



A DESCRIPTIVE STUDY TO ASSESS KNOWLEDGE OF STAFF NURSES REGARDING PARENTERAL NUTRITION (PN) ADMINISTRATION IN SELECTED AREAS OF CHRISTIAN MEDICAL COLLEGE AND HOSPITAL, LUDHIANA, PUNJAB

Mizrab Chaudhary

Clinical Instructor, RN, BSN, MSN (Medical Surgical Nursing) Christian Medical College & Hospital Ludhiana, Punjab 141008, India

Mrs. Triveni Rajappa*

Professor, RN, BSN, MSN, (Medical Surgical Nursing) CMC College of Nursing, Brown road, Ludhiana (PB)-141008, India *Corresponding Author

ABSTRACT

The advancement in medical sciences has created health care environment that require nursing professionals with specialized clinical knowledge provide care and deal with critically ill patients. The modern era has achieved various bench marks in the field of health care. To meet the expectations and to face the tough situations, the nurses also need to be knowledgeable and competent in all spheres of handling critically ill patients. A descriptive study was conducted to gain insight into nurse's knowledge related to Parenteral Nutrition administration in a selected hospital, Ludhiana, Punjab. The objectives of the study were to assess the knowledge of staff nurses regarding Parenteral Nutrition administration, to assess its relationship with selected variables, and to find-out deficit areas and to prepare guidelines on Parenteral Nutrition administration. Conceptual framework of the study was based on Fitts and Posner's 3 phase learning theory (1967). A quantitative research approach and non experimental descriptive design was used for the study. Data was collected from 60 staff nurses by using purposive sampling and by using knowledge questionnaire. The collected data was then organized in the form of tables, analyzed and interpreted using descriptive and inferential statistics. Major findings showed the 47.3 % of staff nurses had good knowledge and (100%) had unsatisfactory knowledge regarding Parenteral Nutrition administration. Staff nurses had maximum knowledge (80.83%) in the area of Concepts related to Parenteral Nutrition administration and least knowledge (32.92%) in the area investigations needed for Parenteral Nutrition administration according to knowledge questionnaire. Maximum deficit was in the area of contents of Parenteral Nutrition & investigations needed for Parenteral Nutrition administration. Findings showed that there existed a strong positive correlation (22.33%) between knowledge and years of experience. Years of experience of staff nurses regarding Parenteral Nutrition administration at $p < 0.05$ level of significance. The findings of the study i.e deficits in the knowledge strongly pointed towards the need of intervention for improving knowledge of staff nurses regarding Parenteral Nutrition administration. Clinical guidelines were prepared based on the outcome of the study with a view to update nurse's knowledge and ensure safe practices for Parenteral Nutrition administration.

KEYWORDS : Knowledge, Staff Nurses, Parenteral Nutrition Administration.

INTRODUCTION

When diet is wrong, medicine is of no use. When diet is correct, medicine is of no need. The term nutrition is derived from a Latin word NUTRICUS, means suckle at the breast. This begins as of life process. It's defined as a dynamic process which involves mastication, deglutition, digestion, absorption and assimilation. Good nutrition can help to prevent diseases and promote health. There are six categories of nutrients that the body needs to acquire from food, which are protein, carbohydrates, fat, fibers, vitamins, minerals and water. Nutrition provides energy and keeps an individual vibrant (Joshi YK, 2003)¹.

Nutrition can be provided either via tube feedings into the digestive tract (enteral nutrition) or, when the digestive tract cannot be used, via an intravenous solution into the veins (Parenteral nutrition). The harmful effects of malnutrition on the overall health of a patient are well documented. Poor nutrition is associated with slowed or impaired recovery from illness and surgery. For wound healing, tissue maintenance, and faster recovery, patient need optimal nutritional intake (Hebuterne X, Frere AM, Bayle, 1992)².

Parenteral Nutrition is the introduction of nutrients, including amino acids, lipids, carbohydrates, vitamins, minerals, and water, through a venous access device (VAD) directly into the intravascular fluid to provide nutrients required for metabolic functioning of the body. PN involves the provision of patients' nutrition by intravenous administration with an artificially prepared solution. PN does not utilize the gastro-intestinal tract and therefore removes an important physiological and immunological barrier. This may therefore expose the patient to an increased risk of metabolic and septic complications (Lippincott, 2008)⁴.

