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To Assess The Knowledge Of Nurses Regarding Enteral Nutrition In Neuro Intensive Care Unit In Patiala

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ABSTRACT

Background: Nurses play a major role in initiation and management of EN and monitoring of potential complication. The role of EN is very significant in neurology and neurosurgery patients, who are critically ill and are dependent on EN for longer duration of time. Malnutrition is very common problem among neurointensive care unit patients. It is unclear whether neuro intensive care nurses have adequate knowledge regarding EN. Therefore aim of this study is to assess the neurointensive care nurses knowledge regarding EN.

Methods: A descriptive cross-sectional sectional study was conducted in November 2020 in Patiala Punjab. Random sampling method was used and ICU nurses from different private hospitals participated in the study. A self-administered 15 item questionnaire related to ICU nurses knowledge about EN was used to collect the data.

Result: Out of 100 participants 87% were females and 13% were males 44% of the participants were aged between 26 -30 years and 41% of the nurses were between the age group of 20-25 years. Most of the Participants (34%) had 0-2 years of working experience as nurse. Total of 57% of the nurses had not attended any EN training and 32% of the participants were not aware of availability of EN protocol in the hospital. Only 5% participants had adequate knowledge about EN and 41% had inadequate knowledge regarding EN. There was no association between level of nurses knowledge regarding EN and the level of education.

Conclusion: A significant gap was identified in neurointensive care nurses knowledge regarding EN. This indicates that there is need to upgrade and refresh nurses knowledge regarding EN by training program.

Keywords: *Enteral nutrition, Neurointensive care, knowledge*

1. INTRODUCTION

1.1 BACKGROUND

Many studies done in the field of critical care indicate that malnutrition is common problem in patients who are hospitalized for longer duration. This is also result in delayed rehabilitation poor quality of life and higher rate mortality and prolonged in hospital stay require more money.Oral intake is the first choice for preventing malnutrition in hospitalized patients.During the course of treatment the nutrition requirement and feeding methods may change according to the disease and medical condition of patient. Patients who are admitted in neurointensive care unit have individual nutrition related requirements according to their condition. This task is difficult for health team to asses nutritional requirements of individual time to time.

Patients who are neurologically disabled generally require non-oral nutrition support due to altered sensorium or difficulty in swallowing patients generally are admitted in neuro intensive care units are with Traumatic Brain Injury (TBI), Spinal cord injury, Brain stroke, myasthenia gravis. Guillain Barre Syndrome and multiple sclerosis such condition may promote wasting of skeletal muscle, visceral protein loss or hyper catabolism. Non-surgical patients may be in hyper metabolic or hyper catabolic state due to their disease condition and invasive intervention which are done to support them during treatment of patients. The patients admitted in neurosurgery intensive care units have longer hospital stay and they remain on bed for long time so they don't have ability to do their living activities themselves. Inadequate nutrition is common problem suffered by patients in neurosurgery intensive care units. Due the reduced consciousness, sedation mechanical ventilation, endotracheal intubation majority of neurointensive care patients. Enteral nutrition is method of feeding such patients to meet their nutritional requirements. In complete feed as it contains carbohydrates, protein fat, water vitamins and minerals.

As a form of nutrition support enteral nutrition can be employed as first alternative provided the gut is functioning properly. Enteral nutrition can be life saver but if not administered properly patient's quality of life may be affected adversely. Diarrhea, tube dislodgment and infection are common complication linked to incorrect tube placement.

Nurses have to play main role in delivering tube feeding. They have to insert the tube if temporary tube is used, give the feed and prevent complication associated with process. So administration of enteral nutrition requires proper training and coordination of multidisciplinary specially nursing personnel.

1.2 OBJECTIVE OF THE STUDY

- To assess the pre-administration, administration and post administration level of knowledge about enteral nutrition of neurointensive care nurses.
- To develop enteral nutrition guideline for fresher nurses in neuro ICU.
- To help prevent malnutrition in neurosurgery and neurology patients who are on enteral nutrition in neuro ICU by educating nursing staff.

