

Determination of the Critical Care Nurses Knowledge Toward Enteral Tube Feeding in AL-Hilla Teaching Hospitals (Interventional study)

Kathreen Mohammed Aziz¹, Sahar Adham Ali²

¹MSc Student in Nursing Science from College of Nursing-University of Babylon. Iraq, ²Ph.D. Adult Nursing, Department College of Nursing-University of Babylon

Abstract

Background: Patients with serious illness who admitted to the critical care unit almost have a complex nutritional needs commonly require intensive nutritional care as part of the metabolic reply to disease and injuries. The knowledge of nurses and their practices toward enteral nutrition act effectively on the clinical outcome of the patients.

Aim: To evaluate the effectiveness of enteral tube feeding protocol sessions upon nurses knowledge.

Methodology: Quasi-experimental study conducted in the critical care units in AL – Hilla Teaching Hospitals, from the period (Sep.2018 to Aug .2019). Non-probability (purposive) sample were assigned to achieve the objectives of the study, (60) nurses divided to control and trail group, special questionnaire prepared to collect the data which divided on to three parts. The validity of the questionnaire obtained by review of (11) experts in the different filed, correlation used as statistical method to calculate the reliability of the study questionnaire which recorded as (r=0.76), which is statically acceptable.

Result: The presented that most of the study sample were male, between (22-26) years old, 14(56.0) and 19(95.5) were married most of them were bachelor degree holders.

Conclusion: Implementation of an educational program to the nurses' who caring to patients schultated to tube feeding record significant improvement in the nurses' level of knowledge.

Key word: *Determination, Critical Care, Nurses, Knowledge, Enteral Tube Feeding.*

Introduction

Enteral tube feeding is a proper therapeutic strategy which used in the management of special complicated cases ,advance device such as pumps may be used in spite of the traditional nasogastric tube which made the intestinal feeding easy ,annual increasing in the number of the patients who need to require such type of feeding exceed more than (20 to 25%) in the UK ,so the responsibility of the health care providers to develop their knowledge and skills in order to enhance their ability to manage this type of tube nutrition Over recent years the enteral feeding (EF) techniques have developed by using technology it become safe, comfortable and efficient practice to provide nutritional support, its become as a key --component in the management of patients with complex conditions.¹

Aspiration of recognizable gastro intestinal contents, auscultation of insufflated air, measurement of PH of gastrointestinal secretions, and observing for coughing and choking, inability to speak, or appearance of air bubbles from the end of the tube when it is hold under water level. All these methods was recommended as bedside test to check the placement of the enteral tube. ²

The care giver should assess the presence of gastric residuals by aspirating stomach contents through the feeding tube. If it's more than (100 ml) can be discarded, and the feeding dose should be postponed. For next scheduled time if the residuals are more than 100 ml in this situation feeding stopped and the physician notified feeding stopped³

A safe method of handling and storage of formula for tube feeding Patient's. The points to be kept in mind, as the hands must be washed thoroughly before handling the formula thus lessening the chances of food contamination. Regarding to temperature extremes when storing unopened formula should be avoided. The expiry date on formula containers should be checked and use of out dated formula must be avoided, the equipment and kitchen area must be checked before mixing or handling formula. Tube feeding equipment must be rinsed before and after each use, and a new formula should not be added to formula already hanging in the bag and the formula should hang for no more than 6-8 hours if continuous drip method is used and compared the adequacy of care provided in tube feeding procedure by different group of nursing personnel in CMC hospital. ⁴

If the administration of medications by oral route difficult the health care providers should think about enteral or other alternative routes such as para-enteral. The common problem of nasogastric administration is drug-food interruption which leads to patient discomfort or blockage of tube sometimes.⁵ This challenge makes the issue of improving the health care providers knowledge and practices related to gastric feeding is important, plus the multidisciplinary participation of other people such as pharmacist or dietitian is important to maintain patient safety. ⁶

Objectives: To determine the effectiveness of enteral tube feeding protocol sessions upon critical care nurses knowledge.

Result

Table (1): distribution of the study sample related to their demographic characteristics

Variable	trial (n = 25)		Control (n = 29)		C.S.
	Frequency	Percent	Frequency	Percent	
Age (Years)					.854 (NS)
22-26	22	88.0	18	62.1	
27-31	3	12.0	8	27.6	
32-36	0	0.0	3	10.3	
Gender					.656 (NS)
Male					
Female		80.0	22	75.9	
20		20.0	7	24.1	
5					
Marital Status					.201 (NS)
Married	14	56.0	19	65.5	
Single	11	44.0	10	34.5	
Educational qualification					.779 (NS)
Secondary nursing school	0	0.0	2	6.9	
Diploma	7	28.0	10	34.5	
Bachelor's degree	18	72.0	17	58.6	
Residency					.327 (NS)
Urban	14	56.0	18	62.1	
Rural	11	44.0	11	37.9	

C.S. = Contingency Coefficient; n = Number

The result in table (1) presented that most of the study sample were male, between (22-26) years old, 14(56.0) and 19(95.5) were married most of them were bachelor degree holders.