Need Of The Study

Parenteral Nutrition was first introduced in 1968, providing a desperately needed therapy to those patients who are not able to eat. Parenteral Nutrition (PN) has saved thousands of patients worldwide throughout the 1970's and 1980's. Parenteral Nutrition (PN) consists of hyperosmolar solutions delivered through a catheter into the superior vena cava for extended periods (Conly, JM, Grieves, K, Peters B, 1989)¹⁵.

The goal of administering Parenteral Nutrition (PN) is to meet the patient's nutritional needs and to allow growth of new body tissues. The normal adult requires a minimum of 1200 to 1500 calories per day to carry out normal physiological function. The patient with fever, trauma, burns, major surgery or hyper metabolic diseases may require up-to 10,000 additional calories daily. In general total Parenteral Nutrition (PN) provides 30 to 35 kcal/ kg and 1.0 to 1.5 gm of protein/kg of body weight. Regular IV solutions of 5 percent dextrose in ringer's solution contain no protein and have approximately 170 calories/liter. (Lewis SM, Heitkemper MM, Dirksen SR, 2008)¹⁶. The researcher while working in the clinical area as a staff nurse, ward in-charge and then as a supervisor observed that patients with Parenteral Nutrition (PN) infusion suffered from many complications.

The most common complications were pain, swelling discomfort, thrombophlebitis, psychological trauma, financial crisis, and poor nutritional status of patients, which could be prevented with excellent knowledge of nurses. Nurses being 24 hrs with the patients can explain and if they have excellent knowledge. Therefore it was decided to assess the knowledge level of staff nurses regarding Parenteral Nutrition (PN) and its administration and enhance their knowledge through disseminating the information/findings by arranging in-service education.

Objectives

1. To assess knowledge of staff nurses regarding Parenteral Nutrition administration.
2. To find the relationship of knowledge of staff nurses with the selected variables e.g. age, gender, professional qualification, training institute, years of experience, working area, In-service education.
3. To identify the deficit areas of knowledge on Parenteral Nutrition administration and disseminate the information/findings by arranging in-service education.

Delimitations

1. This Study is limited to staff nurses working in Medical ICU, Surgical ICU, Medical High Dependency Unit (MHDU), Surgical High Dependency Unit (SHDU), Surgical Ward (ward 2), and Female Surgical Ward (ward 23).

2. The study is limited to 60 staff nurses only.

MATERIAL AND METHODS

A quantitative research approach and non experimental descriptive design was use for the study.

The target population of the present study was registered staff nurses working in selected areas of Christian Medical College and Hospital, Ludhiana, Punjab. Purposive sampling technique was used to select the sample of 60 staff nurses from selected areas, i.e. Medical ICU, Surgical ICU, Medical High Dependency Unit (MHDU), Surgical High Dependency Unit (SHDU), Surgical Ward (ward 2), and Female Surgical Ward (ward 23), in all the three duty shifts- morning, evening and night. Verbal consent from subjects was taken by assuring them to maintain confidentiality of information. The investigator collected data from staff nurses working in selected areas of CMC & Hospital Ludhiana, Punjab. Prior to the data collection written permission was taken from the Nursing Superintendent, and approval from the research and ethical committee of College of Nursing, CMC and Hospital, Ludhiana, Punjab. Verbal consent was taken from the subjects and subjects were assured that the information collected will be kept confidential and will be used for research purpose only. The descriptive and inferential statistics is for the analysis of the main study. The approach of the study being quantitative approach and is non experimental research design. For analysis of knowledge level descriptive statistics were used such as frequency, percentage, mean, mean percentage and standard deviation, inferential statistics was used that includes t test, Z test and ANOVA.

DESCRIPTION OF TOOL

Tool is divided into two parts:

Part-I: Personal information.