2. SIGNIFICANCE OF STUDY

Patients admitted in neurointensive care units suffer from serious head injury or neurogical diseases such patients are in catabolic stress. Such patients have prolong hospital stay. Prolong hospital stay results infectious morbidity, multiorgan dysfunction and wasting of lean body mass such patients are on enteral nutrition. Enteral nutrition in such patients help presence of lean body mass, maintain immune function and avoid metabolic complication as a doctor in neurosurgery department researcher noticed that patient with prolonged hospital stay suffer which malnutrition. As basic knowledge of nurses employed in neuro intensive care unit differs therefore special studies should be carried out to determine the gaps, defects and necessary to overcome defects.

3. METHODOLOGY

3.1 RESEARCH QUESTION

What do nurses know about enteral nutrition?

3.2 AIM OF THE STUDY

The aim of the study is to assess Nurses knowledge regarding enteral nutrition in neurointensive care units.

3.3 RESEARCH HYPOTHESIS

The nurse employed in neurointensive care units does not have enough knowledge about enteral nutrition.

3.4 STUDY PLAN

3.4.1 STUDY DESIGN

A self-administeredquestionnaire was used, and a descriptive cross sectional design was used to test EN knowledge of neurointensive carenurses units in Patiala.

3.4.2 SETTING OF STUDY

There are only few hospitals in Patiala which provide indoor neurointensive care for patients, Columbia Asia hospital, phull neuro and Bhatia neuro and Amar hospital are major hospitals which provide neuro intensive care. But among these Amar hospital is the only hospital. Which has both neuro surgery and neurology department and is the biggest hospital in the city. So for study this hospital was chosen as no. of nurses are more in this hospital.

3.4.5STUDY POPULATION

The study population included all nursing personnel who are employed at Amar hospital and have working experience in neuro ICU.

3.4.6 SAMPLING SIZE AND SAMPLING PROCEDURE

The total number of nurses employed at Amar hospital according to the information received from the HR department Amar hospital is ------ among these only 200 nurses were doing duty in different ICU, HDU, MICU and neuro intensive care units, SICU rotation wise. The target sample size was set at 100 and 10% was added additional to accommodate for questionnaire that might return incomplete.

The method of sampling was simple random sampling to select 100 participants. All nursing personnel working or having work experience in neurointesive care units and were willing to participate and sign consent during data collection were given chance to take part in the study.

3.4.7 INCLUSION CRITERIA

All nursing personnel who were working shift wise (on morning, evening and night shift) were included in the study. The eligibility criteria for study was (1) nurses who have diploma or degree in nursing (2) have at least 3 month experience with neuro ICU patients (3) were providing direct nursing care to Neuro ICU patients during duty.

3.4.8 EXCLUSION CRITERIA

The nurses who have joined the hospital/neuro ICU recently (less than 3 months working experiences with neurologically ill patients). The nursing students/staff who are on training in neuro ICU. Nurses who are in administration and are no longer in direct contact with patient.

3.5 DATA COLLECTION

Before collection of data, permission of nursing incharge of neuro ICU was taken. Those nurses who were interested to take part inthe study and met eligibility criteria were give the questionnaire to complete it.They were told to read the cover page and understand the purpose of study. Any quires of the nurses were answered at the time the nurses were completing the questionnaire. To complete the questionnaire it took approximately 10-15 minutes.

3.6 ETHICAL CONSIDERATION

The approval for conduction of study was obtained from the hospital administration and head of the department. Those nurses who fulfilled the eligibility and were interested to participate in study were invited to complete the questionnaire. Nurses were informed that the participation in the study was voluntary and they had choice to withdraw from the study. Nurses were choice to leave the questionnaire incomplete if they were unable to complete it. A letter covering the information about the purpose of study was duly approved by the hospital authorities.

3.7 INSTRUMENT

Questionnaire research instrument was used to gather information from the respondents. Questionnaires have advantage that they are cheap and do not require much effort and the result of questionnaire can be easily and quickly quantified. Although Punjabi is a mother language of the participants, nurses are expected to understand written English and medical terminology as they all have studied their nursing course in English. Communication and documentation is also done in English language so the language of questionnaire in chosen English.

Based on the review of previous studies a self-administrated questionnaire was developed. This questionnaire consists of 15 questions with multiple choice questions. The questionnaire is divided into two sections (see blank copy at the end). The first section deals with socio-demographic characteristics of the participants on EN.

