Evaluation of knowledge on intravenous fluid therapy of the nurses

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Abstract

This study was performed as supplementary study in order to determine the knowledge on intravenous fluid therapy of the nurses. Study data were collected using the questionnaire form given was specially developed for nurses. There were questions in questionnaire to evaluate the level of knowledge as the nurses about intravenous fluid therapy as well as questions about the identities of nurses. Data of the investigation were entered to SPSS program and the results were evaluated. Variance analyse, T-test and Chi-Square tests were used in the evaluation. At the end of evaluation, it was stabilized that the knowledge score of the nurses about intravenous fluid was sufficient. During the treatment, the intravenous fluid therapy which was applied by the nurses was extremely important for the patients to get over. The data from the results of investigations to provide nurses to use medicines in intravenous therapy properly and effectively was evaluated and the necessary suggestions were presented.

Keywords: Intravenous fluid therapy, nurses, knowledge

1. Introduction

This research was carried out in order to determine the level of knowledge of nurses’ descriptive intravenous fluid therapy practices.

Intravenous therapy is one of the methods used for meeting the patient’s some or all of nutrients and calories via parenteral routes (Karadağ, 1999; Karadeniz, Baykal, Özbaikkaloğlu, 1999; Sabuncu, Babadağ, Taşocak, 1998; Birol, Akdemir, Bedük, 1997).

The nurse has responsibilities such as fluid therapy initiation, monitoring, termination, as well as knowing and preventing complications caused by catheter inserted through a vein and by intravenous fluid therapy (Ulusoy, Görgülü, 1996; Karadağ, 1999; Karadeniz, Baykal, Özbaikkaloğlu, 1999).

Legal permit was obtained from the hospitals in the city centre of Afyon. All the nurses working in all the units in hospitals in the city centre of Afyon were included in the study. Sample group was composed of voluntary nurses who participated in the survey by filling out the questionnaire. The research data were collected by a questionnaire developed for nurses. The questionnaire was composed of two parts and 25 questions.

The first part of the questionnaire consisted of questions for the nurses to introduce themselves and in the second part the questions it was aimed to determine the level of knowledge of nurses’ intravenous fluid therapy applications.

288 nurses working in hospitals were taken into consideration while planning the study. However reluctant nurses and nurses who were on leave were excluded and the study was administered with a total of 197 nurses. Level of knowledge was determined by scoring over 100 points; each question’s score was 5.88. Statistical
2. Findings and Discussion

Intravenous fluid therapy information scores were evaluated over 100 points and the average scores of the nurses was 67.66.

57.4% of the nurses who were included in the study to determine the level of knowledge of intravenous fluid therapy were in the 23-27 age group, and the group between the ages of 18-22 got the highest results. As we can understand from the findings of this study, nurses forget the information they acquire during training as time progresses. For this reason, hospitals should organize in-service training programs for nurses and update nurses’ knowledge. Also it should be enabled for nurses to conduct research and to follow up-to-date information.

When the nurses' education level was analyzed, 45.2% were found to be university graduates. When we look at the average scores of nurses by educational status, we can see the highest scores were obtained by university graduates.

Looking at the results, we see that average scores of university graduate nurses are the highest. This level of knowledge of nurses reveals the need for nurses to be university graduates to reach the desired level of knowledge and information because nurses who receive 4 years of undergraduate education have the opportunity of working and thus gaining practical ability to reach professional maturity.

When the nurses' professional experience periods were analyzed, it was found that 38.6% of them had 4-9 years of professional experience. Looking at the average knowledge score by the duration of professional experience of nurses, it was found that vocational nurses who had 0-4 years of experience had the highest score. High level of knowledge for the new nurses may be an indication of technological advances used both at schools and hospitals nowadays since they are used more efficiently. Nurses with 0-4 years of professional experience did not forget what they learnt since they started to practice them as soon as they graduated.