This part consist of 7 items for obtaining personal information from staff nurses such as age, gender, professional qualification, training institute, years of experience, working area, In-service education on Parenteral Nutrition administration.

Part-II Knowledge questionnaire

Structured knowledge questionnaire consisted of 32 items for assessing the knowledge of staff nurses regarding Parenteral Nutrition administration was developed.

MAJOR FINDINGS:

Findings related to sample characteristics

- Maximum staff nurses (75%) were in the age group of 21-30 years.
- Maximum staff nurses were (86.67%) females.
- Maximum staff nurses (68.33%) were GNM.
- Maximum staff nurses (51.67%) were trained from CMC & Hospital.
- Maximum staff nurses (40% & 31.67%) were in the age group of 2-5 years and <2 years respectively.
- Maximum staff nurses (55%) were working in the ICU.
- Maximum staff nurses (78.33%) had not attended in-service education on Parenteral Nutrition administration.
- **Findings related to the knowledge level of staff nurses regarding Parenteral Nutrition administration:**
- Majority of staff nurses (47.3 %) had good knowledge, followed by (37.2%) excellent and (15.7%) of them had average level of knowledge.
- **Finding related to the relationship of knowledge of staff nurses with the selected variables e.g. age, gender, professional qualification, training institute, years of experience, working area, in-service education on Parenteral Nutrition administration.**
- The mean knowledge score was higher (23.67) in the staff nurses in the age group of 41-50 years and lower knowledge score (19.76) in the age group of 21- 30 years.
- Mean knowledge score was higher (20.25) in the female staff nurses and lesser (18.25) knowledge score in the male nurses.
- Mean knowledge score was higher (20.49) in the staff nurses with GNM Nursing qualification and lower (18.89) in the B.Sc (N)/ Post basic B.Sc.
- Mean knowledge score was higher (20.38) in staff nurses those who are trained from other institutions and lower (19.61) in the staff nurses trained from CMC & Hospital.
- Mean knowledge score was higher (22.75) in staff nurses those have experience >10 years and lower (17.95) in staff nurses those have experience <2 years.
- Mean knowledge score was higher (38.67) in staff nurses those who are working in Surgical High dependency unit (SHDU) and

least (18.22) in the staff nurses those working in Medical High Dependency Unit (MHDU).

- Mean knowledge score was higher (21.46) in staff nurses who attended In-service education and least knowledge (19.57) in the staff nurses who had never attended In-service education on Parenteral Nutrition.

Findings related to deficit areas of knowledge of staff nurses on Parenteral Nutrition administration and prepare guidelines.

- Area of knowledge related to concept of Parenteral Nutrition administration, item no. (1), (ranked 12) with scoring 63.3% of knowledge deficits.
- Area of knowledge related to composition of Parenteral Nutrition, item no. (3), (ranked 17) with scoring 75% and item no. (4), (ranked 11) with scoring of 61.6% of knowledge deficit. Area of knowledge related to Indications for Parenteral Nutrition administration, item no. (8), (ranked 5) with scoring 33.3%, item no. (7), (ranked 7) with scoring 45% of knowledge deficits.
- Area of knowledge related to Contraindications for Parenteral Nutrition administration, item no. (9,& 10), (16) with scoring of 73.3% of knowledge deficits.
- The area investigations needed for Parenteral Nutrition administration, item no. (15), (ranked 2) with scoring 10%, item no. 16, (ranked 3) with scoring 16.6% & item no. (14), (ranked 6) with scoring 36.6% of knowledge deficits.
- Area related to methods of administration of Parenteral Nutrition, item no. (17), (ranked 10) with scoring 56.6%, item no. (19), (ranked 4) with scoring 31.6% of knowledge deficits.
- Area of knowledge related to Complications of Parenteral Nutrition administration, item no. (24), (ranked 19) with scoring 80% and item no. (25), (ranked 9) with scoring 55% of knowledge deficits.
- Area of knowledge related to Nursing Considerations, related to Parenteral Nutrition administration, item no. (28), (ranked 1) with scoring 3%, item no. (32), (ranked 10) with scoring 60% of knowledge deficits.

