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Research Article

Analysis of Knowledge, Attitude, and Behaviours of Midwives Working in Delivery Rooms on Drug Practices and Patient Safety

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Abstract

The study aims to identify knowledge levels of midwives working in delivery rooms on drug safety practices. The Population of the study consisted of 33 midwives who work at a delivery unit of a public hospital in Adana. 21 midwives who willingly accepted to participate in the study between 1-22 March 2016 formed the sample. It was found that 42.9% of the participants stated they do not do errors, 52.4% notify adverse effects, 33.3% notify the doctor of the patient about their drug error, 47.6% have good knowledge level regarding drug interactions and side effects of the drugs, none of the participants answered two of the eight rights of drug administration principles, namely; right drug form and right documentation principles. A statistically significant positive correlation was found between their working years in the delivery room and knowledge of drug administration principles ($p<0.05$). In conclusion, delivery nurses should receive in-service training on drug administration principles and drug safety, and they should be encouraged to report drug errors in order to improve the situation.

Keywords: Drug; Drug practices; Drug safety; Midwifery

Introduction

Health services are provided within a very complex system. This complex system at times may result in medical errors. As a result of these errors, morbidity may increase; injuries and even death may be possible. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) defines medical error as "any harm to a patient as a result of an improper and unethical behavior of a healthcare professional, their negligence, and insufficiency in occupational practices." The errors encountered during provision of health services may be categorized as medical practice errors, drug administration errors, hospital infections, surgical safety, identity check errors, falls, and transfusion errors. Drug errors rank high among medical errors in relation to patient safety. Patient safety includes all the precautions taken by health institutions and their personnel in order to prevent any harm to people that may be caused by health care services. The USA National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) defines drug error as; "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer [1, 2]. Medical errors discussed within the scope of patient safety are an important topic for all healthcare professionals, but especially for midwives and nurses. Because midwives and nurses take responsibility in the care of patients directly, engage in drug practices and observe patients closely after administration of drugs. Wrong practices of midwives and nurses may endanger patients' lives [1].

Drug practices are among important nursing roles and they cover the prescription, distribution, administration of drugs, their monitoring and control processes. Errors may arise at any phase of these processes. Factors leading to errors may be listed as too many documents, lack of standard procedures, resistance against the application of protocols, relying on memory, long working hours, work overload, keeping modified information and technical errors. The studies conducted in the last 20 years underline that the errors are more system related [1,3-5]. Nurse-Midwife related drug errors may be listed as the wrong drug, wrong dose, wrong route,

wrong time, wrong speed, wrong patient or not administering the drug for patients at all, not registering the drug and not observing the drug's effect. Midwives and nurses need to administer drugs in line with "eight rights principle" in order to prevent drug errors. These are right drug, right patient, right dose, right route, right time, right drug form, right documentation and right response. Drug practices are among treatment roles that are conducted based on doctors' requests for midwives and nurses. In carrying out these roles, they have responsibilities such as checking patients' identity before administering the drug, having knowledge of the administered drug and its effects. Moreover, drug errors must be registered and reported. Root causes of reported errors must be analyzed, corrective and preventive work should be carried out for error factors and thus, repetition should be prevented [6-9]. In terms of patient safety, any drug error that harms the patient is of great importance for the patient, healthcare professionals, and institutions. Considering the scope of the problem and in an attempt to guide the development of proper knowledge, skill, and attitudes for midwives, this study was conducted with midwives working in delivery rooms.

Material and Method

This descriptive study aims to identify knowledge levels of midwives working in delivery rooms on drug safety practices. The population of the study consisted of 33 midwives who work at a delivery unit of a public hospital in Adana. 21 midwives who willingly accepted to participate in the study between 1-22 March 2016 formed the sample. The data were collected via a form that consists of a total of 28 items; 4 items on demographic characteristics and 24 questions on drug monitoring, safe drug practices, drug errors and error reporting. The data form was prepared in accordance with the literature; multiple choice questions were used for drug safety and drug errors, while an open-ended question was used for error reporting. The data were collected as a result of 20-minute interviews with all the midwives in a room where privacy was ensured. The data was analyzed on SPSS for Windows 22 program using percentile, arithmetic average, Mann Whitney-U Test, Correlation and Chi-square tests. In all the analysis, 0,05 was considered the biggest critical significance level.

