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## “A STUDY TO ASSESS THE EFFECTIVENESS OF VIDEO ASSISTED TEACHING PROGRAM ON KNOWLEDGE REGARDING INSERTION AND CARE OF PERIPHERAL INTRAVENOUS CANNULA AMONG STAFF NURSES WORKING IN TERTIARY CARE HOSPITALS IN GOA”

Bertilla Scarlet DSilva  
MSc (N),  
Emergency Department  
Goa Medical College (GMC), Bambolim Goa

**Abstract:** Peripheral Intravenous Cannula (PIVC) or Intravenous Cannula is one of the most frequently used medical devices. Intravenous Cannulation procedure involves breaching the skin and leaving a foreign body in the vein exposing the patients to a number of risks particularly infections. Since nurses are mostly involved with insertion of IV Cannula, it is their responsibility and duty to avoid these preventable problems. The purpose of the present study was to assess the level of knowledge of nurses on insertion and care of Peripheral Intravenous Cannula and determine the effectiveness of video assisted teaching program. One group pretest posttest research design was used for the study. Data was collected from 30 staff nurses working in Goa Medical College and hospital using nonprobability convenience sampling technique. Data was collected using a structured questionnaire that consisted of demographic data and multiple choice questions and were analyzed using descriptive and inferential statistics. The major findings of the study were that, maximum number of staff nurses (67%) were between the age group of 21-30 years, 45.16% had average knowledge and 16.25% had poor knowledge regarding insertion and care of Peripheral Intravenous Cannula. There was significant difference between mean pre-test and post-test knowledge scores ( $p < 0.05$ ). The calculated values were higher than the tabulated values at 5% level of significance. Hence the video assisted teaching program on the insertion and care of Peripheral Intravenous Cannula was found to be effective. The study findings concluded that there was significant association between age and knowledge scores.

**Index Terms -** Peripheral Intravenous Cannula, Video assisted teaching program, Insertion and care.

### I. INTRODUCTION

Peripheral Intravenous Cannula (PIVC) is one of the most frequently used medical devices in almost all medical setups like hospitals and health centers though being the most common therapeutic procedure performed by nurses, it is associated with some preventable complications such as phlebitis and infections if not taken care of properly. Nurses are obliged to take care or take precautions before, during and after insertion of Peripheral Intravenous Cannula.

### II. OBJECTIVES

1. To assess the level of knowledge regarding insertion and care of Peripheral Intravenous Cannula among staff nurses using a structured knowledge Questionnaire.
2. To assess the effectiveness of Video assisted teaching program regarding insertion and care of Peripheral Intravenous Cannula among staff nurses by comparing the mean pre and post-test knowledge scores.
3. To find the association between knowledge score of staff nurses with socio demographic variables i.e. age and number of years of working experience, educational level, present area of work.

### III. REVIEW OF LITERATURE

#### 1. Review of literature related to Prevalence, Risk factors and Complications of Peripheral Intravenous Cannula

Mostafa and many (Abolfotouh, Salam, Mustafa, White, & Balkhy, 2014) conducted a prospective study to determine the incidence and predictors of PIVC induced complications at King Abdulaziz Medical City (KAMC), Saudi Arabia. They surveyed around 359 Adult patients with 842 PIVC sites. 39.3% of the PIVC showed one or more complications and Phlebitis ranked first among the complications.

George & Muninarayananappa, (2013) studied the incidence of Intravenous Cannulae complications among patients in Mangalore, Karnataka. They found that out of 118 patients that were considered under study, 80 (67.79%) had Intravenous Cannula complications.

#### 2. Review of literature related to management of Peripheral Intravenous Cannula and nurses knowledge

Nana Prah (2013), conducted a study to assess Ghanaian Nurses and Midwives knowledge about the purpose of the Intravenous Cannula injection port. Sample included 42 nurses and midwives. The results of the research showed a definitive lack of knowledge about the function of Intravenous side port. Majority of them were likely injecting air into their patients when they thought the air moves out in the atmosphere through this port.

