Original Article

A Descriptive Study On The Assessment Of Knowledge Among Staff Nurses On Parenteral Nutrition Administration In A Tertiary Care Hospital At Salem District

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Abstract

The modem 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 tertiary care hospital at Salem district. 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 on Parenteral Nutrition administration. A descriptive design was used for the study. Data was collected from 112 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. The frequency and percentage distribution of staff nurses according to their knowledge score regarding parenteral nutrition administration were assessed. The maximum number of staff nurses 46.4% had good knowledge, 13.4% of the staff nurses had excellent knowledge whereas 35.7% had average knowledge and only very few 4.5% had below average score regarding parenteral nutrition administration. The knowledge deficit staff nurses can encourage and support through continuing education programs and in-service training programs. Therefore, it is necessary to support the knowledge level of staff nurses on patient nutrition support with guidelines and practical training on parenteral nutrition administration.

Keywords: Knowledge, Staff Nurses, Parenteral Nutrition Administration.

INTRODUCTION

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. [1]

Good nutrition can help to prevent diseases and promote health. There aresix categories of nutrients that the body needs to acquire from food, which are protein, carbohydrates, fat, fibres, vitamins, minerals and water. Nutrition provides energy and keeps an individual vibrant. [2]

Parenteral nutrition (PN), the provision of nutrients via the intravenous (IV) route, is in some cases a lifesaving therapy in patients who are unable to tolerate oral or tube feedings for prolonged periods. The development of a bedside technique foraccessing a large vein (e.g., subclavian) enabled hypertonic fluids to be administered beginning in the late 1960s, allowing a patient's full nutritional needs to be met withoutthe phlebitis encountered when hypertonic fluids were administered through peripheral veins. [3]

The malnutrition among the critically ill patients has not altered in recentyears [4-5] in spite of constant metabolic alterations occurring during the course of disease [6] The observation by Fohn and Denis that protein hydrolysis leads to gut absorption inspired Henriques and Anderson to administer hydrolyzed protein in an animal study, in 1913 [7-8] Elman and Weiner reported on the first successful use of Total Parenteral Nutrition (TPN) in humans, in 1939. [9]

MATERIALS AND METHODS

➢ COLLECTION OF RESPONDENTS DEMOGRAPHIC DETAILS

This part consist of 8 items for obtaining personal information from staff nurses such as Age, Gender, Educational qualification, Training institute, Years of experience, Current working department, Working experience in specific department, In-service education on Parenteral Nutrition administration and recorded in the designed proforma.

➢ CONSENT FROM THE RESPONDENTS

Staff nurses consent was obtained after providing all the required information in their local language and all the necessary and relevant data were collected (PROFORMA - I).

➢ STUDY PROCEDURE

A descriptive study design was conducted in a tertiary care teaching hospital, Salem. The data of 112 nurses were recorded during the time period of nine months from March 2022 to November 2022.

Staff nurses were interviewed using a standard knowledge questionnaire which is pre designed and consisted of 11 questions (PROFORMA - II). 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, and mean percentage. [10-11]

RESULTS

➢ DEMOGRAPHIC DETAILS

Table – 1: Frequency and Percentage distribution of staff nurses according to their demographic details

S.NO.	DEMOGRAPHIC DETAILS	RESPONDENTS (n=112)	PERCENTAGE (%)
1.	**Age (In Years)**		
	a) Below 20	2	1.8
	b) 21 – 25	56	50.0
	c) 26 – 30	46	41.0
	d) 31 – 35	5	4.5
	e) Above 36	3	2.7
2.	**Gender**		
	a) Male	87	77.6
	b) Female	25	22.4
3.	**Educational Qualification**		
	a) Diploma in Nursing	26	23.3
	b) B.Sc. Nursing	74	66.0
	c) GNM	12	10.7
4.	**Training Institution**		
	a) VMKVMC&H	79	70.5
	b) Others	33	29.5
5.	**Years of experience**		
	a) 0-2 Years	24	21.5
	b) 3-5 Years	35	31.2
	c) >5 Years	53	47.3
6.	**Working Department**		
	a) Emergency ICU	13	11.6
	b) Medical ICU	17	15.2
	c) Surgical ICU	23	20.5
	d) Pediatric ICU	16	14.3
	e) Others	43	38.4
7.	**Department experience**		
	a) 1 Year	65	58.0
	b) 2 Years	22	19.6
	c) >3 Years	25	22.4
8.	**In-service education**		
	a) Attended	15	13.4
	b) Not attended	97	86.6