The second section is related to knowledge of neurointensive care nurses related to their knowledge about En.

- First five questions are related to knowledge of nurses before administration of EN.
- The next five questions are related to the knowledge of nurses about administration of EN.
- The last five questions are related to knowledge of nurses about of management of EN.

3.8 SCORING SYSTEM

There are 15 questions to assess the knowledge of nurses. Each question has one right choice. Each right answer scores one mark while incorrect response gives zero marks. There was no negative marking. There were total 15 marks for 15 questions. The maximum score for all correct answer was 15. The score of 50% or less was considered inadequate. 51-75% moderate while 76% and above score was considered as adequate.

4. RESULT AND DISCUSSION

The present study was done on nurses who are working with neurology and neurosurgery patients admitted in the neuro ICU. This study assumed that the nurses had inadequate knowledge about enteral nutrition. The data was collected in the month of November 2020. The questionnaire was distributed to the nurses and some of them who were on duty filled the

questionnaire at the same time. Those nurses who had other shift the questionnaire was given to them through nursing in charge and was collected the next day. Table 4.1 shows demography information of the participants it includes their qualification, age, gender and experiences in nursing profession.

4.1 DEMOGRAPHIC DISTRIBUTION OF PARTICIPANTS

Category	Variable	Frequency	Percent
Gender	Male Female	13 87	13% 87%
Age	20 and less than 20 years 20-25 years 26-30 years 31-35 years 36 years above	0 41 44 14 1	0% 41% 44% 14% 1%
Educational level	Diploma Bachelor Master	65 32 3	65% 32% 3%
Experience	0-2years 3-5 years 5-10 years More than 10	34 32 23 1	34% 32% 23% 1%

Table no. 1

It is clear from the table that most of the participants are female 87% while males are less only 13%. Most of the nurses got diploma in nursing (65%) and only 3% nurses are working with master's degree. Master's degree nurses generally go in administration so only few nurses work in patient care. The most of the nurses have experiences of 0-2 years while 23% nurses have experiences of 5-10 only 1% have more than 10 years this may be because of experience nurses prefer government job and mostly fresher nurses work in private.

4.2 EN TRAINING PROFILE OF PARTICIPANTS

Category	Variables	Frequency	Percentage
Previous Training about a EN	Yes No	43 57	43% 57%
Source knowledge About Enteral nutrition	Nursing School Education in Hospital In- Service training Consulting Colleagues	47 29 16 8	47% 34% 19% 8%

Table no 2

Most of the participantshave received their formal training of EN at their nursing college while 14% of them received their EN training in service training in their hospital. Some of the participants (8%) had not got any training and were trained by their colleagues while working in ICU.