SECTION – I: SOCIO-DEMOGRAPHIC VARIABLES OF SUBJECTS

Table - 1 Frequency and Percentage Distribution of subjects according to the Sample Characteristics

N=60

Sample Characteristics	n	%
Age (in years)		
a) 21-30	45	75.00
b) 31-40	12	20.00
c) 41-50	3	5.00
Gender		
a) Male	8	13.33
b) Female	52	86.67
Professional qualification		
a) GNM	41	68.33
b) B.Sc.(N)/Post Basic	19	31.67
Training Institution		
a) CMC & H	31	51.67
b) Others	29	48.33
Years of Experience		
a) >6 months-2yrs	19	31.67
b) <2-5yrs	24	40.00
c) 6-10yrs	9	15.00
d) >10	8	13.33
Working Areas		
a)ICU	33	55.00
b)SHDU	3	5.00
c)MHDU	10	16.67
d)Surgical Ward	14	23.33
In-service education		
a)Attended	13	21.67
b)Not attended	47	78.33

Table 1 depicts that maximum number of subjects i.e.75% were in the age group of 21-30 years followed by 20% in 31-40 years and then followed by 5% in the age group of 41-50 years. According to gender, 86.67% of subjects were females while 13.33% were males. As per professional qualification 68.33% of staff nurses had undertaken GNM

and 31.67% of staff nurses had undertaken B.Sc.(N) training. According to training institute 51.67% staff nurses were trained from CMC & H while 29% of staff nurses were from other institutions. Regarding years of experience majority of the subjects i.e. 40.% were having experience in between 2-5 years, 31.67% >6 months-2 years, while 15.% were having 6-10 years of experience and 13.33% were having experience >10 years. According to working area most of them were from ICU, i.e. 55%, followed by Surgical Ward i.e. 23.33%, followed by MHDU, i.e. 16.67%, followed by SHDU, 5%. According to In-service education attended 78.33% staff nurses had not attended in-service education while only 21.67% had attended in service education regarding Parenteral Nutrition administration.

Hence, it was concluded that majority of staff nurses were in the age group of 21-30 years, maximum were females, majority were qualified up-to GNM with work experience of less than <2 years and 2-5 years and most of them were trained from CMC & H. Majority of staff nurses were working in ICU's i.e. 55% out of which only 21.67% had attended in-service education on Parenteral Nutrition administration.

SECTION: II

Objective I: To assess the knowledge of staff nurses regarding Parenteral Nutrition Administration in terms of levels and areas.

Table - 2

Frequency and Percentage distribution of staff nurses according to the knowledge scores regarding Parenteral Nutrition Administration. N=60

Levels of knowledge	Staff Nurses		
	Score	n	%
Excellent	>26	18	37.2
Good	22-26	29	47.3
Average	17-21	13	15.7
Below average	0-16	-	-

Maximum Score = 32

Minimum Score = 0

Table 2 depicts that maximum number of staff nurses 47.3% had good knowledge score and 37.2% of the staff nurses had excellent level of knowledge whereas 15.7% had average knowledge and none of them had below average score regarding Parenteral Nutrition administration.

Hence, it can be concluded that maximum number of staff nurses had good knowledge regarding Parenteral Nutrition Administration.

Table - 3

Mean, Mean Percentage and overall Rank order of Knowledge score according to Areas Related to Parenteral Nutrition administration n=60

Areas of knowledge	Knowledge Score			
	Areas	Mean %	Mean %	Rank order
Concepts related to Parenteral Nutrition administration	2	1.62	80.83	1
Composition of Parenteral Nutrition	3	2.07	68.89	3
Indication for Parenteral Nutrition Administration	3	1.37	68.33	4
Contraindications for Parenteral Nutrition administration	4	2.97	59.33	7
Investigations needed for Parenteral Nutrition administration	4	1.32	32.92	8
Methods of Parenteral Nutrition administration	7	4.52	64.52	6
Complications related to Parenteral Nutrition administration	2	1.38	69.17	2
Nursing considerations related to Parenteral Nutrition administration	7	4.75	67.86	5

