RESEARCH ARTICLES

Pharmacy Students' Knowledge, Attitudes, and Behaviors Regarding Emergency Contraception

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Objectives. To determine pharmacy students' knowledge, attitudes, and behaviors regarding emergency contraception.

Methods. A cross-sectional survey was conducted among a convenience sample of students prior to a regular class period. The 16-item survey instrument included both multiple-choice and true/false questions to assess knowledge and Likert-type scale questions regarding attitudes and behaviors. Frequency and descriptive statistics were calculated for all variables.

Results. Three hundred one pharmacy students were surveyed. Eighty-seven percent knew that Plan B had been approved by the Food and Drug Administration (FDA) for nonprescription use, yet 33% believed that it worked by disrupting a newly implanted ovum. On a scale from 1-5 on which 5 = strongly agree, the mean item score was 1.5 for whether nonprescription emergency contraception should be available without counseling by a pharmacist, yet only 26.7% believed they were competent instructing patients on the use of emergency contraception.

Conclusions. Additional education is needed to prepare pharmacy students to provide informed pharmaceutical care to patients seeking emergency contraception, especially given the passage of legislation making the pharmacy the point of access for some emergency contraception products.

Keywords: emergency contraception, Plan B, attitudes, ethics, curriculum

INTRODUCTION

Emergency contraception is a safe and effective method of preventing pregnancy,^{1,2} and has the potential to prevent up to 75% of unplanned pregnancies,³ yet misinformation regarding this method of contraception is common among both consumers and health care professionals.⁴⁻⁶

Albert Yuzpe first described the use of a hormonal contraception regimen for postcoital pregnancy prevention in 1972. Oral contraceptive pills have been used "off-label" for this purpose since that time. Two dedicated products, with labeling specific postcoital pregnancy prevention became available in the late 1990s. The Preven Emergency Contraceptive Kit, approved in September 1998, contained a step-by-step patient information book with detailed patient information, a pregnancy test, and 4 light-blue birth control pills based on the Yuzpe regimen (ethinyl estradiol and levonorgestrel). Plan B is a progestin-only product that was originally approved in July 1999. The progestin-only regimen is more effective and associated with significantly less

nausea and vomiting than the combination regimen.^{7,8} The Preven Emergency Contraceptive Kit is no longer marketed.

The August 24, 2006, decision by the US Food and Drug Administration (FDA) to approve non-prescription sales of Plan B provides pharmacists with the opportunity to play a pivotal role in the provision of emergency contraception. A pharmacist must be knowledgeable and well-trained to ensure appropriate patient counseling. Pharmacy students' knowledge, attitudes, and experience with emergency contraception may influence the service they provide as interns and later as pharmacists. Thus, the purpose of this study is to describe Arkansas pharmacy students' knowledge of, attitudes toward, and behaviors concerning emergency contraception.

METHODS

This study was approved by the University of Arkansas for Medical Sciences (UAMS) Institutional Review Board (IRB).

A 16-question survey instrument was constructed to assess students' knowledge, attitudes, and behaviors concerning emergency contraception. Multiple-choice and true/false questions adapted from a previous study evaluating physician knowledge were used.⁶ Items assessing attitudes and beliefs toward emergency contraception

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were also adapted from a previous emergency contraception study and measured using a 5-point Likert-type scale on which 1 = strongly disagree and 5 = strongly agree.⁶

In addition to understanding the pharmacy students' knowledge and attitudes, the investigators were interested in student behavior and experience with EC. Thus, 3 questions pertaining to the students' emergency contraception dispensing experience (ie, does the workplace pharmacy stock it? had the student dispensed it? what would the student do if presented with an emergency contraception request today?) were included. General demographic information questions (gender, class, religious affiliation, and primary practice, if applicable) were also included on the survey instrument.

A pharmacist expert in EC was asked to evaluate the survey instrument for content relevance and completeness, in an attempt to ensure content validity. The survey instrument was then pretested by 4 UAMS pharmacy practice faculty members to ensure that all questions were understandable and then revised based on their comments and questions. (A copy of the survey instrument is available from the corresponding author.)