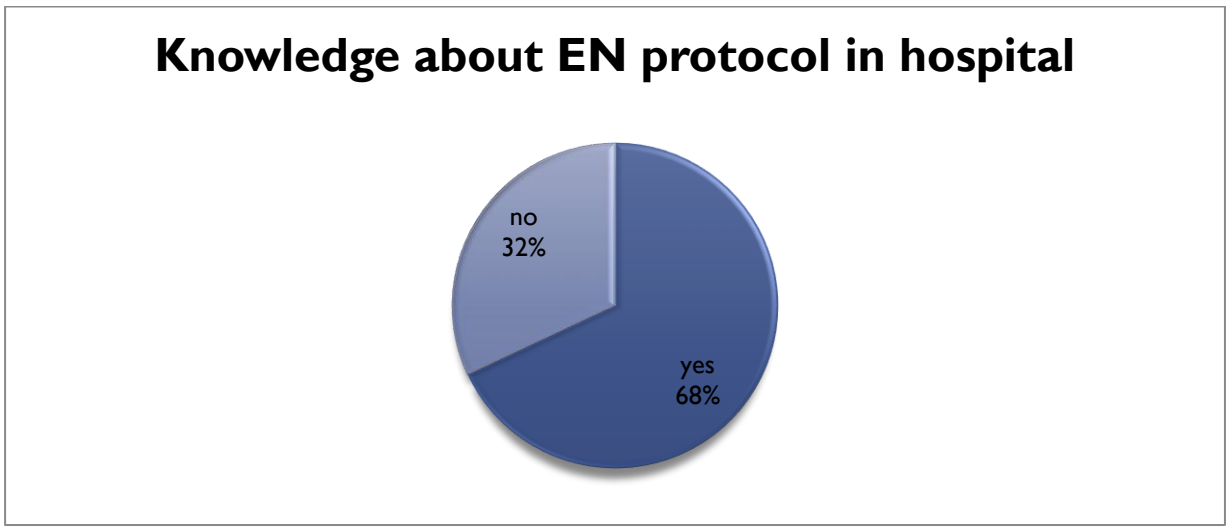

Figure 4.1

It is very surprising that 32% of nurses don't know about the EN protocol in their hospital. This may be due to the reason that they were not told about the EN protocol as nutrition of patients is not given importance only treatment of disease condition is the main aim.

4.3 KNOWLEDGE OF NURSES WITH REGARDING TO EN

The percentage score of 76% and above was considered as adequate for nurses while nurses with (51% – 75%) score i.e. 8 to 11 score were considered with moderate knowledge while with 50% and less were considered as inadequate knowledge.

The study results showed that majority of participants had knowledge score of less than 76% which is significantly below the set score. Only 5% participants achieved the target score of 80% and 54% participants scored between 51% to 75%. It is surprising that 41% of the participants scored less than 51% of marks.

The mean in this study is 8.13 with a range of 4-14.

There was no significant difference in knowledge of nurses with regard to their professional ranking and age.

4.4 KNOWLEDGE OF NURSES ABOUT PRE-ENTERAL NUTRITION ADMINISTRATION

Fig 4.3 shows the correct responses of EN pre-administration questions.

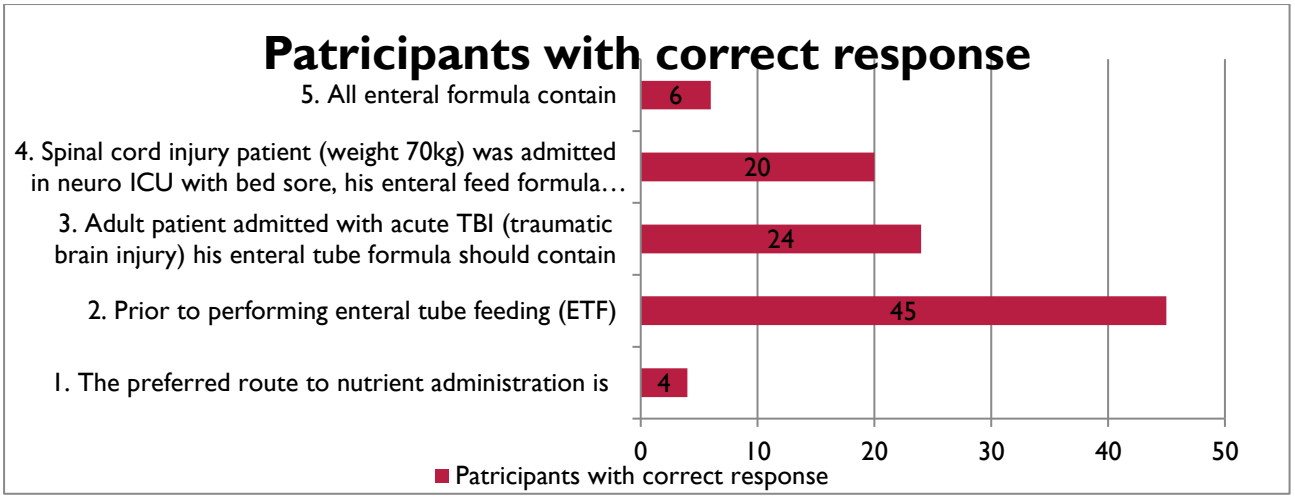

Figure 4.2

The figure shows that majority of participants were unable to give preferred route of nutrients administration. Most of the nurses had given the response as I/V fluids as preferred route of nutrition administration. In response to 2nd question about prior to performing enteral tube feeding, most of the participants responded to check bowel sound and abdominal distention. Performing hand hygiene and checking gastric residual volume was the correct answer and given by 45% of participants. This question got the highest correct response. In response to third question most of the participants gave high protein diet as the correct answer. The reason behind not choosing high calorie and high protein diet was that the nurses had no knowledge of high metabolic rate and high calorie requirement in Brain trauma patients.