Table (2): distribution of the study sample related to their employment characteristics

Variable	Trail (n = 25)		Control (n = 29)		C.S
	Frequency	Percent	Frequency	Percent	
Experience in the critical care unit					.336 (NS)
1	21	84.0	14	48.3	
2-4	2	8.0	9	31.0	
> 4	2	8.0	6	20.7	
Work Shift					.819 (NS)
Morning	10	40.0	20	69.0	
Evening	15	60.0	9	31.0	

Table (3). Descriptive Statistics for the Values of the nurses’ knowledge about feeding and medications via nasogastric tube over Time

Feeding & Medications via NG tube	Mean	Std. Deviation
Trail Pretest	21.84	1.43411
Trail Posttest I	25.36	1.70098
Trail Posttest II	26.32	2.28910
Control Pretest	21.00	1.73205
Control Posttest I	21.00	1.73205
Control Posttest II	20.96	1.74198

Discussion

Table (1) the most of nurses in the trail group age 22-26-years 22 (88.0%), For the control group, most age 22-26-years 18(62.1%).Most of nurses in the trail group are males 20(80 %) and for the control group, most are males 22(75.9%) .More than a half in the trail group are married 14(56.0%) and for the control group, most are married 19(65.5%) .Most of nurses in the trail group hold a bachelor’s degree . More than a half of nurses in the trail group and control group reported that they have

been living in urban areas.

This result agrees with the study ⁷ which find out the nurses who participate in the study were between age group (22-28) years, married, (97%) bachelor degree holder, between (1to 5) years of experience in the critical care, while their gender was female.

The most of the nurses who participate in the present study were male because of workload in the unit and the policy of the hospitals prefer male nurses to involving all

shifts morning and evening, while female nurses cannot assign in because of social norms in our society.

Table (2) the most of nurses in the trail group have one year of experience in the critical care, 21(84 %). Of the control group, have less than one year of experience in the critical care 14(48.3%). Most of nurses in the trail group work in the evening work shift 15(60%). For the control group, most work in the morning shift 20(69). The most of nurses who work in the critical care unit usually work in complex, stressful environment with complicated cases who need urgent intervention for this reason the morning shift nurses cannot involve in three educational sessions because of the workload related to admission and discharge of patient in addition to administrative arrangement, while evening shift work long shift time nearly(18hrs). Which let them to involve in the educational sessions which take above (50min) for each session.

The most of the nurses did not attend any training courses related to tube feeding. Thus, low quality of care provided to the patients, find that the most of the nurses had no knowledge deficit due to lack if the service. This finding goes along with the study which training programs related to this issue, that an orientation program or training is helpful for the nurse to find their places in the particular working area and to be able to adjust to assigned work function.⁸

Table (3 and 4) reveals that the most of answer of nursing regarding to amount and method of feeding, nurses' knowledge about feeding and medications by nasogastric tube are with mean scores with low R.S. and their assessment is low, other regarding to delivering feeding and prepare formula are of moderate-mean scores with low R.S., and the last answer regarding managing blockage tube to administering medication is high-mean scores with high R.S in the pretest time. In the posttest time, eight items are of high mean scores with high R.S. and their assessment is high with statistically significant differences in two items, and other seven items are of moderate-mean scores with high R.S with statistically significant differences for five of them. The values of the nurses' knowledge about feeding and medications via noticeably NG tube increase by time compared to the control group (Pretest = 7.72, 7.51; Posttest II = 9.48, 7.48; Posttest II = 9.48, 7.48) respectively. Higher score means better knowledge.

Previous studies showed that the majority nurses had of the deficient knowledge related to proper drugs administration technique through feeding tubes. 70% use to crushed an enteric-coated tablet and 66.2% have crushed a sustained-release tablet⁹ the healthcare institutions need to develop strategies to enable practicing nurses to improve their knowledge and skills in medication preparation and administration through feeding tubes in hospital settings.

Related to wrong drug administration which include: ignore to assess the correct placement of the tube rated as (67.6%); the number of nurses who administering medications together (65.6%); not flushing the tube prior to medication administration were (62.5%); and not flushing the tube between medications were (86.5%). Previous study shows that when 74% of nurses had employed wrong medication administration methods to deliver medicines through feeding tubes, may reduce the effects of drugs and lead to unsuccessful treatment. Special caution must be highlighted for assessing the placement of the tube lip prior to drug administration.¹⁰

Mixing medications with the feeding formula is problematic. The scope can increase and may progress to tube obstructions. The tube obstruction was significantly higher (36.5%) than that reported in other causes (ranging from 2% to 12.5%) and it may be refer to the use of solid form medications.¹¹

A statistical significant relationship found ($p= 0.006$) between tube obstruction and incorrect reconstitution of drugs, and it may be attributable to a lack of adequate knowledge related to pharmaceutical formulations. This finding may also be explained by the deficiency in the training process for nurses, specifically regarding administration medicines, which may not include information related to pharmaceutical technology. Furthermore, the size of the tube mainly, 12F (74.2%), used in adults' patients should be between 6F to 12F.¹² are more likely to become blocked, so special precautions should be taken to prevent tube obstructions, which includes stopping enteral feeding before a drug is administered; flushing the tube before and after each feeding or every four to six hours during continuous feeding pattern, and before and after each drug administration. For patients with renal or cardiac disorder flushing volume should degrees to meet fluid restoration issue.¹³

To improve patients, care and maintain quality of care educational sessions is necessary to update and improve the health care providers knowledge and practice to promote patient's health and safety.

Conclusion

The trail group members who participate in the enteral feeding educational sessions recorded high scores related to their knowledge, the educational sessions act effectively upon the nurse's knowledge.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Nursing-University of Babylon. Iraq and all experiments were carried out in accordance with approved guidelines.

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