Also innovations in nursing makes newly appointed nurses’ idealistic approach permanent. When the post-graduate nurses’ status of receiving in-service training regarding intravenous fluid treatment, it was found that 88.8% of the nurses were not trained. When we examined the scores of nurses by receiving in-service training after graduation, the scores of trained and untrained nurses were as follows respectively; 78.87 ± 11.71, 66.25 ± 16.96. New developments are made in nursing as in all professional areas. Following these developments and their applications providing in-service training for nurses is required. Regular in-service training enables nurses to increase the level of knowledge and implementation skills. In-service training for nurses develops and provides appropriate patient care and new methods of treatment. When the nurses were asked about vein where drugs are not applied intravenously, 54.8% of the nurses gave the correct answer whereas 45.2% of them gave the wrong answer.

In intravenous therapy veins which are observable and palpable and where blood can flow easily are used. The most commonly used veins in intravenous therapy are the dorsal vein, metacarpal vein, cephalic vein, basilic vein and subclavian vein (Sabuncu, Babadag, Tasocak, 1998; Kargözli 2001; Şelimen, Eti Aslan, Zora, 2002; Erdil, Özhan Elbaş, 2002). It is noteworthy that 45.2% of the nurses do not know the names of the veins used in intravenous therapy. The reason for this might be that the names of the veins are in Latin and are not pronounced during practice. 92.4% of the nurses answered the question related to the most common complication occurring during the implementation of intravenous fluid correctly by stating "Infiltration, embolism, thrombophlebitis". As it can be seen in the results, most of the nurses had sufficient knowledge about complications during intravenous fluid therapy.

Karadeniz and his colleagues’ study showed that 55% of nurses have known phlebitis which is a complication of intravenous fluid therapy (Karadeniz, Baykal, Özbakkaloğlu, 1999).

In Salk’s study, it was found that 61.3% of those who participated in the study knew the complications beforehand (Salk, 1999). In this study of Kaleli it was revealed that 1% of the nurses knew intravenous therapy complications whereas, 68% of them partially knew them and 31% did not know them at all (Kaleli, 1985).
Nurses have to know the complications of intravenous fluid therapy, the signs and symptoms of complications, and to implement initiatives when a complication occurs (Karadağ, 1999, Sabuncu, Babadağ, Taşocak ,1998; Doris, 2000).

15.7% of the nurses answered the question about the fluid least proper to give with blood correctly by saying 0.45% NaCl.

49.2% of them answered Ringer's lactate, and 8.1% of them did not answer the question whereas 37% of them ticked other options.

It was revealed according to the results we obtained that nurses did not know Ringer's lactate as a balanced salt solution that can be given with blood. More importantly they did not know that NaCl 0.45% is a hypotonic solution. When over-hypotonic solutions are administered with blood, they cause severe hemolysis (Gallagher 1996).

58.9% of the nurses answered the question related to wrong information on the implementation of the catheter for the treatment of intravenous fluid correctly (Question 14) by stating "The catheter is kept at an angle of 60 degrees between the vessels". In his study Kaleli asked the procedures to be implemented while injecting into the vein and it was found that 78% of the nurses knew the topic (Kaleli, 1985).

29.9% of the nurses answered the question asked about the electrolytes in body fluids correctly by saying that "it allows to maintain body fluid osmolarity," while 36.6% of them gave the wrong answer, and 33.5% did not answer the question.

3. Conclusions and Recommendations

1. 88.8% of the nurses' did not receive in-service training regarding intravenous fluid treatment after their graduation.
2. 71.1% of the nurses did not have enough information about the electrolytes in the body fluids.
3. 57.9% of the nurses did not know the properties of solutions that they frequently used in treatment.
4. When the relationship between the mean scores and levels of training and information of the nurses are examined, it can be seen that university graduate nurses' information score averages are higher.
5. It was determined that nurses who had in-service training after graduation had higher average scores of knowledge.

Based on the research results following recommendations are presented:

1. Nurses should be provided in-service training at regular intervals and the results should be evaluated.
2. In-service training should be provided by expert nurses.
3. Nurses should receive university education to acquire the necessary knowledge and skills to administer the profession.
4. Nurses should have the habit of following the changes and developments from professional publications.
5. Nurses should change their departments regularly in order to recognize different patients, diseases and the different application techniques.

References


