



Evaluation of the Awareness of Midwifery Students Before and After on Rational Drug Use and Ethics Education in Pregnancy

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Abstract Objective: Drug use during pregnancy is a common problem in clinical practice. Health care professionals should be trained with up-to-date information on this issue. The use of medication during pregnancy can be achieved by accurate diagnosis, a careful history, physical examination and well-planned laboratory research. In pharmaceutical applications, the knowledge of the healthcare providers about the procedure can prevent the damaging of the mother and the baby, and this will prevent the occurrence of ethical problems.

Methods: The research was conducted on the students who were attended at School of Health, Department of Midwifery in the spring semester of the 2017-2018 academic year at Kütahya Dumlupınar University. The questionnaire consists of 25 questions, including yes, no and do not know answers to the questions, to evaluate the knowledge, attitude and ethical awareness of the students in rational drug use during use education in pregnancy.

Results: When conducting a clinical research in the study group was questioned, the correct response rate was found to be 48.6% before the training and 98.6% after the training ($p = 0.000$).

The rate of responding correctly to category X in pregnancy is dangerous was found to be 18.4% before the training and 100% after the training ($p = 0.000$). The rate of expressing category X as I do not know was found to be 77% before the training.

Conclusion: It is important that the groups that will conduct research in drug research should be educated. In this study, by using pre- and post-survey questionnaires, awareness towards drug use during pregnancy and ethics were evaluated through the training held for midwifery students and it was aimed to raise awareness.

Keywords Drug use, Education, Pregnancy

Introduction

Drug use during pregnancy is an important health condition closely related to both the mother and the baby and it is necessary to be very careful [1].

Pregnancy is a physiological process consisting of a total of three temporary and long periods. While drug use causes anatomic disorders during organogenesis period, that is, in the first trimester, and in the last two trimesters, that is, in the fetal period, it may have negative effects on growth [2]. During pregnancy, changes in the functions of liver and kidneys of the mother can occur, as well as the functions of circulation, excretion and digestive system of the mother can change. This situation closely covers the drug use. Drug use over the course of the pregnancy and lactation are among the special groups in the field of pharmacology and ethics. As a basic principle, it is necessary to consider both the mother and the baby while using the drug. In the case of any application and drug use during



pregnancy, ethically the benefit loss rate must be taken into account. In addition, it is important to pay attention to the principles of medical ethics in the scope of investigating the drugs to be used in pregnancy [3,4,5].

It is significant that midwifery students who will give care to the pregnant women and take part in medical research in the future should be aware of using rational drug use during pregnancy, taking drug research ethics training and the subject. When examined in terms of literature, it has been observed that studies related to rational drug use and research ethics during pregnancy are insufficient. Through this study, by giving a training to the students to raise their awareness, knowledge levels and ethical awareness and evaluating the levels of the students before and after the training, and it is predicted that the importance of the subject for the students, the awareness of the subject, the level of knowledge and ethical awareness of the subject, and the contribution to the literature in terms of establishing recommendations for the relevant regulations within the education curriculum.

Materials and Methods

The research was conducted on the students who were attended at School of Health, Department of Midwifery in the spring semester of the 2017-2018 academic year at Kütahya Dumlupınar University. Dumlupınar University Rectorate Scientific Research Ethics Committee was approved for the study by the decision of the meeting dated 08.03.2018 and numbered 10895.

A 40-minute training was given to junior students at Midwifery Department on the subject of 'Rational Drug Use' (RDU) in Pregnancy'. Training included the importance of rational drug use in pregnancy, pharmacokinetic parameters in pregnancy, FDA pregnancy risk categories, drug use during pregnancy and ethical dimension. 'The Evaluation of the Awareness of the Midwifery Students during the Pregnancy Questionnaire' which was in the attachment was applied to the students before and after the training. The questionnaire consists of 25 questions, including yes, no and do not know answers to the questions, to evaluate the knowledge, attitude and ethical awareness of the students in rational drug use during pregnancy.

Statistical Analysis

For the data obtained, the frequency was analysed by Chi-Square and Wilcoxon Paired Two Sample Test statistics using SPSS 21.0 program

Results

In this study conducted on 74 students, it was examined whether there were any differences between the answers given before and after the training.

The accuracy rate of the answers given to the question of passages of the drug passing through the placenta is passive diffusion was found 51.4% before the training and 100% after the training ($p=0.000$).

The accuracy rate of the answers to the question of whether the drug that is safe during pregnancy is safe during lactation was 74.3% before the training and 100% after the training ($p=0.000$).

The accuracy rate of the answers of the question of the period of pregnancy and lactation are among the special groups was found 85.1% before the training and 97.3% after the training ($p=0.004$).

When conducting a clinical research in the study group was questioned, the correct response rate was found to be 48.6% before the training and 98.6% after the training ($p=0.000$).