➢ KNOWLEDGE QUESTIONNAIRE

Table – 2: Frequency and Percentage distribution of staff nurses regarding parenteral nutrition administration according to deficit areas of knowledge

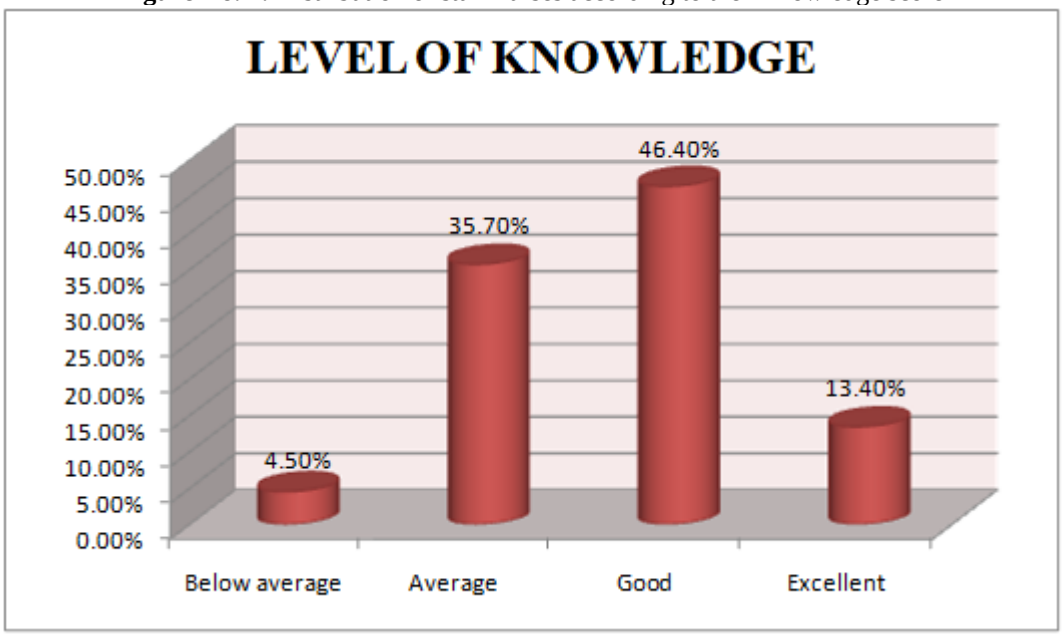
S.NO	AREAS OF KNOWLEDGE	RESPONDENTS (n=112)	PERCENTAGE (%)
1.	**Do you think it is necessary to provide nutritional support to every hospitalized patient?**		
	a) Need to evaluate	91	81.3
	b) No, medical treatment should be done first	8	7.1
	c) Yes	13	11.6
2.	**If the inpatient's oral intake is insufficient, on which day of hospitalization is nutritional support required?**		
	a) As soon as detected	70	62.5
	b) The third day	33	29.5
	c) If the patient's shows signs of dehydration	9	8.0
3.	**When fluid support should is given to a patient with insufficient oral fluid intake?**		
	a) As soon as detected	72	64.0
	b) If the patient's shows signs of dehydration	29	26.0
	c) The third day	11	10.0
4.	**If the patient does not have a swallowing reflex, which method should be used first for feeding?**		
	a) Enteral feeding with nasogastric insertion	65	58.0
	b) Should be supported with oral enteral supplementation	14	13.0
	c) Total parenteral nutrition	33	29.0
5.	**How Long Does Total Parenteral Nutrition Lasts?**		
	a) It is necessary to switch from peripheral to central as soon as possible	58	36.0
	b) Peripheral 14 days, Central 14 days	23	37.0
	c) Peripheral and central are indefinite	31	27.0
6.	**Are total parenteral products sufficient for nutrition?**		
	a) Yes	36	32.1
	b) No	76	67.9
7.	**When the set of patients receiving total parenteral nutrition should change?**		
	a) 12 hours	31	27.6
	b) 24 hours	43	38.4
	c) It is not changed unless necessary	38	34.0
8.	**Can the patient's treatment drugs be added to the parenteral nutrition solution?**		
	a) Yes	33	29.5
	b) No	79	70.5
9.	**What Is The Reason For Adding Fatty Acids, Glutamine, Vitamins, And Trace Elements In The Total Parenteral Products?**		
	a) Enabling patients to take more vitamins and minerals	42	37.5
	b) It is added to prevent bedsores	21	18.7
	c) Since these substances are not present in TPNs, they cannot provide adequate nutrition on their own	49	43.8
10.	**Which of the following is true?**		
	a) Central nutritional solutions can be given through the peripheral vascular pathway	26	23.2
	b) Peripheral nutrition solutions should be given from the peripheral vein, central nutrition solutions should be given from the central route	30	26.8
	c) Peripheral nutrition solutions can be given through thecentral venous route	56	50.0
11.	**Which type of diet is easiest to feed your patients?**		
	a) Nasogastric or enteral feeding with PEG	25	22.3
	b) Oral feeding of the patient, even with the assistance	62	55.4
	c) Total parenteral nutrition by central route	7	6.3
	d) Total parenteral nutrition by peripheral route	18	16.0

