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A STUDY TO ASSESS THE KNOWLEDGE OF STAFF NURSES IN MANAGING ELECTROLYTE IMBALANCE WITH A VIEW TO DEVELOP A NURSING CARE PROTOCOL IN SELECTED HOSPITALS AT KOLLAM.

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ABSTRACT

A descriptive study was conducted to assess the knowledge of staff nurses in managing electrolyte imbalance. The objectives of the study were to assess the knowledge of staff nurses in managing electrolyte imbalance, to determine the association between knowledge score of staff nurses in managing electrolyte imbalance and selected demographic variables and to prepare a nursing care protocol on management of electrolyte imbalance. The conceptual frame work used for the study was Nola J Pender's Health Promotion model. Convenience sampling technique was used to select 200 staff nurses. The knowledge of the staff nurses was assessed by using structured knowledge questionnaire. The researcher assessed the knowledge of staff nurses in four categories of electrolyte imbalances such as hyponatremia, hypernatremia, hypokalemia and hyperkalemia. The findings of the study revealed that staff nurses possessed highest level of knowledge regarding hyperkalaemia and the lowest level of knowledge regarding hypernatremia. The study also revealed that among the six demographic variables, there was a significant association between knowledge score of staff nurses and demographic variables such as age and clinical area of work. But there was no significant association with gender, educational status, years of clinical experience and source of information. The findings of the study suggested that more in- service educational programs need to be delivered to the staff nurses to enhance their application of knowledge in managing all kinds of electrolyte imbalances. Therefore, at the end of the research study a nursing care protocol on management of patient with electrolyte imbalances was prepared by the researcher and distributed to the sample.

KEYWORDS: Knowledge; Electrolyte Imbalance; Staff nurses.

INTRODUCTION

Electrolytes are minerals that carry an electrical charge. The two major electrolytes are sodium and potassium. Hypokalemia will lead the body to store glucogen and chance to occur abnormal heart rhythms. Also, it can cause muscle weakness, spasms, cramps, paralysis and respiratory problems. Severe hypokalemia may lead to kidney problems. Electrolytes have both positive and negative charges when they dissolve in the body fluid. The "electric tissues" are sometimes referred to as the muscles and neurons of the body.

Fluid and electrolyte balance is one of the key issues in maintaining homeostasis in the body, and it also plays an important role in protecting cellular function, tissue perfusion and acid-base balance. Most important and prevailing electrolyte imbalances are hypo- and hyper-states of sodium and potassium especially in hospitalized patients with different chronic medical conditions. Nurses especially working in an emergency department should possess a sound knowledge for the early identification and management of electrolyte imbalance.

The researcher after an extensive search of literature related to management of electrolyte imbalance and in-depth interaction with staff nurses working in the parent hospital, sensitized a strong need to conduct a study to assess the knowledge regarding management of electrolyte imbalance among staff nurses. The researcher also assumed that the nurses can be more equipped in their knowledge and skill by the development of a nursing care protocol on management of electrolyte imbalance. Therefore, the investigator decided to conduct a study to assess the knowledge of staff nurses in managing electrolyte imbalance with a view to develop a nursing care protocol.

Statement of the problem

A study to assess the knowledge of staff nurses in managing electrolyte imbalance with a view to develop a nursing care protocol in selected hospitals at Kollam.

OBJECTIVES

The objectives of the study were

1. To assess the knowledge of staff nurses in managing

electrolyte imbalance in selected hospitals at Kollam.
2. To determine the association between pre-test knowledge score of staff nurses in managing electrolyte imbalance and selected demographic variables.
3. To prepare a nursing care protocol on management of patient with electrolyte imbalance.

Research assumptions

- Staff nurses may have varying knowledge regarding management of electrolyte imbalance.
- Factors like age, gender, educational status, years of clinical experience, area of work and source of information may influence the knowledge of staff nurses regarding management of electrolyte imbalance.

MATERIALS AND METHODS

The research design adopted for this study was descriptive research design. Through the research design, the researcher was able to assess the knowledge of 200 staff nurses in managing electrolyte imbalance with a view to develop a nursing care protocol in selected hospitals at Kollam. Sampling technique selected for this study was convenience sampling technique.

Data analysis process

Descriptive and inferential statistical analysis was used for analysis of data.

Descriptive statistics Section I

- Demographic data was analyzed by using frequency and percentage distribution.
- Mean, and standard deviation was used for assessing knowledge of staff nurses regarding management of electrolyte imbalance.

