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Knowledge and practice of intravenous infusion among nurses in university of Calabar teaching hospital

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Abstract---This study aimed at assessing the knowledge and practice of intravenous infusion among nurses in University of Calabar Teaching Hospital. Two (2) objectives with the corresponding research questions were formulated. A descriptive research design was adopted for the study. The population and sample comprised of 160 registered nurses working in University of Calabar Teaching Hospital. Convenient sampling technique was employed to select 114 nurses to form the sample for this study. A self-developed and structured questionnaire was used to obtain data and analyzed using simple frequency and percentage tables. Findings of Results in table 2 reveals that majority 87(76.3) of the respondents said yes that As a nurse I know that intravenous infusion is carried out in most hospital by both doctors and nurses while 27(23.7%) said no. 114(100) of the

respondents said yes that As a nurse I know that most management in the hospital do not allow nurses to carryout intravenous infusion on their patients for fear of replacement. Majority of the respondents 68(59.6%) said yes that In my hospital nurses assist on intravenous infusion and they do it with less pains especially when they are large numbers of admission who had need for infusion while 46(40.0%) said no. 72(63.2%) said yes that in my hospital I know that nurses have their scope of practice excluding intravenous infusion while 42(36.8%) said no. 110(96.5%) said yes that In my ward only doctors are allow to set up intravenous infusion because it's an order from the management while 4(3.5%) said no. It was concluded that a greater percentage of nurses exhibit knowledge but were not opportune to practice as a result of influencing factors by the managements & counterparts of the profession.

Keywords---knowledge, practice, intravenous infusion, nurses, UCTH.

Introduction

Intravenous fluid therapy is amongst the commonest routine nursing care procedures and has been practiced for more than 180 years globally (Severs, Hoorn, & Rookmaaker, 2015). It involves the administration of intravenous (IV) fluids, to nearly all hospitalized patients, for body fluid and electrolyte maintenance and as diluents for medications (Finfer et al., 2018). The intravenous fluids are liquid substances that are administered into the body's circulatory system via a vein (Frost, 2014) and are classified as crystalloids, colloids, and blood products (Westbrook, Rob, Woods, & Parry, 2011). The choice and dose of IV fluids are determined by the clinical status of a patient, indications, and contraindications (Gross, Samarin, & Kimmons, 2017).

Intravenous fluid therapy is delivered collaboratively by nurses and physicians. Nurses' knowledge of age-specific considerations during the administration of IV fluids is critical in promoting patient safety and preventing complications for positive patient outcomes (Gorski, 2017). Errors attributable to knowledge inadequacies among health care workers in intravenous infusion often, in as high as 20% of the nurses in UCTH. Observations have shown that in University of Calabar Teaching Hospital, the nurses have been restricted to carryout intravenous infusion without the present of a medical doctor and this could result into the patient losing his/her life while awaiting the present of a doctor, more so, knowledge of IV fluid therapy among nurses is a risk factor for mortality and further demonstrated that improved knowledge significantly reduced the mortality of patients. Also, since nurses care for patients 24 hours, they should be granted permission to practice where necessary instead await the present of a medical doctor which is not applicable in most of the hospital and also brining conflict between nurses and doctors hence the study sought to investigate the knowledge and practices of nurses towards intravenous infusion in University of Calabar Teaching Hospital

Materials and Methods

The research design adopted for this study was the descriptive design which enabled the researchers to assess knowledge of nurses on intravenous infusion in University of Calabar Teaching Hospital. The study was carried out in the University of Calabar Teaching Hospital. It's a tertiary institution and a referral Centre, centrally located in Calabar municipality, Cross river state Nigeria. The hospital has 15 wards and 11 clinics. It has the health care service department, administrative department, and laundry, tailor unit and mortuary services. The health care service department include laboratory department, nursing services, internal medicines, surgery, family medicine, paediatrics, obstetrics and gynaecology, radiology, ophthalmology, physiotherapy, orthopaedics, food and nutrition, accident and emergency, dental department, blood bank and dialysis unit. The hospital has a staff strength of two thousand two hundred and twenty six 2226. The population of nurses is six hundred and one nurses. The hospital is situated in the satellite town area of Calabar municipality. Calabar (also referred to as "Canaan City" is a city in Cross River State, in south southern Nigeria. The original name for Calabar was Akwa Akpa, from the Efik language. Major languages spoken are Efik, Ibibio and English. The University of Calabar Teaching Hospital was chosen for this study because it is the apex hospital in the state and best suited for the study.