#### 3. Review of literature related to effect of Teaching Programs

Lyon M C & Jennifer Kasker, (2012) conducted a similar study with an aim to improve the experienced nurses' skills, confidence and knowledge regarding IV catheter. They delivered a One Day Continuing Education Program on the topic IV catheter it insertion, maintenance and infection prevention. This program resulted in improvement in the knowledge and skills of experienced nurses immediately after the program and also 8-12 weeks later. It can be concluded from this study that a Continuing Education on IV catheter does help to improve nurses' knowledge and skills.

Another similar study was conducted by Kanishka George and Bharti Munninarayananappa (2013) on the effectiveness of structured teaching program on knowledge and the practice of staff nurses on prevention of IV Cannula complication. It was found that there was a significant increase in knowledge score but no change in practice scores. The study recommended that a similar study could be conducted to find the effectiveness of various teaching strategies like video assisted teaching program and computer assisted teaching program on prevention of IV Cannula complications.

Nassaji Zaverah and Ghorbani (2007) studied the incidence and risk factors of Phlebitis in the medical and surgical wards of hospitals in Iran from April 2003 to February 2004 prospectively. They reported that 26% of the patient's had developed phlebitis. They identified gender, site of insertion, type of insertion of catheter, Diabetes Mellitus, infectious diseases and burns were some of the risk factors in development of Phlebitis. This also suggests that nurses did not keep these factors in mind while inserting a Peripheral Intravenous Cannula.

In May 2014, Manoj Deshmukh and Mahadeo Shinde studied the impact of structured education on knowledge and practice regarding venous access device care at Government hospital Jalana India. The finding of the study concluded that the structured education was effective on the knowledge and practice of staff nurses regarding venous access device working in oncology units.

### IV. METHODOLOGY

A quantitative research approach was used. Pre- Experimental One Group pre-test - post-test research design was used. Sample selected were staff nurses working in Goa Medical College and Hospital, Bambolim Goa. Sample size was 30. Convenience sampling technique was used. Tool consisted of two sections, section 1 consisted of socio demographic Performa i.e. age, number of years of working experience, educational level and present area of work and section 2 structured knowledge questionnaire consisting of 20 multiple choice questions on Insertion and care of Peripheral Intravenous Cannula to assess the knowledge. Content validity was done by 7 experts and reliability was tested using Cronbach's alpha which was 0.7. Video Assisted teaching program consisted of a video developed by the researcher of 28 minutes duration on the topic 'Insertion and care of Peripheral Intravenous Cannula'.

## V. ANALYSIS AND INTERPRETATION OF DATA

Table 1 Association of pre-test knowledge with selected demographic data

Demographic data	Poor	Score Average	Good	Calculated Chi square value ( $\chi^2$ )	Table Chi square value ( $\chi^2$ )	df	p value	Significant (p) at 5%
<b>1. Age</b> 21-30 31-40 41-50 51-60	0 2 4 0	8 3 3 0	5 4 0 1	13.20	12.59	6	0.04	Yes
<b>2. Number of years of working experience</b> <5 6-10 11-15 16-20 >21	0 1 1 3 1	6 3 1 2 2	4 2 3 0 1	10.25	15.51	8	0.25	No
<b>3. Educational level</b> GNM BSc (N) PCBSc/PBBSc MSc	5 0 1 0	5 0 1 0		9.24	12.59	6	0.16	No
<b>4. Present area of work</b>				7.63	12.59	6	0.27	No
Medicine	2	2	4					
Surgery	3	8	3					
OBG	0	4	1					
Pediatrics	1	0	2					

According to table no 1, the calculated chi square value (13.20) was greater than the tabulated value (12.59). Hence  $H_2$  was accepted for the demographic data age

Table 2- Mean, standard deviation and paired 't' test between pre-test and post-test knowledge scores of staff nurses on insertion and care of Peripheral Intravenous Cannula.