Inferential statistics Section II

- Unpaired 't' test was used to compare the mean knowledge scores regarding; hyponatremia and hypernatremia; hypokalemia and hyperkalemia among staff nurses.
- Association between knowledge score of staff nurses regarding management of electrolyte imbalance and selected demographic variables was analyzed by using chi- square test.

Organization of the study findings

The data were tabulated and interpreted by using descriptive and inferential statistics.

Section A

Description of sample characteristics.

Section B

Description of knowledge of staff nurses regarding management of electrolyte imbalances.

1. Frequency and percentage distribution of staff nurses based on their knowledge on hyponatremia.
2. Frequency and percentage distribution of staff nurses based on their knowledge on hypernatremia.
3. Frequency and percentage distribution of staff nurses based on their knowledge on hypokalemia.
4. Frequency and percentage distribution of staff nurses based on their knowledge on hyperkalaemia.

Section C

Comparison of mean knowledge score of staff nurses regarding management of electrolyte imbalance.

1. Comparison of mean knowledge score of staff nurses regarding hyponatremia and hypernatremia.
2. Comparison of mean knowledge score of staff nurses regarding hypokalemia and hyperkalemia.

Section D

Association between level of knowledge of staff nurses regarding managemnet of electrolyte imbalance and selected demographic variables.

Section E

Description of nursing care protocol on management of patient with electrolyte imbalance.

RESULT AND DISCUSSION

Section A

Description of sample characteristics

The percentage wise distribution of sample according to age showed that majority (71%) of the staff nurses belongs to the age group of 20-35 years, 27% belongs to the age group of 36-45 years, 1.5% belongs to the age group of 46-55 years and 0.5% belongs to the age group of 56-65 years.

The percentage wise distribution of sample according to gender showed that a vast majority (99.5%) of the staff nurses belongs to female category and only 0.5% of the sample belongs to male category.

The percentage wise distribution of sample according to education showed that 66% of staff nurses had education up to GNM ,19.5% had education up to B.Sc., 13.5% had education up to Post B.Sc. and 1%had education up to M.Sc.

The percentage wise distribution of sample according to clinical experience showed that 1% of staff nurses had experience <1 year, 35.5 % had experience of 1-5 years, 50.5 % had experience of 6-10 years, 10.5 % had experience of 11-20years, and 2.5 % had experience of more than 20years.

The percentage wise distribution of sample according to clinical area of work showed that 51.5% of the staff nurses worked in medical surgical wards, 28.5% worked in ICUs, 14.5% worked in dialysis unit and 5.5% worked in Cath lab.

The percentage wise distribution of sample according to source of information found that 67.5% of the staff nurses received information regarding management of

electrolyte imbalance from health care team members, 27% from previous experience,5.5% received information from peer group and no one received information from media.

Section B

Description of knowledge level of staff nurses regarding management of electrolyte imbalance.

Description of the sample according to their knowledge on hyponatremia.

The findings of the study revealed that 50.5% staff nurses had average level of knowledge, 29% had poor level of knowledge, 20% had good level of knowledge, and 0.5% had excellent level of knowledge on hyponatremia.

Description of the sample according to their knowledge on hypernatremia.

The findings of the study revealed that 75.5% staff nurses had average level of knowledge, 17% had poor level of knowledge, 7% had good level of knowledge, and 0.5% had excellent level of knowledge on hypernatremia.

Description of the sample according to their knowledge on hypokalemia.

The findings of the study revealed that 48.5% staff nurses had good level of knowledge, 38% had average level of knowledge, 10.5% had excellent level of knowledge and 3% had poor level of knowledge on hypokalemia.

Description of the sample according to their knowledge on hyperkalemia.

The findings of the study revealed that 40.5% staff nurses had average level of knowledge 13% had poor level of knowledge 36% had good level of knowledge and 10.5% had excellent level of knowledge on hyperkalemia.

Description of total knowledge score of staff nurses in managing electrolyte imbalance.

The findings of the study revealed that 79.5% staff nurses had average level of knowledge, 11.5% had poor level of knowledge, 8.5% had good level of knowledge and 0.5% had excellent level of knowledge in managing electrolyte imbalance.

Section C

Comparison of mean knowledge score of staff nurses regarding management of electrolyte imbalance.