Maximum score = 32

Minimum score = 0

Table 3 depicts that Mean, Mean percentage and rank order. It shows that concept related to Parenteral Nutrition was maximum ranked 1 with mean percentage 80.83%, followed by Complications related to Parenteral Nutrition Administration ranked 2 with mean percentage 69.17%, followed by composition of Parenteral Nutrition ranked 3

with mean percentage 68.89%, Indications related to Parenteral Nutrition administration ranked 4 with mean percentage 68.33%, Nursing considerations related to Parenteral Nutrition ranked 5 with mean percentage 67.86%, Methods of Parenteral Nutrition administration ranked 6 with mean percentage of 64.52%, Contraindications related to Parenteral Nutrition ranked 7 with mean percentage 59.33% and least in the area of investigation needed for Parenteral Nutrition ranked 8 with mean percentage of 32.92%.

Hence it was concluded that majority of the staff nurses had maximum knowledge in the area of concept related to Parenteral Nutrition and least knowledge in the area of investigation needed for Parenteral Nutrition administration.

Table-4(b)

Mean, Standard deviation and Z value of Staff Nurses Knowledge score regarding Parenteral Nutrition Administration according to Professional qualification N=60

Professional qualification	n	Mean	SD	Z
GNM	41	20.49	4.18	1.39NS
B.Sc(N)/Post Basic	19	18.89	4.04	

Maximum score = 32

NS-Non-significant

Minimum score = 0

Table 4(b) depicts that mean knowledge score of staff nurses with GNM qualification was higher (20.49) as compared to mean knowledge score (18.89) among staff nurses with B.Sc.(N) qualification, this difference in mean was found statistically non significant at p<0.05.

Hence, it can be concluded that professional qualification had no significant influence on the knowledge score of staff nurses related to Parenteral Nutrition administration.

Table-4 (e)

Mean, Standard deviation and ANOVA value of Staff Nurses Knowledge score regarding Parenteral Nutrition Administration according to Working Areas N = 60

Working Areas	n	Mean	SD	F
ICU	33	19.58	3.75	
Surgical High dependency unit (SHDU)	4	38.67	3.79	
Medical High dependency unit (MHDU)	9	18.22	5.52	
Male Surgical Ward	14	22.21	3.93	
Source of Variance	df	Sum of squares	Mean sum of squares	F
Between Groups	4	104.343	26.086	1.555 ^{NS}
Within Groups	55	922.640	16.775	
Total	59	1026.983		

Maximum Score = 32

NS- Non-significant

Minimum Score = 0

Table 4 (e) depicts that mean knowledge score was higher i.e. 38.67 among staff nurses working in SHDU, whereas it was 22.67 among staff nurses in Male Surgical ward, followed by 19.58 among staff nurses working in ICU and least i.e. 18.22 among staff nurses working in MHDU. The table F-value was less than the calculated value, so the difference in mean was found statistically non-significant at p<0.05.

Hence it can be concluded that working areas had no impact on the knowledge score of staff nurses related to Parenteral Nutrition administration.

Objective 3: To identify the deficit areas of knowledge of staff nurses on Parenteral Nutrition administration and prepare guidelines.

Table - 5

Frequency, Percentage distribution and Rank order of staff nurses regarding Parenteral Nutrition administration according to deficit areas of Knowledge N=60

