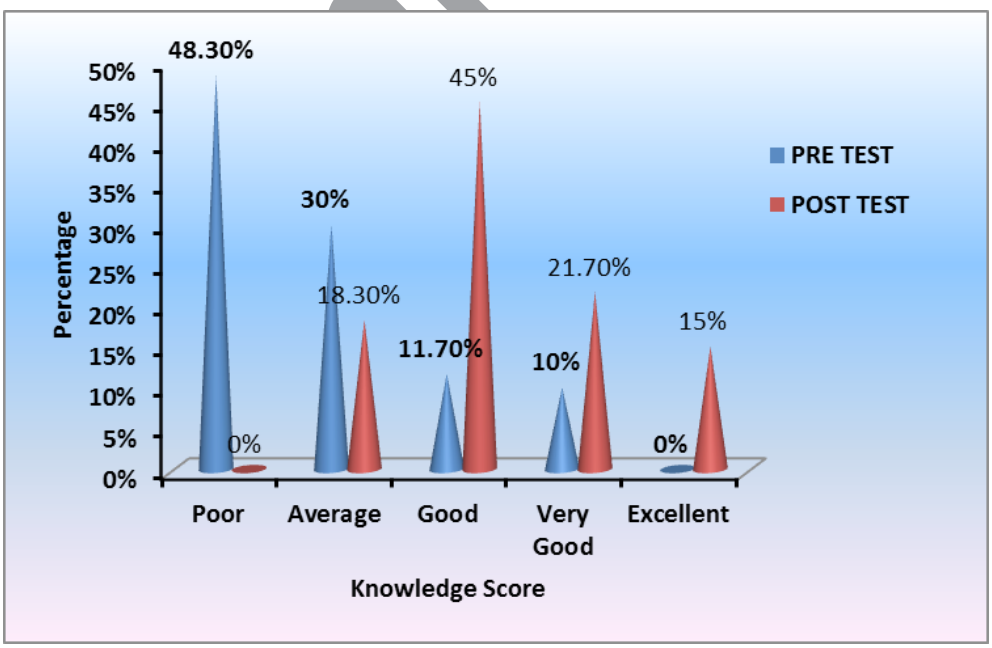

Figure 1.The Bar Diagram Showing the Comparison between Pre- and Post-intervention Knowledge Score on Intravenous Cannulation and Its Complications

and its complications among staff nurses working in government and private hospitals.

Conclusion

The overall experience of conducting this study was satisfying. It was an enriching experience for the investigator. The constant encouragement and guidance of the guide, cooperation and interest of the hospital authorities and the respondents to participate in the study contributed to successful completion of this study.

Conflict of Interest: None

References

1. Appling ES. A Nursing Process Approach, 1st ed. New Delhi: *TNAI Secretary General Publication* 2013.
2. Appling ES. Handbook of Nursing Procedure. USA: *Springhouse Publication* 2013.
3. Brunner, Suddarth. Text Book of Medical Surgical Nursing, 10th ed. Philadelphia: *Lippincott* 1996.
4. Indrayan, Satyendra. Biostatistics for Medical, Nursing & Pharmacy students. New Delhi: *Eastern Economy Edition* 2006.
5. Dutt JG. Effect of communication on pain during intravenous cannulation. *British Journal of Anaesthesia* 2012. 6: 71-875. Retrieved from: http://www.bja.oxfordjournals.org.
6. Gil, Z. Shlamovitz. Intravenous cannulation. *Medscape* Retrieved from: http://emedicine.medscape.com.
7. Bannon MP. Anatomic considerations for central venous cannulation. 2011. Retrieved on 10th Mar 2014 from http://www.dovepress.com/anatomic-considerations-for-central-venous-cannulation-peer-reviewed-article-RMHP-recommendation1.
8. Cicolini G. Position of peripheral venous cannulae and the incidence of thrombophlebitis: An observational study. 2009. Retrieved on 21st Mar 2014 from: http://mediskin.cn/uploadfiles/file/20140125/20140125090723_2780.pdf.

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