Most of the respondents give high calorie and high protein diet. They had no idea about only high protein with limited calories should be given to prevent weight gain in spinal injury patients.

4.5 KNOWLEDGE OF NURSES ABOUT ADMINISTRATION OF ENTERAL NUTRITION

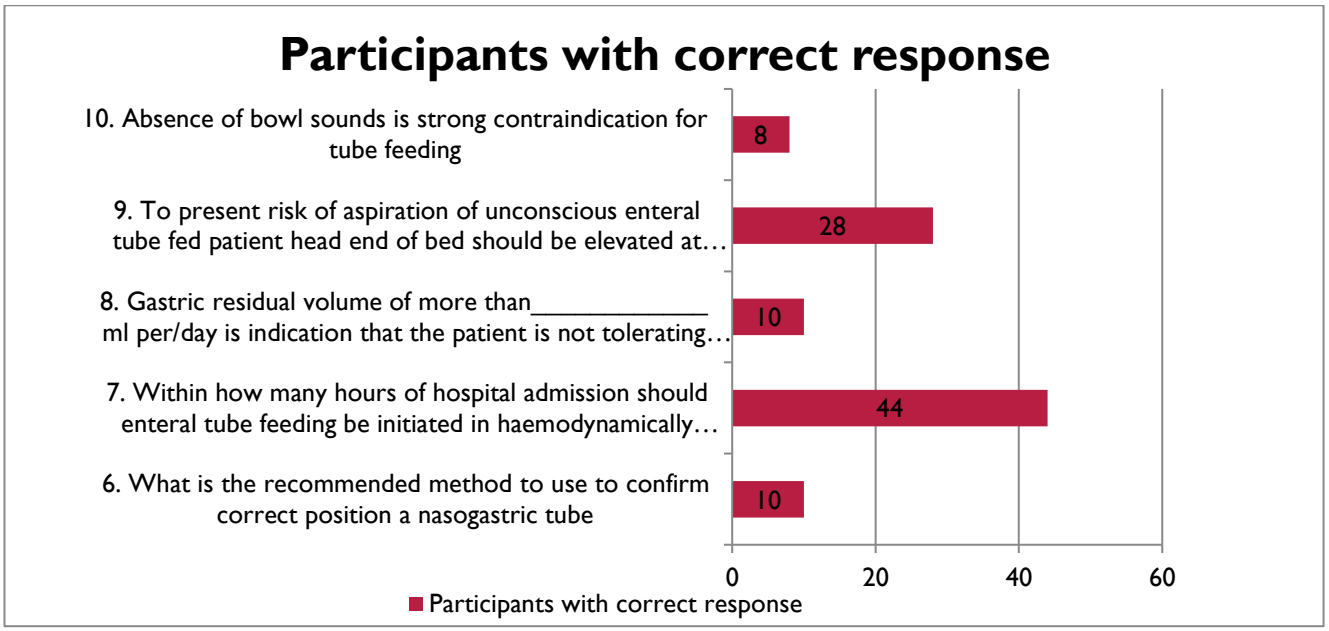

Figure 4.3

This sections deals with knowledge of nurses regarding EN administration. In response to question 6 auscultation of abdominal air was the recommended method to confirm correct position of nasogastric tube. Because auscultation of abdominal air with stethoscope while pushing air with 50 cc syringe is common practice to confirm position of nasogastric tube in most of the hospitals. Some of the nurses choose x ray as recommended method. Only 10% nurses choose aspiration of gastric acid as recommended method. In response to question no. 7 44% of the nurses gave correct answer that within 24-

48 hours of hospital admissions the feed should be started while most of the nurses had no idea and thought that there is no specific time period to start feed. Only consultant physician will tell when the feed should be started.

In response to question no. 8 most of participants choose 200-250 ml as the right answer and were not a aware that feed should be withheld only if GRV is more than 500 ml/day.

In response to question no. 9 most of the participants choose 60-75° raised head end of bed as right answer and only few 28% of them gave the correct answer.