➢ KNOWLEDGE LEVEL SCORE

Table – 3 Distribution of staff nurses according to their knowledge level score

Knowledge level	Score	Respondents (n=112)	Percentage (%)
Below average	0-3	5	4.50
Average	4-6	40	35.70
Good	7-9	52	46.40
Excellent	10 & above	15	13.40

Figure No. 1: Distribution of staff nurses according to their knowledge score



DISCUSSION

Our study findings related to demographic variables are; maximum staff nurses (50%) were in the age group of 21 – 25 years. The maximum staff nurses were (77.6%) females. The maximum staff nurses (66%) were had the educational qualification as B.Sc. Nursing. Maximum staff nurses (70.5%) were trained from VMKV Medical College & hospitals. The maximum staff nurses (47.3%) were had More than 5 years of experience. The maximum staff nurses were (20.5%) currently working department is surgical ICU followed by other selected departments such as Medical ICU (15.2%), Pediatric ICU (14.3%) and Emergency ICU (11.6%). When the working years of respondents were examined, it is seen that only 25 (22.4%) nurses worked in same department for more than three years and the maximum staff nurses 65 (58%) were had one year of experience in specific department which is very less year of experience due their frequent rotations. The maximum staff nurses 97 (86.6%) were had not attended any In-service education programs on total parenteral nutrition.

Our study findings related knowledge variables about Total Parenteral Nutrition administration was assessed using standard knowledge questionnaire with 11 questions.

Knowledge question 1: "DO YOU THINK IT IS NECESSARY TO GIVE NUTRITIONAL SUPPORT TO EVERY HOSPITALIZED PATIENT" 91 respondents were answered correctly it is "NEED TO EVALUATE" which is 81.3 % and 18.7% respondents were deficit knowledge about the question.

Knowledge question 2: "IF THE INPATIENT'S ORAL INTAKE IS INSUFFICIENT, ON WHICH DAY OF HOSPITALISATION IS NUTRITIONAL SUPPORT REQUIRED" 70 respondents were answered correctly it is "AS SOON AS DETECTED" which is 62.5 % and 37.5% respondents were deficit knowledge about the question.

Knowledge question 3: "WHEN FLUID SUPPORT SHOULD IS GIVEN TO A PATIENT WITH INSUFFICIENT ORAL FLUID INTAKE" 72 respondents were answered correctly it is "AS SOON AS DETECTED" which is 64.0 % and 36.0%respondents were deficit knowledge about the question.