Results

The average age of the participants was 37.76±7.334, the average years of experience in the unit were 5.47±6.057 and the average years of occupational experience was 16.10±8.173. 85.7% of the participants reported participating in a training on drug safety (Table 1). It was found that the most common drug error for the participants is 47.6% administer drugs at wrong time, 90.5% of the participants access to sources related to drugs via doctors/pharmacists, 85.7% ask if the patient has a history of food or drug allergies before administering a drug, 38.1% return left-over and unused drugs of inpatients to pharmacy, 95.2% store the drugs under proper conditions and check the date of expiry.

Table 1: Distribution of Participants Socio-demographic Characteristics.

Age	N	%
38 and younger	12	57,1
39 and older	9	42,9
Education		
High school	3	14,3
Academy/Collage	11	52,4
University and above	7	33,3
Working Duration in Delivery Room		
1 year and less	9	42,9
2 years and more	12	57,1
Occupational experience		
15 years and less	10	47,6
16 years and more	11	52,4
Previous in-service training on drug safety		
Yes	18	85,7
No	3	14,3

Table 2: Analysis of Drug Errors and Drug Error Reporting by the Participants.

	n	%
What are the most common drug errors in your opinion?		
Administering the drug to a wrong patient	5	23,8
Administering the drug at a wrong time	10	47,6
Skipping the administration of the drug	9	42,9
Administering the drug in a wrong dose	5	23,8
Administering the drug via a wrong route	3	14,3
Administering a wrong drug	7	33,3
Which sources do you use in accessing information on drugs?		
Doctor/pharmacist	19	90,5
Nurse colleagues	9	42,9
Drug sourcebooks	8	38,1
Internet	6	28,6
Do you ask patients if they have food or drug allergy histories prior to drug administration?		
Always	18	85,7
What do you do with the drugs that are unused/left-over as a result of inpatients' death or discharge or change in their treatment?		
Return them to a pharmacy.	8	38,1

Other patients use them	7	33,3
They are taken out	5	23,8
No idea	1	4,8
Are the drugs that are stored in the unit to be used in case of a need stored in line with the standards?		
Yes, storing conditions are in line with the standards	20	95,2
Do you check expiry dates of drugs that are stored in the unit to be used when necessary?		
Yes, always	20	95,2
Do you educate patients about the drugs that they will purchase and give information about usage recommendations, administration methods, doses etc.?		
Yes I do	15	71,4
As a healthcare professional, do you report unexpected adverse effects that are thought to be product-related and arise from the use of medical products?		
Yes I do	11	52,4
Where do you report adverse effects?		
Pharmacy	2	9,5
Pharmacovigilance specialist	2	9,5
Doctor	4,8	4,8
Did your colleagues make drug errors?		
Yes	4	19,0
Which errors did you make while administering a drug?		
I administered the drug in a wrong doze	2	9,5
I administered the drug through a wrong route	1	4,8
I administered the drug at a wrong time	1	4,8
I administered the drug at wrong speed	1	4,8
I forgot to administer the drug	1	4,8
I did not register the administered drug	3	14,3
No, I did not do any	9	42,9
Others (I gave serum without dr. knowledge, allergy was produced)	4	19,0
Did you report the drug error to any units?		
I reported it to patient's doctor	7	33,3
I reported it to unit supervisor	2	9,5
I reported it to the quality unit with case reporting/safety reporting.	3	14,3
No, I did not.	2	9,5
No, I also informed my friends	2	9,5

The study indicated that 71.4% of the participants educate patients about the administered drugs, 52.4% report adverse effects, yet only 9.5% report the adverse effects to pharmacovigilance unit, 19% witness drug errors of their colleagues, 9.5% does not report drug errors that they witness, 42.9% of the participants do not do drug errors, 33.3% report drug errors to the patient's doctor and 14.3% report drug errors (Table 2).

Regarding the administered drugs, 95.2% of the participants had good level of knowledge of drugs' purpose and administration method, 71.4% of effect duration, 47.6% of side effects, 57.1% on counter indications, 47.6% of drug interactions, 61.9% on drug-related warnings and precautions and 66.7% on special circumstances regarding drugs (Table 3).

Table 3: Participants' Knowledge Level on Drugs They Administer.