In response to question no. 10 that majority of nurses feel that bowel sound is necessary for tube feeding to start and only 8% participants gave the correct response.

4.6 KNOWLEDGE OF NURSES ABOUT POST ADMINISTRATION OF ENTERAL NUTRITION

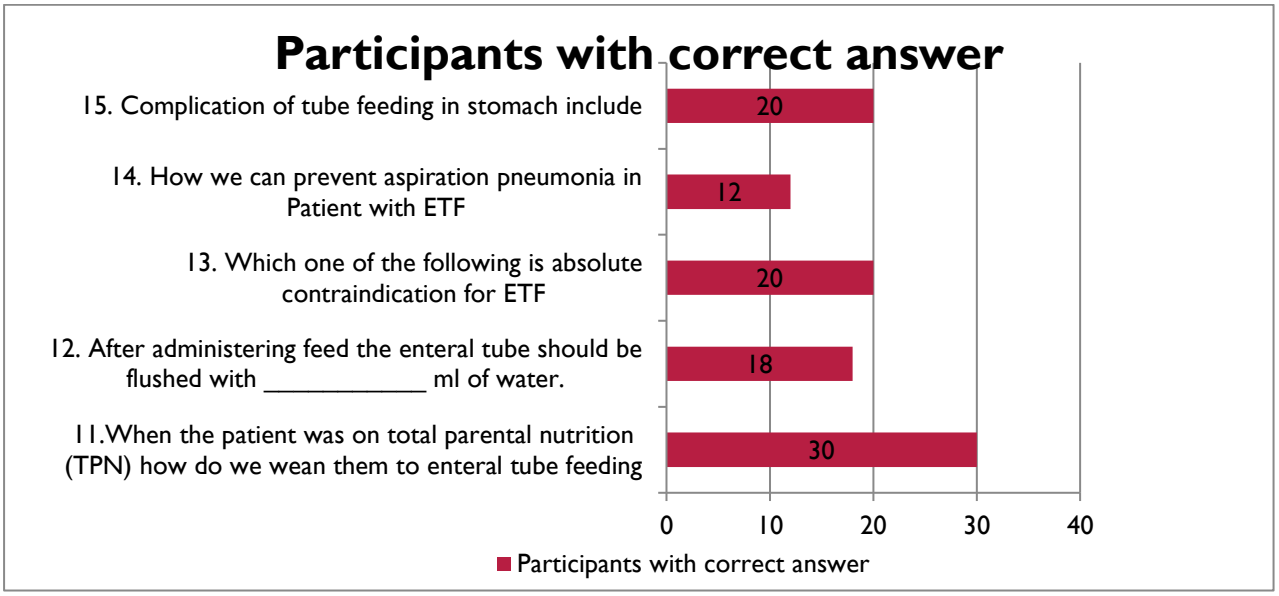

Figure 4.4

Postadministration section had five questions to check the knowledge of nurses about post Enteral nutrition knowledge.