1. Comparison of mean knowledge scores of staff nurses on hyponatremia and hypernatremia.

The mean knowledge score of staff nurses regarding hyponatremia was 3.38 and standard deviation was 1.38. In hypernatremia, the mean knowledge score of staff nurses was 2.31 and standard deviation was 0.91. Unpaired 't' test value was found to be 9.1. Since the calculated 't' value (9.1) was greater than the table value (1.64) at 0.05 level of significance, there was a significant difference between the mean knowledge score of the staff nurses regarding hyponatremia and hypernatremia. It was found that staff nurses had more knowledge on hyponatremia than hypernatremia. Hence the first assumption of the researcher was found to be true.

2. Comparison of mean knowledge scores of staff nurses on hypokalemia and hyperkalemia.

The mean knowledge score of staff nurses regarding hypokalemia was 3.86 and standard deviation was1.37. In hyperkalemia, the mean knowledge score of staff nurses was 4.46 and standard deviation was 1.75. Unpaired 't' test value was found to be 3.84.Since the calculated 't' value (3.84) is greater than the table value (1.64) at 0.05 level of significance, there was a significant difference between the mean knowledge score of the staff nurses regarding hypokalemia and hyperkalemia. It was found that staff nurses had more knowledge on hyperkalemia than hypokalemia. Hence the first assumption of the researcher is found to be true.The study revealed that staff nurses possessed high level of knowledge regarding hyperkalemia and the low level of knowledge regarding hypernatremia.

Section D

Association between level of knowledge of staff nurses regarding management of electrolyte imbalance and selected demographic variables.

Association between level of knowledge of staff nurses regarding management of electrolyte imbalance and selected demographic variables.

The association between knowledge score of staff nurses in managing electrolyte imbalance with selected demographic variables such as age, gender qualification, year of clinical experience, clinical area of work and source of information, was computed by using chi-square test. The calculated chi-square values for the demographic variables such as age and clinical area of work were found to be 13.43 and 28.47 respectively; which was greater than the table values. Hence it is inferred that there was significant association between the knowledge score of staff nurses regarding management of electrolyte imbalance and demographic variables such as age and clinical area of work. Since the calculated chi-square values for all the other demographic variables were less than the table value, there was no significant association between knowledge score of staff nurses regarding management of electrolyte imbalance and demographic variables such as gender, educational status, years of clinical experience and source of information. Therefore, the second assumption of researcher is found to be true.

Section E

Description of nursing care protocol on management of patient with electrolyte imbalance

Description of nursing care protocol on management of patient with electrolyte imbalance

The researcher developed a nursing care protocol explaining the management of electrolyte imbalance, which includes common life-threatening electrolyte disturbances such as hyponatremia, hypernatremia, hypokalemia and hyperkalemia. It also deals with contributing factors, (warning signs) signs and symptoms including electro cardiogram changes, food rich in electrolytes, causes of decline and elevation, and emergency nursing intervention of above-mentioned electrolyte imbalances. The nursing care protocol was distributed to the staff nurses on the day of data collection soon after administering the structured knowledge questionnaire.

CONCLUSION

The present study was conducted to assess the knowledge of staff nurses in managing electrolyte imbalance in selected hospitals at Kollam. The objectives of the study were to assess the knowledge of staff nurses in managing electrolyte imbalance, determine the association between knowledge of staff nurses in managing electrolyte imbalance and selected demographic variables, and to prepare a nursing care protocol on management of patient with electrolyte imbalance. The conceptual framework used for this study was based on revised Pender's Health promotion model (1996). This study made use of a quantitative research approach with descriptive design. The study was conducted in Bishop Benziger hospital and Upasana Hospital Kollam. The sample included 200 staff nurses who met inclusion and exclusion criteria. Convenience sampling technique was used. Structured knowledge questionnaire was used for assessing the knowledge of staff nurses regarding management of electrolyte imbalance. The pilot study was conducted in Sanker's Hospital, Kollam with 10 samples. The study findings of the study revealed that 79.5% of staff nurses had average level of knowledge 11.5% had poor level of knowledge 8.5% had good level of knowledge and 0.5% had excellent level of knowledge in managing electrolyte imbalance. It was also found that staff nurses had more knowledge on hyponatremia and hyperkalemia when compared to hypernatremia and hypokalemia respectively. The findings of the study revealed that there was a significant association between the knowledge score of staff nurses regarding management of electrolyte imbalance and demographic variables such as age and clinical area of work. There was no significant association between the knowledge score of staff nurses regarding management of electrolyte imbalance and demographic variables such as gender, educational status, years of clinical experience and source of information.

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