Pharmacy students attending the UAMS College of Pharmacy in November 2006 were selected as the convenience population for this cross-sectional survey. No incentives were provided to the participants. Students were asked to complete the survey voluntarily and anonymously prior to a regularly-scheduled class period. An information sheet and survey instrument were distributed to 1 class each of first-year (P1), second-year (P2), third-year (P3), and fourth-year (P4) pharmacy students. Those participating were given approximately 15 minutes to complete the survey instrument, and then the completed survey instruments were collected before the regular class lecture began.

Survey instruments were coded and the data were entered into a database. Frequencies and descriptive statistics were calculated using SPSS 14.0 (Chicago, IL). Chi-square, independent-sample *t* tests, and ANOVA were used to compare responses between gender and class cohorts at the 0.05 level of significance.

RESULTS

In fall 2006, 136 P1, 96 P2, 82 P3, and 80 P4 students were enrolled in the UAMS College of Pharmacy. Three-hundred one of the 394 students completed the survey instrument. Of these, 64% were female. The majority of participants (38%) were P1 students; 24% were P2 students; 24% were P3 students; and 11% were P4 students. Eighty-nine percent of participants indicated they were Christian, and of those, 91% were non-Catholic and 9% were Catholic. Of the 69% that indicated having a primary

intern site, 79% were in a retail setting and 21% were in a hospital setting.

A majority (91%) of the respondents knew that Plan B had been FDA-approved for nonprescription use by women age 18 years or older, but only 22% knew that it could also be provided to men age 18 years or older. Thirty-four percent believed that emergency contraception worked by disrupting a newly implanted ovum and 32% admitted they did not know the mechanism of action. Thirty-five percent incorrectly identified Plan B as RU486 (mifepristone) and only 4% knew that emergency contraception may be effective if started within 120 hours of unprotected intercourse.^{9,10} Seventy-nine percent correctly answered that Arkansas pharmacists have a legal right to refuse to dispense emergency contraception based on moral or religious beliefs.¹¹

There were no significant differences between male and female students' responses to the questions, except for the question about legal right to refuse to dispense. Based on chi-square results, significantly more female students (82.6%) were aware of the legal right to refuse to dispense emergency contraception than male students (71%) ($p = 0.046$). P2, P3, and P4 students answered more questions correctly compared to students in the first year of pharmacy school, as shown in Table 1. Although the sample sizes between classes were not equal, the results indicated differences between classes. Attitudes towards emergency contraception varied, as shown in Table 2. The majority of students disagreed with the 1 item pertaining to emergency contraception being available without required counseling by a pharmacist. About half of students agreed that nonprescription emergency contraception will promote unsafe sex and discourage regular contraception use. When asked if they were uncomfortable dispensing emergency contraception for moral or religious reasons, 29.9% of participants agreed that they were uncomfortable and 45.2% of participants disagreed. Only 26.7% agreed that they felt competent instructing patients regarding the appropriate use of emergency contraception. There were no significant differences in attitudes toward emergency contraception between male and female pharmacy students. Using ANOVA, only the item pertaining to competence in instructing patients differed by pharmacy class ($p = 0.008$). Students in the fourth year were more likely to agree that they were competent to instruct patients (mean score = 3.24) compared to students in the first (mean score = 2.54) and second year (mean score = 2.52) of pharmacy school.

Eighteen percent of the participants had dispensed emergency contraception, and 8% had referred a patient to another pharmacist or pharmacy to obtain emergency contraception. The majority (74%) had never received

Table 1. Pharmacy Students' Who Responded Correctly to Survey Items Regarding Their Knowledge of Plan B Emergency Contraception