The target population of the study consisted of all registered nurses in university of Calabar teaching hospital. This summed up to 160 nurses. The accessible population was 114 registered nurses in university of calabar and were willing to participate in the study. The sampling technique used was convenient sampling to enable the researchers select the one hundred and fourteen (114) nurses that constituted the sample for this study. The sample was calculated with the aid of Yaro Yamane's formula as shown below;

$$n = \frac{N}{1+N(e^2)}$$

Where, N = population of nurses in University of Calabar Teaching Hospital = 160
e = Significance coefficient = 0.05

$$\begin{aligned} n &= \frac{160}{1+114(0.05^2)} \\ n &= \frac{160}{1+(160 \times 0.0025)} \\ n &= \frac{160}{1+0.4} \\ n &= \frac{160}{1.4} \\ n &= 114.2 \\ n &= 114 \end{aligned}$$

The instrument used for data collection from the respondents was a self-developed and structured questionnaire. The instrument was divided into two (2) sections;

Section A: Socio-demographic data of respondents. Section B: Knowledge of nurses on intravenous infusion Section C: Practice of nurses on intravenous

infusion. Face validity and content validity of the research instrument were established by the researcher. In order to achieve this, the researcher constructed the instrument reflecting the variables under investigation. Also, the item in the instrument was based on the specific objectives, and the researcher gave the developed tool to experts for modification of items, assessment and approval of the instrument.

The reliability was done using test-retest method. Here the researcher gave 20 questionnaires to nurses in General Hospital Calabar who were not part of the study and collected. Thereafter, the questionnaires were administered to the same group of people after three (3) weeks and the two tests were correlated using Pearson's Product Moment Coefficient and a reliability coefficient of 0.72. The questionnaire were administered to the subjects face to face with the help of a research assistant. One hundred and twenty two (122) questionnaires were administered and same number was retrieved. Data collected through the questionnaire were analyzed using descriptive statistics (simple percentages and frequency tables), while the hypothesis was tested using the Chi-Square test statistic at 0.05 level of significance.

Ethical consideration

The researchers introduced herself by presenting a copy of letter of introduction she obtained from the Cross River State Boards of Ethical Committee and presented to the DNS University of Calabar Teaching Hospital for approval to carry out the study in the hospital. The topic for the research was introduced and instructions given on how the questionnaires should be filled. The researchers reassured the participants that all information must be only for academic purpose and clients' names will not be indicated so as to maintain confidentiality and privacy. The consent of the respondents was adequately gained by giving them adequate information to enable them to express their feelings.

Data analysis and result presentation

Out of 114 respondents, 42(36.8%) were within the age range of 20 – 30, 22(19.3%) were between the range of 31 – 40, 36(31.6%) were within the range of 41 – 50 while 14(12.3%) were within the range of 51 & above. As regards to sex, majority of the respondents 180(70.2%) were female, 34(29.8%) were male. As regards to working experience 54(47.4%) had 0 – 10 years experience, 44(38.6%) had 11 – 20 years' experience while 4(3.5%) had 31 & above years working experience. Majority 73(64.1%) of the respondents had RN as their highest qualification, 17(14.9%) had RM, 20(17.5%) had B.Sc. as their highest qualification while 4(3.5%) had M.Sc. as their highest educational qualification. As regards to rank, 43(37.7%) were ranked NOII, 27(23.7%) were ranked NOI, 14(12.3%) were ranked SNO, 19(16.7%) were ranked PNO, 8(Results in table 2 reveals that majority 87(76.3) of the respondents said yes that As a nurse I know that intravenous infusion is carried out in most hospital by both doctors and nurses while 27(23.7%) said no. 114(100) of the respondents said yes that As a nurse I know that most management in the hospital do not allow nurses to carryout intravenous infusion on their patients for fear of replacement. Majority of the respondents 68(59.6%) said yes that In my hospital nurses assist on