Areas of knowledge	n	staff nurses with deficit		Ran
		n	%	

Concept related to			
I. Parenteral Nutrition administration			
1. Food is made up of	38	63.3	12
2. Parenteral Nutrition is provided	57	95	24
II. Composition of Parenteral Nutrition			
3. Parenteral Nutrition bags contains	45	75	17
4. A solution of three in one means	37	61.6	11
5. Substance generally added to	41	68.3	14
III. Indication for Parenteral Nutrition administration			
6. Parenteral Nutrition is indicated for	54	90	22
7. Parenteral Nutrition is indicated when	27	45	7
8. Parenteral Nutrition is administered	20	33.3	5
IV. Contraindications for Parenteral Nutrition administration			
9. Parenteral Nutrition is contraindicated	44	73.3	16
10. Parenteral Nutrition is contraindicated	44	73.3	16
11. Parenteral Nutrition should be stopped	36	60	10
12. Parenteral Nutrition should not be given	32	53.3	8
V. Investigation needed for Parenteral Nutrition administration			
13. Fat elimination ability is monitored by	40	66.6	13
14. Time period for blood sample collection	22	36.6	6
15. If Parenteral therapy is given for a	6	10	2
16. Patients getting Parenteral Nutrition	10	16.6	3
VI. Methods of administration of Parenteral Nutrition			
17. After stopping Parenteral Nutrition	34	56.6	10
18. When rapid infusion of	37	61.6	11
19. Recommended initial rate for	19	31.6	4
20. If Patient is receiving 2000ml of	54	90	22
21. If Patient is receiving 2000ml	48	80	19
22. An average protein requirement of	32	53.3	8
23. Infusion set used for the Parenteral	42	70	15
VII. Complications related to Parenteral Nutrition administration			
24. Cause of sepsis due to	48	80	19
25. Overdose of Parenteral Nutrition	33	55	9
VIII. Nursing consideration related to Parenteral Nutrition administration			
26. Parenteral Nutrition bag is infused	52	86.6	21
27. Parenteral Nutrition bag is used	55	91.6	23
28. Contents of the Parenteral Nutrition	2	3	1
29. Appropriate area for preparing	49	81.6	20
30. Administration of exogenous insulin	47	78.3	18
31. Parenteral Nutrition is a	42	70	15
32. Air embolism should be prevented	36	60	10

Maximum score = 32

Minimum score = 0

Table 5 depicts the items having maximum incorrect responses given by the staff nurses regarding Parenteral Nutrition administration. The items having maximum incorrect responses was item no. 28, about the contents of the Parenteral Nutrition, with scoring 3% (ranked 1) followed by item no 15 about, if Parenteral therapy is given for a longer period, with scoring 10% (ranked 2) followed by item no. 16 about Patients getting Parenteral Nutrition with scoring 16.6% (ranked 3) followed by item no. 19 about, Recommended initial rate for, scoring 31.6% (ranked 4) followed by item no. 8 Parenteral Nutrition is administered, scoring 33.3% (ranked 5) followed by item no. 14 about, Time period for blood sample collection, scoring 36.6% (ranked 6) followed by item no. 7 about, Parenteral Nutrition is indicated when, scoring 45% (ranked 7) followed by item no. 22 about, An average protein requirement of, and by item no. 12 about,

Parenteral Nutrition should not be given, scoring 53.3% (ranked 8) followed by item no. 17 about, After stopping Parenteral Nutrition, scoring 56.6% (ranked 9) followed by item no. 11 and item no. 32 about, Parenteral Nutrition should be stopped & Air embolism should be prevented, scoring 60% (ranked 10) followed by item no. 4 & 18 about, A solution of three in one means & when rapid infusion of, scoring 61.6% (ranked 11) followed by item no. 1 about, Food is made up of, scoring 63.3% (ranked 12) followed by item no. 13 about, Fat elimination ability is monitored by, scoring 66.6% (ranked 13) followed by item no. 5 about, Substance generally added to, scoring 68.3% (ranked 14) followed by item no 23 & 31 about, Infusion set used for the & Parenteral Nutrition is a, scoring 70% (ranked 15) followed by item no. 9 & 10 about, Parenteral Nutrition is contraindicated, scoring 73.3% (ranked 16) followed by item no. 3 about, Parenteral Nutrition bags contains, scoring 75% (ranked 17) followed by item no. 30 about, Administration of exogenous insulin, scoring 78.3% (ranked 18) followed by item no. 21 & 25 about, If patient is receiving 2000ml & Cause of sepsis due to, scoring 80% (ranked 19) followed by item no. 29 about, Appropriate area for preparing, scoring 81.6% (ranked 20) followed by item no. 26 about, Parenteral Nutrition bag is infused, scoring 86.6% (ranked 21) followed by item no. 6 & 20 about, Parenteral Nutrition is indicated for & If patient is receiving 2000ml of, scoring 90% (ranked 22) followed by item no. 27 about, Parenteral Nutrition bag is used, scoring 91.6% (ranked 23) followed by item no. 2 about, Parenteral Nutrition is provided, scoring 95% (ranked 24).