Item	First Year (n = 114), %	Second Year (n = 80), %	Third Year (n = 71), %	Fourth Year (n = 33), %	P
Plan B FDA approved for nonprescription use by females age 18 or older	82.1	98.7	98.6	87.9	> 0.001
Plan B to be available without a prescription to males age 18 or older	10.4	30.8	32.9	15.2	0.001
EC does not work by disrupting a newly implanted ovum	31.2	46.3	45.1	62.5	> 0.001
Did not identify Plan B as RU486	5.3	36.3	26.8	51.5	0.146
Knew EC may be effective if started within 120 hours of unprotected intercourse	4.6	5.3	0	9.1	> 0.001
Have legal right to refuse to dispense EC in Arkansas	54.4	96.3	94.4	84.8	> 0.001

a prescription or request for emergency contraception. More than a fourth (27.5%) worked in pharmacies that stocked Plan B and 6.4% indicated that the pharmacy where they worked did not stock Plan B but could obtain it within 24 hours. About a fourth (23.5%) of the participants worked in pharmacies that did not currently stock Plan B, and 15.1% were not sure whether or not the pharmacy where they worked stocked Plan B. The remaining 27.5% indicated that question was not applicable to their employment. When asked what they would do if presented with a request for emergency contraception, 42.8% indicated they would fill the prescription, 17.1% would refer the patient to another pharmacist or pharmacy, 7.9% would refuse to dispense, and 32.2% were not sure.

DISCUSSION

The progestin-only emergency contraceptive Plan B is now available to anyone age 18 years or older, yet women 17 years or younger still require a prescription. The FDA stipulates that this product must be kept behind the counter to ensure the purchaser will provide proof of

age. The unique dual status of Plan B creates new opportunities and responsibilities for pharmacists and pharmacy staff members. Because pharmacies have become the point of access for patients in need of emergency contraception, it is critical that pharmacy staff members are knowledgeable about this product.

Results for the knowledge questions in this study indicate that Arkansas pharmacy students have an average level of knowledge about emergency contraception. These findings are similar to the findings from pharmacist surveys about emergency contraception as well as physician surveys about emergency contraception.^{5,6,12} Interestingly, students agreed that counseling by a pharmacist should be required with nonprescription emergency contraception, yet only 26.7 % of participants felt competent instructing patients in the appropriate use of emergency contraception. These study results imply that pharmacy students could benefit from additional training on emergency contraception.

This study was conducted prior to the emergency contraception component of the P3 Therapeutics course.

Table 2. Attitudes of Arkansas Pharmacy Students Toward Emergency Contraception

Item Evaluated	Mean (SD) ^a	% Disagree (1 or 2 rating)	% Neutral (3 rating)	% Agree (4 or 5 rating)
EC should be available for nonprescription use WITH required counseling by pharmacist.	3.2 (1.4)	30.3	18.7	51.0
EC should be available for nonprescription use WITHOUT required counseling by pharmacist.	1.5 (0.8)	91.6	4.7	3.7
Nonprescription EC will promote unsafe sex.	3.2 (1.3)	31.3	18.2	50.5
Nonprescription EC will discourage regular contraception use.	3.2 (1.3)	32.8	20.9	46.3
I am uncomfortable dispensing EC for moral or religious reasons	2.8 (1.4)	45.8	23.9	30.3
I feel competent instructing patients regarding the appropriate use of EC.	2.7 (1.2)	48.6	24.7	26.7

^a Scores based on a scale from 1-5, where 1 = strongly disagree and 5 = strongly agree

Since the study, emergency contraception material has been added to 3 additional components of the curriculum. These include a 30-minute lecture in Introduction to Non-prescription Drugs course (P-2); a problem-based learning case in Therapeutics Recitation (P3); and a case discussion in an elective ethics course which is offered to second- and third-year students.

This study has limitations. The study utilized a cross-sectional convenience sample; thus, findings are not generalizable to pharmacy students in other states or to other health care students. Repeating the survey now that Plan B has become more widely available and additional emergency contraception instruction has been added to the curriculum would likely yield different results.

CONCLUSION

A survey of knowledge, attitudes, and behaviors regarding emergency contraception was conducted among Arkansas pharmacy students. Misinformation regarding this method of contraception was common among this convenience sample. Attitudes varied widely and almost half reported that they did not feel competent providing emergency contraception counseling. The results show that Arkansas pharmacy students could benefit from additional training on emergency contraception. Additional emergency contraception material has been added to the curriculum to address this need.

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