intravenous infusion and they do it with less pains especially when they are large numbers of admission who had need for infusion while 46(40.0%) said no. 72(63.2%) said yes that in my hospital I know that nurses have their scope of practice excluding intravenous infusion while 42(36.8%) said no. 110(96.5%) said yes that In my ward only doctors are allow to set up intravenous infusion because its an order from the management while 4(3.5%) said no. as regards to In the hospital, doctors and nurses help each other in terms of intravenous infusion to make the work easier, 65(57.0%) said yes while 49(43.0%) said no.

Results in table 3 shows that 80(70.2%) said yes that Intravenous infusion is a procedure carried out by nurses in my hospital while 34(29.8%) said no. 98(86.0%) said yes that Nurses only assist doctors in setting up intravenous infusion on patients while 16(14.0%) said no. 76(66.7%) said yes that Nurses are not allowed to set up intravenous infusion in my ward while 38(33.3%) said no. 92(80.7%) said yes that IV infusion is set up by doctors because of the technicalities associated with veins while 22(19.3%) said no. 68(59.6%) said yes that Intravenous infusion is the easiest practice and procedures carried out by both doctors and nurses especially in critical conditions while 46(40.0%) said no.

Research hypothesis

There is no significant relationship between knowledge and practice of intravenous infusion among nurses in UCTH. By application of Chi-Square test, the Table below was obtained.

Decision rule

If $X^2_{cal} > X^2_{cal}$, reject H_0 . Otherwise, accept H_0

Since the X^2 -calculated value (11.46) is lesser than the X^2 -critical value (18.31), the hypothesis which stated that there is no significant relationship between knowledge and practice of intravenous infusion among nurses is rejected. This implies that knowledge affects the practice of intravenous infusion among nurses in UCTH.

Discussion of findings

Results in table 2 reveals that majority 87(76.3) of the respondents said yes that As a nurse I know that intravenous infusion is carried out in most hospital by both doctors and nurses while 27(23.7%) said no. 114(100) of the respondents said yes that As a nurse I know that most management in the hospital do not allow nurses to carryout intravenous infusion on their patients for fear of replacement. Majority of the respondents 68(59.6%) said yes that In my hospital nurses assist on intravenous infusion and they do it with less pains especially when they are large numbers of admission who had need for infusion while 46(40.0%) said no. 72(63.2%) said yes that in my hospital I know that nurses have their scope of practice excluding intravenous infusion while 42(36.8%) said no. 110(96.5%) said yes that In my ward only doctors are allow to set up intravenous infusion because its an order from the management while 4(3.5%) said no. as regards to In the hospital, doctors and nurses help each other in

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This study is also in line with Osti et al., 2017 who reported that nurses play a vital role in the prevention of such infections. Most of the interventions and prevention strategies such as insertion, monitoring and assessing peripheral venous catheter (PVC) site are part of routine nursing care (Arbaee, 2016). The nurse should have accurate knowledge of the preparation and administration of the IV Infusion and IV device. In addition, they should also know about the prevention, treatment and management of local and systematic complications supported by dynamic evidence-based practice guidelines.

Time factor, deviant attitude and reluctant behavior of the respondents were the major limitations faced by the researchers.

Conclusion

From the findings, it was concluded that a greater percentage of nurses exhibit knowledge but were not opportune to practice as a result of influencing factors by the managements & counterparts of the profession. This implies that nurses should be given headway as the continue to move the clinical setting forward because there are always 24hours with the patients and as such capable to arrest situations/emergencies in the absent or before the arrival of the doctor.

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