Knowledge question 4: "IF THE PATIENT DOES NOT HAVE A SWALLOWING REFLEX, WHICH METHOD SHOULD BE USED FIRST FOR FEEDING" 65 respondents were answered correctly it is "ENTERAL FEEDING WITH NASOGASTRIC INSERTION" which is 58.0 % and 42.0% respondents were deficit knowledge about the question.

Knowledge question 5: “HOW LONG DOES TOTAL PARENTERAL NUTRITION LASTS” 58 respondents were answered correctly it is “IT IS NECESSARY TO SWITCH FROM PERIPHERAL TO CENTRAL AS SOON AS POSSIBLE” which is 36.0 % and 64.0% respondents were deficit knowledge about the question.

Knowledge question 6: “ARE TOTAL PARENTERAL PRODUCTS SUFFICIENT FOR NUTRITION” 76 respondents were answered correctly it is “NO” which is 67.9 % and32.1% respondents were deficit knowledge about the question.

Knowledge question 7: “WHEN THE SET OF PATIENTS RECEIVINGTOTAL PARENTERAL NUTRITION SHOULD CHANGE” 43 respondents were answered correctly it is “24 HOURS” which is 38.4 % and 61.6% respondents were deficitknowledge about the question.

Knowledge question 8: “CAN THE PATIENT’S TREATMENT DRUGS BE ADDED TO THE PARENTERAL NUTRITION SOLUTION” 79 respondents were answered correctly it is “NO” which is 7 0.5 % and 29.5% respondents were deficitknowledge about the question.

Knowledge question 9: “WHAT IS THE REASON FOR ADDING FATTY ACIDS,GLUTAMINE, VITAMINS, AND TRACE ELEMENTS IN THE TOTAL PARETERAL PRODUCTS” 49 respondents were answered correctly it is “SINCE THESE SUBSTANCES ARE NOT PRESENT IN TPNs, THEY CANNOT PROVIDE ADEQUATE NUTRITION ON THEIR OWN” which is 43.8 % and 56.2% respondents were deficit knowledge about the question.

Knowledge question 10: “WHICH OF THE FOLLOWING IS TRUE” 56 respondents were answered correctly it is “PERIPHERAL NUTRITON SOLUTIONS CAN BE GIVEN THROUGH THE CENTRAL VENOUS ROUTE” which is 50.0 % and 50.0% respondents were deficit knowledge about the question.

Knowledge question 11: “WHICH TYPE OF DIET IS EASIEST TO FEED YOUR PATIENTS” 62 respondents were answered correctly it is “ORAL FEEDING OF THEPATIENT, EVEN WITH THE ASSISTANCE” which is 55.4 % and 44.6% respondents were deficit knowledge about the question.

The frequency and percentage distribution of staff nurses according to their knowledge score regarding parenteral nutrition administration were assessed. The maximum number of staff nurses 46.4% had good knowledge, 13.4% of the staff nurses had excellent knowledge whereas 35.7% had average knowledge and only very few 4.5% had belowaverage score regarding parenteral nutrition administration.

CONCLUSION

In our study there is no relation was found between age, gender, educational qualification and parenteral nutrition administration knowledge. However, the correct answer to the questions about parenteral nutrition was found to be significantly higher in those who had worked in the department for more than five years of experience. Findings of our study show that In-service education had significant impact on knowledge score. Hence it can be conclude that maximum number of staff nurses had good knowledge level regarding parenteral nutrition administration. However the overall knowledge score of the respondents was not satisfactory.

Our study concludes that, nurses should have sufficient knowledge about the necessity of total parenteral nutrition. Insufficient information and deficiencies in practice should be determined through knowledge level studies. The knowledge deficit staff nurses can encourage and support through continuing education programs and in-service training programs. Therefore, it is necessary to support the knowledge level of staff nurses on patient nutrition support with guidelines and practical training on parenteral nutrition administration.

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