The accuracy rate of answers to the question about the safety classification of the study group was 83.8% before the training and 94.6% after the training ($p=0.007$).

The rate of responding correctly to category X in pregnancy is dangerous was found to be 18.4% before the training and 100% after the training ($p=0.000$). The rate of expressing category X as I do not know was found to be 77% before the training.

The rate of correct answers regarding the choice of drug preference in pregnancy from categories A and B was 9.5% before training and 100% after training ($p=0.000$). The rate of expressing I do not know A and B categories was found to be 87.8% before the training given.



In the study group, when the expressions of Paracetamol was the most commonly used analgesic was questioned, the correct response rate was found to be 55.4% before the training and 100% after the training ($p = 0.000$). Before the training, 40.5% of the students answered as in I do not know.

The rate of responding correctly to the question that the categories of drugs varied according to the trimester was 78.7% before the training and 98.6% after the training ($p=0.000$).

When the information about the first trimester of the study group was questioned, the correct response rate was found to be 58.1% before the training and 93.2% after the training ($p=0.000$). The group's response to this question before the training was found at 39.2% as in I do not know.

The response rate of the study group to the question of RDU principles during pregnancy was valid was 64.9% before the training and 97.3% after the training ($p=0.000$). The correct answer to the question that the use of herbal mixtures in pregnancy is not inconvenient was 78.4% before the training and 98.6% after the training ($p=0.001$).

While %56.6 students gave the answer yes, %28.3 students picked the alternative I do not know before the training, %87.8 students chose the answer yes and %1.3 student gave the answer I do not know to the question when health care professionals think that there is no rational drug application, there is the right to refuse treatment.

Before the training, %60.8 students picked the response yes to the question of the first step of the drug research to be used in pregnancy is animal experiments, and after the training, all gave the answer yes.

Before the training, %78.3 students gave the answer yes to the question in drug applications, if the mother does not want it, even it is beneficial to the fetus, and mother should not be forced to take it and after the training %93.2 students answered yes.

Before the training, the answer to the question drug research should not be done without permission from the ethics committee was that %93.2 students answered yes and after the training %98 students answered yes.

While there was no statistically significant difference in the responses given to the questions asked to the study group about smoking, alcohol and addictive substance use during pregnancy, it was determined that the students were aware of the subject.

Table 1: Evaluation of questions that were found to be statistically significant before and after education

Questions	p-value	Questions	p-value
1. Is it possible to conduct clinical research on pregnant people in pregnancy?	0.000	12. During pregnancy, drugs of category A and B should be preferred.	0.000
5. Is every drug safe during pregnancy also safe during lactation?	0.000	13. It is the period of organogenesis between the 31st and 71st days after the last menstrual period. This is the case where the teratogenic effects of drugs are observed. The use of the drug should not be applied except in very urgent situations.	0.000
6. The diffusion pathway is at the forefront in the transition of drugs to the baby via the placenta route.	0.000	14. Pregnancy and lactation period are among the special conditions in pharmacology.	0.004
7. Is there a safety classification related to drug use during pregnancy?	0.007	15. Paracetamol is the most commonly used drug in pregnant women as painkillers.	0.000
8. Do the categories of drugs used in pregnancy vary according to the pregnancy trimester?	0.000	17. Healthcare professionals have the right to refuse treatment if they think that there is no rational drug application.	0.005
9. The most dangerous drug category in pregnancy is X.	0.000	18. The first step in the research of drugs to be used in pregnancy is animal experiments.	0.000
10. In pregnancy, the principles of rational drug use are valid.	0.000	23. Drug applications during pregnancy, although the drug is beneficial to the fetus, the mother should not be forced if the mother does not want the drug.	0.012



11. In addition to the drug used during pregnancy, there is no harm in the use of herbal mixtures.	0.001	24. Drug research should not be done without permission from the ethics committee.	0.024
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As can be seen in the table above, there was a statistically significant difference between the answers given before and after the training to the questions 1st, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 17th, 18th, 23rd and 24th ($p < 0.05$). The data are given in Table 1.

Table 2: Evaluation of questions that are not statistically significant before and after the training

Questions	p-value	Questions	p-value
2. Does smoking during pregnancy have a detrimental effect on the child?	0.317	20. Drug applications during pregnancy should not harm the community.	0.317
3. Do alcohol use during pregnancy have harmful effects on the child?	1.000	21. Mothers have the right to want healthy babies.	1.000
4. Do pregnant women who are addicted to drugs and some substances have a negative effect on the child if they continue to use them during pregnancy?	1.000	19. In order to be beneficial to the fetus in the drugs to be used during pregnancy, care should be taken in practices that may damage the mother.	0.157
16. Patients have the right to be informed about the drugs to be used during pregnancy.	0.317	25. The embryo should be respected as a person.	0.180
22. Drug applications during pregnancy should not harm the fetus.	0.180		

Before and after the training, there was no statistically significant difference between the answers given to the 2nd, 3rd, 4th, 16th, 19th, 20th, 21th, 22nd and 25th questions by the study group ($p > 0.05$). The data are given in Table 2.