4.7 OVERALL CORRECT RESPONSE OF THE PARTICIPANTS

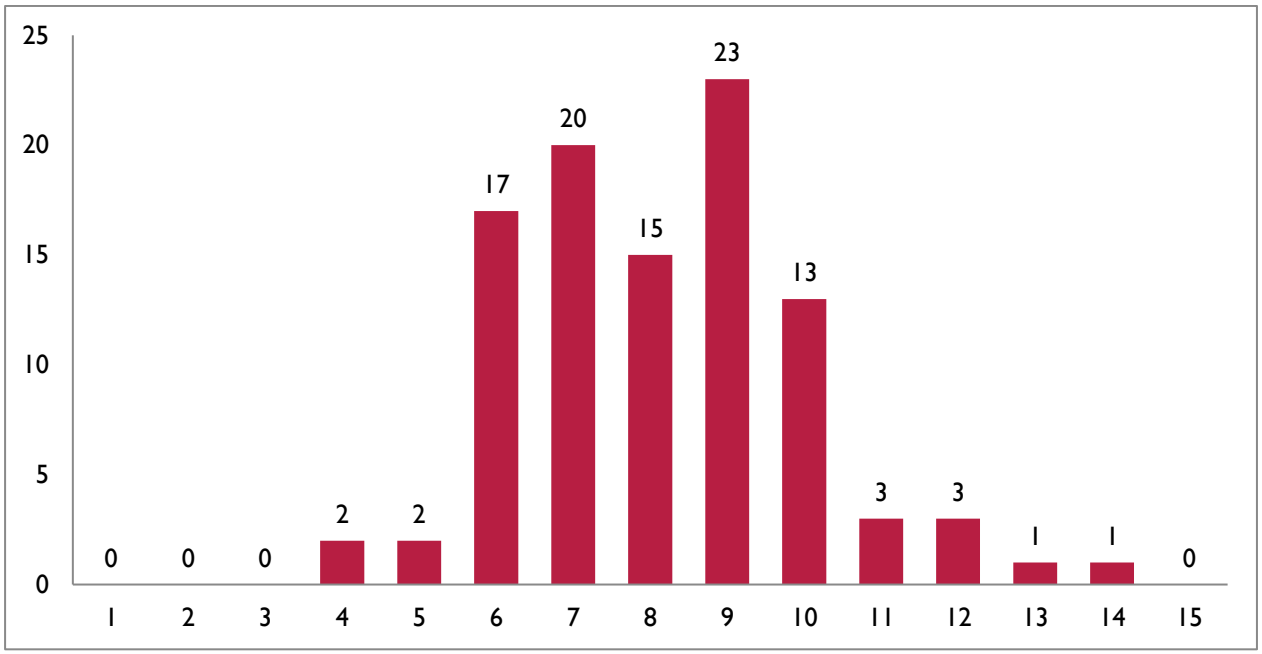

Figure 4.5

Overall Performance of NeuroIntensiveCare Nurses Knowledge

Regarding EN

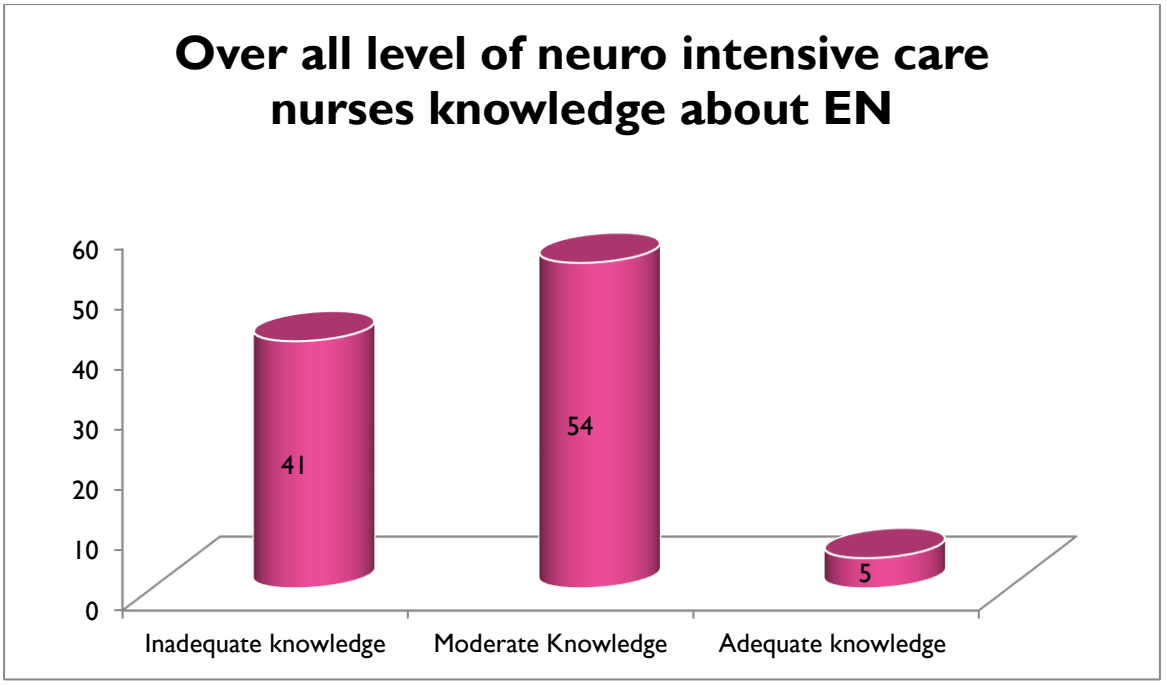

Figure 4.6

Concerning about the overall level of neurointensive care nurses knowledge on different aspects of management of enteral nutrition the result of this current study showed only 5% of the participants had adequate knowledge about enteral nutrition. 54% of the participants (n=54) had moderate knowledge about EN and 41% of the participants had inadequate knowledge about EN.