	Good		Medium		Bad	
	n	%	n	%	n	%
Usage Purpose	20	95,2	1	4,8	-	-
Administration Method	20	95,2	1	4,8	-	-
Response Time	15	71,4	6	28,6	-	-
Side Effects	10	47,6	9	42,9	2	9,5
Counterindications	12	57,1	6	28,6	3	14,3
Drug Interactions	10	47,6	7	33,3	4	19,0
Warnings, Precautions	13	61,9	6	28,6	2	9,5
Special Cases (Pregnancy, pediatrics etc.)	14	66,7	5	23,8	2	9,5

It was found that none of the participants know all of the 8 rights of drug principles, 33.3% know right drug, right dose, and right patient principles, 38.1% know right time principle, 28.6% know right route principle and none of the participants know right drug form and right documentation principles (Table 4). A statistically significant positive correlation was found between participants' working years in the delivery room and their knowledge of drug administration principles ($p<0.05$).

Table 4: Participants' Knowledge on the 8 Rights of Drug Administration.

S.no		n	%
1	Right drug	7	33,3
2	Right dose	7	33,3
3	Right patient	7	33,3
4	Right time	8	38,1
5	Right route	6	28,6
6	Right drug form	-	-
7	Right documentation	-	-
8	Right response	3	14,3

Discussion

There may be many reasons causing drug errors. Complex procedures, insufficient knowledge of nurses and midwives, inadequate number of nurses and midwives, work overload, long working hours, lack of standard drug protocols, constantly changing equivalent drugs may be listed among drug error factors. The literature on drug administration errors indicates that the most common drug error is the administration of drugs at a wrong time [1,10-12].

In [3] study 72.6%, in [4] study 25%, in [5] study 10.6%, in [7] study 5% and in [13] study 1.5% of the participants stated that the most common drug error is administering the drug at a wrong time. In our study, it was found that 47.6% of the participants named the most common drug error as administering the drug at a wrong time.

In their study [13] found that 24.3% of the participants know that they should report adverse effects, 2.4% report adverse effects, 84.2% check expiry dates of the drugs. [4] found that 46.6% of the participants know that they should report adverse effects and 33.3% know that they should report adverse effects to pharmacovigilance specialist, 76.6% ask patients about their drug and food allergy histories before administering a drug, 40.0% return drugs to pharmacy when they are not used as a result of patients' death or discharge or change in the treatment, 83.3% store the drugs under proper conditions, 94.0% have good knowledge level on administration methods of drugs. Our study indicated that 52.4% of the participants know that they should report adverse effects, 9.5% know they should report adverse effects to pharmacovigilance specialist, 85.7% question food and drug allergies of patients, 38.1% return drugs to pharmacy when they are not used as a result of patients' death or discharge or change in the treatment, 95.2% store the drugs under proper conditions, 95.2% have good knowledge level on administration methods of drugs. In [2] study %93.8, in [13] study 58.7% of the participants stated they do not make drug errors. In our study, 42.9% of the participants stated they do not make drug errors. The study conducted by [14] indicated that there is a negative, statistically significant correlation between the education level of nurses and their drug errors and as the education level increases, drug errors decrease. In our study, no statistically significant correlation was found between the education level of participants and drug errors. [15] study found that the healthcare professionals who have 10 years or more occupational experience make fewer drug errors. In our study, no statistically significant correlation was found between occupational years and drug errors.

In their study, [16] indicated that generally drug errors are not reported, only a small proportion; 25.0% of the drug errors are reported. In our study, it was found that only 14.3% of the participants report drug errors with a notification form. A statistically significant positive correlation was found between their professional years in the delivery room and knowledge of drug administration principles ($p<0.05$). Thus, as the participants' number of professional years in the delivery room increases, their knowledge on drug principles increases as well. In conclusion, all of the 8 right principles have to be followed in administering the drugs to patients. Improving knowledge levels of midwives on drugs within their field and forming standard protocols for drug practices would significantly contribute to the prevention of drug administration errors. This study indicated that the knowledge level of midwives working in delivery rooms regarding drug safety practices is not sufficient.

Midwives that work in delivery rooms should be encouraged to report the errors in order to facilitate the improvement and provision of training on side effects and monitoring of drugs. The reporting system should be developed in order to ensure the reporting of all the errors or other factors identified prior to the errors. The most effective approach in preventing drug errors is not condemnation or punishment but rather a focus on improving knowledge, skills, and abilities. Approaches such as voluntariness, no exposure, no punishment, encouraging self-sufficiency, learning opportunities based on errors, updating knowledge, skills, and abilities should be followed.

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Conflict of Interest

None.

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