While there was a statistically significant difference between the answers given before the training and after the training in 16 of the total 25 questions, there was no statistically significant difference between the answers given before and after the training in 9 questions.

Discussion

Drug use during pregnancy may be in the form of the drug used by the mother for the chronic disease before pregnancy, the drug used for the newly diagnosed disease during the pregnancy, the drug used for pregnancy complaints, the drug used without knowing the pregnancy [6]. Research indicates that 80-90% of pregnant women use at least one drug. Between 2006 and 2008, it was reported to have an average of 4.2 drug use [4, 6]. The effects of drugs on the fetus are composed of complex components such as drug dose, type of drug, frequency of taking, reaching to placenta and breast milk, metabolizing, excretion, taking with another drug, response of the fetus to the drug, fetal age, maternal health status, mother's nutrition [7]. The biggest problem with drug use during pregnancy is the possibility of developing teratogenic effects, low birth, stillbirth, and development of congenital anomalies in the babies of pregnant women who are taking the drug or who are exposed to the drug. Although the type of drug, dose, trimesters of the drug, and the duration of drug use vary from pregnant women to pregnant women, there is a need for drug risk categories [3,4,5]. The awareness of the students take part in the study after the training about the placental transition of the drugs and drug use in the lactation period was found to be consistent with the literature.

In pregnancy, conducting a randomized clinical trial is inconvenient. Data on drug use in pregnant women are therefore very few. The awareness of the students towards drug research was found compatible with the literature [8].

Although the risk of pregnancy classifications defined by various individuals and organizations, most commonly one used in Turkey is the classification prepared by Food and Drug Administration (FDA) [9, 10]. In relation to safety, FDA drugs classified the possible effects on the fetus in pregnancy as A to B (A, B, C, D, X) in 5 categories in terms



of the severity of the teratogenic effects of the drugs. It is recommended that the drugs in this group, which are strictly contraindicated and defined as category X, should not be used during pregnancy and if the drug is to be used in pregnant women, the drugs should be selected from categories A and B [11].

In the studies conducted in Turkey, high-risk drug use rate of 9.8%, abortion rate due to the use of high-risk medication was reported to be 33.33% [12,13]. The post-training information status and awareness of the students taking part in the study related to the classification of drugs are consistent with the literature.

Non-steroid analgesic drugs during pregnancy are among the commonly used drugs. Paracetamol is among the recommended analgesic drugs in the first two trimesters of pregnancy, since it is not teratogenic in therapeutic doses. In the first and second trimesters of pregnancy, although it is in category B, it is classified in category D in the last trimester [2]. In this study, it is possible to say that half of the group has a lack of information about analgesic use in pregnancy. However, this ratio has taken a positive form of education.

In the course of pregnancy, no drug is completely safe. Especially in the first trimester, drug use should be avoided. However, in the presence of the indication of use, it is necessary to use the lowest treatment dose in the shortest time period under clinical observation. Instead of systemic drug use, the topical/local administration should be preferred and multiple drug use should be avoided. During pregnancy, OTC (over-the-counter) drugs are widely used. More confidence is felt in the OTC group of drugs [14]. It should be treated more carefully in drug use during the first trimester of pregnancy. From the date of the last menstrual period, between the 31st and 71st days, the period of organ formation occurred and teratogenic effects are observed in this period. In the study, it was observed that there was a lack of knowledge about the pregnancy categories of the study group. The positive effects of education on the use of medication during pregnancy as in all areas were determined with statistically significant results.

The issue of RDU was officially evaluated by the World Health Organization in 1985 in a rational framework in Nairobi. It was found that the study group had a moderate level of knowledge about RDU before the training and this level increased after the training.

In the study, it is a good result that the students have awareness of the smoking, alcohol and addictive substance during pregnancy.

Conclusion

First of all, training of health care professionals and their families, and planned pregnancies, not to use drugs without a prescription in the case of pregnancy, stay away from herbal mixtures are among the recommendations.

It is an essential requirement to educate and inform healthcare professionals about pregnancy and drug use. It is recommended to repeat the training frequently by people who are equipped with up-to-date information.

This training can be carried out in the vocational education process or in the form of in-service training after starting the profession. Significant differences in the level of knowledge before and after the education, the results of the training applied to the study groups in this study are remarkable in terms of explaining the importance of drug use during pregnancy. Education, as in many other subjects, produced extremely beneficial results in drug use during pregnancy.

Ethical Issue

All experimental process of animals was approved by the Ethics Committee for Kütahya Dumlupınar University.

Conflict of Interest

The authors declare that there are no conflicts of interest.

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