Sr no	Test	Mean score	Total number	Standard deviation	Standard error mean	Calculated 't' value	Table 't' value	df	Significance (p) at 5%
1	Pre test	13.40	30	2.18	.40				
2	Post test	18.23	30	1.48	.27	12.31	2.05	29	.00

According to the Table 2, the mean difference between pre and post test knowledge scores was 4.8. The mean knowledge score after administering the video assisted teaching program has increased, indicating gain in knowledge.

Paired t test value was  $t(29) = 12.31$  which is more than the table value (2.05). Hence we accept  $H_1$  and reject the null hypothesis  $H_0$ . This indicates that, gain knowledge score is statistically significant at  $p < 0.05$  level.

## VI. MAJOR FINDINGS

1. Majority of the staff nurses 13 (43.33%) belonged to the age group of 21-30 years, (33.33%) have been working for less than 5 years, (60%) had completed General Nursing and Midwifery.
2. In the pre-test, out of 30 respondents most of the participants 14 (45.16%) had average score and 6 (19.35) had poor score. While in the post test all respondents had good score (100%).
3. Demographic variable Age in years was significantly associated with the knowledge score of pretest. The other variables like number of years of working experience, educational level and present area of work were not significantly associated with knowledge score.
4. Video assisted teaching program on knowledge regarding insertion and care of Peripheral Intravenous Cannula was found to be effective in improving the knowledge of staff nurses, gain knowledge score is statistically significant at  $p < 0.05$  level.

## VII .DISCUSSION

This study was aimed to assess the level of knowledge of staff nurses regarding Insertion and care of Peripheral Intravenous Cannula, to determine the effectiveness of video assisted teaching program on Insertion and care of Peripheral Intravenous Cannula among staff nurses working in selected tertiary care hospitals in Goa and to find the association between pre-test knowledge scores and selected demographic data. The pre-test findings showed that most of the staff nurses had poor to average knowledge regarding insertion and care of Peripheral Intravenous Cannula. The findings of the present study concluded that the video assisted teaching program on insertion and care of Peripheral Intravenous Cannula was effective in increasing the knowledge level of staff nurses and the knowledge is significant at 0.05. It was also evident that the pre-test knowledge was independent of number of years of working experience, educational level and present area of work while it had significant association with age.

The results of the above study were supported by a study conducted by George & Muninarayananappa, (2013) in Mangalore Karnataka among staff nurses about knowledge on prevention of Intravenous Cannula complications.

In the study by George & Muninarayananappa, (2013), the mean difference between pre-test and post-test scores was 8.4. The calculated 't' value (9.978) was more than table value 2.02. hence  $p < 0.05$ . The findings of this study concluded that the structured teaching program regarding prevention of Intravenous Cannula complications was very effective in improving the knowledge level of staff nurses.

The findings of the present study are similar to the findings which have been obtained by many others where a teaching program was found to be effective. Jaya Devi, Wint and Saleh (2015) found that initially nurses were lacking in adequate knowledge about insertion and management of Peripheral Intravenous Cannula but following the administration of a training workshop, there was improvement in the knowledge.

Lyon M C & Jennifer Kasker, 2012 conducted a study wherein a Continuing education program on the topic IV catheter insertion, maintenance and infection prevention resulted in improvement in the knowledge of experienced nurses immediately after the course. Altun (2012) undertook a study to determine the knowledge and practice of nurses for management of IV Cannulation and to assess the effect of the training given on this subject. A lecture based workshop was administered and resulted in improvement in the level of knowledge.

Hence the study gave the evidence that an educational program on insertion and care of Peripheral Intravenous Cannula can enhance the knowledge of staff nurses, which they will be able to apply in their clinical setting to improve the care of patients having or requiring a Peripheral Intravenous Cannula.

## VIII.CONCLUSION

Based on the findings of the study, it can be concluded that staff nurses working in Goa Medical College and hospital and Hospital had poor to average knowledge on the topic insertion and care of Peripheral Intravenous Cannula before administering the video assisted teaching program. There was increase in knowledge after the teaching program as seen by increase in the post test knowledge score. Thus, the video was found to be an effective teaching strategy for enhancing staff nurses knowledge.

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