5. DISCUSSION

The result of the study reveals that majority of the participants are female (87%) and only 13% are male nurses. This difference in gender of nurses may be due to the reason that nursing profession in generally chosen by girls and male don't like this profession as much. This result of the study is consistent with the result of previous studies.

The result of current study showed that age of majority of nurses who hadexperienceof working with neurology and neurosurgery patient in neurointensive care units are of more than 20 years. 41% of the nurse age lies between 20-25 years and 44% nurse's age lies between 26-30 years. Age of 14% participant's lies between 30-35 years and only one participant is more than 36 years of age. This result is consistent with some previous studies where age of most of the nurses was 20 years and above. Some previous studies showed that age of most of the nurses working in ICU was more than 35 years. Majority of the nurses in current study were of theage between 26-30. This may due to reason that experienced nurses were more preferred for ICU than the fresher.

Majority of the nurses in this current study were diploma holder (65%). While 32% had bachelor's degree in nursing and only 3% had master's degree. This could be due to the easy admission process in diploma courses which are provided by so many nursing college in the state while bachelor degree nurses were less as bachelor's degree nursing college are few in the state and only few college offers master's degree in nursing and getting admission in masters course is not so easy.

The finding in the current study showed that 34% nurses had experience of 0-2 years. 32 % nurses had working experience of 3-5 years. 23% nurses had 5-10 years' experience and only one participants had more than 10 years of experience. This result indicates that most of the nurses who work in private sector hospitals are fresher. They join government jobs when they get chance.

The findings of this study showed that 57 % of nurseshad not received any formal training in EN. The source of knowledge of nurses about EN is mainly nursing schools.The EN education is taught in nursing schools and is somewhat neglected in in-service training in hospitals. The source of knowledge of EN varies in nurses and there is no proper channel for EN knowledge for nurses. In some previous studies nurses had received EN training by dieticians.

The key finding in the current study was that the neurointensive care nurses had inadequate knowledge about EN but only 8% of nurses had adequate knowledge about EN. This inadequate level of knowledge in neuro intensive care nurses in Patiala maybe due to lack of in-service training of EN. The most of the hospitals don't have updated guidelines for EN nutrition protocol. Above all the concerned hospitals authorities do not give due to importance to nutrition part of patients. The nutrition of patients does not go hand in hand with treatment but is secondary to actual treatment of the patients. Similar study was done on general nurses in Egypt which also showed that the ICU nurses had inadequate knowledge about EN. Another study was done in Yemen which also showed that the ICU nurses had inadequate knowledge about EN administration. Another key point in this study is the level of knowledge about EN administration.

Another key point in this study is the level of knowledge of ICU nurses was not dependent on their educational level. This could be due to their theoretical knowledge does not coincide with the hospital working practical aspects. Most of the nurses had chosen the options which were followed in the hospitals and were not aware of the correct form of EN administration.

In the study 57% of the participants agreed that they did not receive any previous training on EN. The senior working staff was also one of their source of knowledge about EN. One of the previous studies showed that the internet was the main source of knowledge about EN.

In this current study there was no significant difference in knowledge of nurses regarding EN was found with respect to their age, sex, working experience. One of the previous study showed that there was significant increase in level of knowledge about EN of nurses after training program on EN. Our study result is not consistent with the above said study. One of theprevious study showed that the knowledge of nurse is not associated with age, our study is in agreement with that previous study.

6. CONCLUSION

From the study it can be concluded that overall there is inadequate knowledge regarding EN among neurointensive care nurses. In hospital there is no formal in-servicetraining regarding EN. There is need to improve EN knowledge of neurointensive care nurses to improve the level of patient care in neurointensive care units.

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