Hence it can be concluded that staff nurses had deficit knowledge in all areas of Parenteral Nutrition administration.

DISCUSSION

Based upon findings from analysis of data and review of literature, discussion of present study was done in accordance with the objectives of research problem. The findings of the study are discussed with reference to the results observed by other investigators. Present study was done to assess the knowledge of staff nurses regarding Parenteral Nutrition administration and to find out the relationship of knowledge of staff nurses with selected variables and to identify the deficit areas of knowledge on Parenteral Nutrition. Target population was staff nurses working in the selected areas of Christian Medical College and Hospital, Ludhiana, Punjab. Knowledge questionnaire was prepared to assess the knowledge of staff nurses regarding Parenteral Nutrition administration.

Findings of the study shows that 47% staff nurses had good knowledge score and 15.7% had average knowledge score. Above findings were supported by study the effectiveness of an educational intervention in changing nursing practice preventing catheter related infection for patients receiving Parenteral Nutrition. The findings of the study indicate that the intervention was successful in improving appropriate nursing practice, mean score of nurses practices were 45.7 before and 66.5 after the intervention (Moro ML, Vignano, 1994)⁵³.

Findings of the present study show that relationship of knowledge of staff nurses with selected variables i.e. age, gender, Professional qualification, training institution, working area and in-service attended on Parenteral Nutrition had no influence on Parenteral Nutrition administration but year of experience had significant influence on the knowledge score of staff nurses. **Above findings of the study was supported by a study** done to know the characteristics and knowledge scores of nurses about Parenteral Nutrition and catheter related infection. The nurses in this study were in the age group of 18 to 35 years old (mean = 28). Their educational level was nursing high school diploma program graduates (6.7%), associate degree program graduates (50%), and baccalaureate degree program graduates (43.3%). More than of the nurses had worked for at least 2 years on the surgical units. None of the nurses had received in-service training about Parenteral Nutrition previously.

The mean score of nurse's knowledge about PN was 68.7. There was no association between the knowledge mean score and the nurse's characteristics such as age, length of employment and education level. The majority of nurses knew the major indications for PN (86.6%), the need for PN to be administered continuously over 24 hours (66.6%), the fact that medications, blood and blood products should not be administered through the PN catheter, and that CVP should not be measured through the same catheter, and that patient's vital signs should be assessed every 4-6 hours. However the majority of nurses did not know the interval for dressing changes nor the importance of

checking the urine for glucose (80%) (Lliop JM, M angues I, Preez JL, Lopez P, 1993⁵⁴).

Findings of the present study shows that the in-service education had no significant impact on knowledge score in relation to in-service education, mean score was higher (21.46) among staff nurses who had attended in-service education and least knowledge score i.e.(19.57) who had not attended in-service education.

Above findings were contraindicated by the literature reviewed that active in-service instruction by experts has been shown to elicit the best compliance with infection control polices (Seto, 1991)⁵⁵. In addition, a motivational program to increase interest and raise awareness of infection control, which improved infection control outcomes (Davis Beattie and de Wit 1996)⁵⁶. Findings of the study according to the deficit areas of knowledge of staff nurses on Parenteral Nutrition administration shows that staff nurses had least knowledge in the area of investigations needed for Parenteral Nutrition administration and methods of Parenteral Nutrition administration, but staff nurses has deficit in knowledge in all areas of Parenteral Nutrition administration.

CONCLUSION

On the basis of research findings it can be concluded that most of the staff nurses working in various adult care areas of Christian Medical College and Hospital had good knowledge regarding Parenteral Nutrition administration. According to the various areas staff nurses exhibited maximum knowledge in concepts related to Parenteral Nutrition administration and least in the Investigations needed for Parenteral Nutrition administration. However the overall score of the subjects was unsatisfactory indicating the need for guidelines on Parenteral Nutrition administration

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