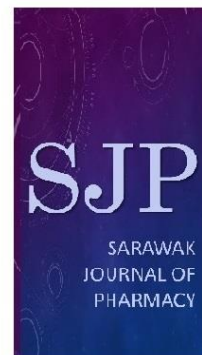


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Evaluation of Pharmacists' knowledge of women's issues in epilepsy: A cross-sectional study in Miri General Hospital

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ABSTRACT

Introduction: Women with epilepsy encounter more gender-related issues even though epilepsy affects men and women equally. This challenges many health care professionals, including pharmacists, in delivering healthcare for women with epilepsy. The purpose of this study was to assess pharmacists' knowledge of women's issues in epilepsy in Miri General Hospital.

Method: In this cross-sectional study we used the valid and reliable 10-item KOWIE-II questionnaire that assesses knowledge on women's issues in general as well as pregnancy-related issues. Demographic details collected. A percentage correct score calculated per pharmacist.

Results: Our sample consisted of 50 completed surveys. The median correct score was only 50% with an IQR of 42.5. Most of the pharmacists (88%) correctly answered the statement inquiring about the interaction between enzyme-inducing AEDs and contraceptives and 64% of them knew

of the issue of AED-induced bone loss while 62% of the pharmacists either incorrectly answered the statement on the higher frequency of sexual dysfunction in women with epilepsy or opted for the “I don’t know” option. Most of the pharmacists (76%) stated “I don’t know” when asked about the relationship between hormones and seizure control. More than 50% correctly answer four of the six statements (continued AED adherence during pregnancy (78%), role of folic acid in reducing teratogenesis in children born to women with epilepsy taking AEDs (74%), healthy baby (62%), vitamin K supplementation = 58%). Fewer pharmacists knew that women taking AEDs can safely breastfeed (40%) and only 38% of the pharmacists able to correctly answer the question on the best choice of AED during pregnancy.

Conclusion: Although pharmacists are knowledgeable about women’s issues in epilepsy in some areas, there are still gaps in knowledge in certain issues that need educational interventions.

Keywords: Epilepsy, antiepileptic drugs, pharmacists, women’s issues, knowledge

INTRODUCTION

Epilepsy is a chronic neurological disorder defined as recurrent, usually unprovoked seizures resulting from an abnormal neuronal activity in the brain. The sudden and uncontrolled surge of the electrical discharges in all or part of the brain causes epileptic seizures presented as disturbances in movement, sensation, emotion or consciousness (1-3). According to World Health Organisation, there is an approximate of 50 million people worldwide are living with epilepsy and 80% of them are from low- and middle-income countries (1-2). Epilepsy can happen at any time of life and it affects people of all ages, races and social classes (1).

Even though epilepsy affects men and women equally, women with epilepsy encounter many gender-related issues such as effects of antiepileptic drugs on fertility, contraception, pregnancy and breastfeeding. This poses challenges to both the woman with epilepsy and the many health care professionals in the areas of health of women with epilepsy (4,5). Vazquez et al. (2007) and Crawford and Lee (1999) had conducted two different studies on women with epilepsy. Similar findings reported in both studies and it found that more than half of the surveyed women claimed that they received insufficient information on women's issues in epilepsy from their physicians (4,6,7). Many examples in the literature also showed that many health care professionals demonstrated a lack of knowledge in women's issues in epilepsy (4,5,8).

Managing epilepsy involves multiple strategies such as the use of antiepileptic drugs (AEDs), hormonal therapy, surgery, neurostimulation and behavioral modification therapy. Among the treatment options available, pharmacological therapy appears to be the most common approach (9). An estimation of 70–80% adults with new-onset epilepsy would become seizure-free after receiving optimal therapy with the appropriately selected AEDs (10). As AEDs are the essence in managing epilepsy, pharmacists can play an important role in delivering health care service to patients with epilepsy. In a study conducted by McAuley et al. among patients with epilepsy about the current and potential role pharmacists play or could play in providing care to them, majority of the respondents desired their pharmacists to be more involved in their health care, especially regarding drug interactions and adverse effects. The study also reported that patients with epilepsy establish a good relationship with their pharmacists (5,11). As pharmacists

are easily accessible, and there is an opportunity for pharmacists to expand their role in enhancing the pharmaceutical care to patients with epilepsy, including patient education on women's issues (4).

The Knowledge of Women's Issues and Epilepsy II (KOWIE-II) questionnaire developed by Long et al. (2005) to assess what health care professionals know about issues relating to women with epilepsy. KOWIE-II questionnaire includes questions pertaining to the effect of seizures and AEDs on oral contraception, bone health, sexual function, hormones, pregnancy and breastfeeding (12). The validity and reliability of this tool for clinical research and educational interventions purposes have previously been established (4,5,13). There are studies conducted to assess knowledge of women's issues in epilepsy among health care professionals in few countries (4,5). However, there is no similar study being conducted in Malaysia yet on health care professionals, including pharmacists. There is a lack of information on how well pharmacists in Malaysia are equipped with knowledge to provide information to women with epilepsy or healthcare providers. We aim to conduct this study to assess current knowledge level of pharmacists practicing in Miri General Hospital on women's health issues in epilepsy.

METHODS

This was a cross-sectional study using the valid and reliable 10-item KOWIE-II questionnaire. Author's permission to use KOWIE-II questionnaire in this study was obtained. Pharmacists asked to respond to either "true", "false" or "I don't know" to statements on general women's issues in epilepsy (n=4) and pregnancy-related issues (n=6). Each respondent awarded 1 point for each correct answer and 1 point deducted for each incorrect answer to penalise guessing. Zero point awarded for choosing the "I don't know" option. The final score calculated in percentage correct. All respondents also asked to indicate their personal demographics like age and gender, current registration status, years in practice and number of patients with epilepsy with whom they interact with every month.

The study participants were all pharmacists who worked in Pharmacy Department of Miri General Hospital, excluding the investigators (N = 59). All participants approached in person by

field researchers and invited to take part in the study during working hours. Informed consent obtained and questionnaire then distributed to each participant in hard copy. All participants given 15 minutes to complete the questionnaire without referring to any resources for answers. The study conducted without incentives.

RESULTS

Demographics

The questionnaire completed by 50 pharmacists, giving a response rate of 84.7%. Table 1 summarises the demographics of the respondents.

Vast majority of the participants were women. The respondents varied in amount of pharmacy experience and most of them were fully registered pharmacists. More than half of the participants interacted with less than 10 patients with epilepsy every month (Table 1).

On the 10-item questionnaire, the median correct score was only 50% with an Interquartile range (IQR) of 42.5. Many pharmacists were aware of their knowledge deficits as evidenced by checking “I don’t know” rather than guessing incorrectly.

Epilepsy and women’s health

Responses to 4 statements related to epilepsy and women’s health in general shown in Table 2. Most pharmacists correctly answered the statement inquiring about the interaction between enzyme-inducing AEDs and contraceptives. The second most correctly answered item was on the issue of AED-induced bone loss. More than half of the pharmacists either incorrectly answered the statement on the higher frequency of sexual dysfunction in women with epilepsy or opted for the “I don’t know” option. Most of the pharmacists stated “I don’t know” when asked about the relationship between hormones and seizure control.

Pregnancy-related issues

Responses of pharmacists on the pregnancy- related issues in epilepsy detailed in Table 3. Most pharmacists able to correctly answer four of the six statements (continued AED adherence during pregnancy, role of folic acid in reducing teratogenesis in children born to women with epilepsy taking AEDs, healthy baby, vitamin K supplementation. Fewer pharmacists knew that women taking AEDs can safely breastfeed and also able to correctly answer the question on the best choice of AED during pregnancy.

Clinical experience

Univariable analysis showed there was no significant difference in the mean difference of the total score by gender, pharmacy experience, pharmacy position and number of patients with epilepsy seen. There was no correlation between mean score and pharmacy experience in the test.

Table 1. Respondent demographic characteristics ($n = 50$)

Characteristic	Response	No.	pharmacists (%)
Gender	Male	4	(8.0)
	Female	46	(92.0)
Pharmacy experience	< 1 year	12	(24.0)
	1-3 years	9	(18.0)
	4-7 years	17	(34.0)
	>7 years	12	(24.0)
Pharmacy Position	Provisionally registered pharmacist	14	(28.0)
	Fully registered pharmacist	36	(72.0)
Number of patients with epilepsy interacted with per month	< 10 patients	31	(62.0)
	10 to 19 patients	14	(28.0)
	≥ 20 patients	5	(10.0)

Table 2. Awareness of facts about epilepsy and women's health

Statement	True (%)	False (%)	Don't know (%)
“During menstrual cycle endogenous estrogen has been found to be a pro-convulsant while progesterone has anticonvulsant properties.”	22.0^a	2.0	76.0
“Women with epilepsy have a higher incidence of sexual dysfunction compared to women without epilepsy”	38.0	14.0	48.0
“Enzyme-inducing anti-epileptic drugs (AEDs) may reduce the effectiveness of various contraceptives.”	88.0	2.0	10.0
“Some AEDs are associated with osteomalacia (reduced bone mass).”	64.0	2.0	34.0

^a Correct answers are in boldface

Table 3. Awareness of facts about pregnancy-related issues in women with epilepsy

Statement	True (%)	False (%)	Don't know (%)
“The best AED during pregnancy is the one that is most appropriate for the patient’s seizure type and/ or syndrome.”	38.0^a	36.0	26.0
“Women with epilepsy should stop taking their AEDs when they become pregnant.”	12.0	78.0	10.0
“Taking folic acid before and during pregnancy may reduce teratogenesis in children born to women with epilepsy taking AEDs.”	74.0	12.0	14.0
“Vitamin K may reduce the risk of newborn haemorrhagic disorder associated with certain AEDs.”	58.0	4.0	38.0
“The majority of women with epilepsy have healthy children.”	62.0	6.0	32.0
“Most women taking AEDs can safely breastfeed.”	40.0	36.0	24.0

^a Correct answers are in boldface

Discussion

Pharmacists play an important role in the health care of patients with epilepsy by providing valuable resource of information for both patients and prescribers. It is essential for pharmacists to remain acquainted with sufficient and accurate knowledge needed to care for patients with epilepsy, especially women’s issues. Although the pharmacists did not perform well in all questions in our assessment, high awareness identified in certain areas. Many of the areas related to pregnancy-related issues. In this study, pharmacists were generally aware of the need of adherence to AED regimen during pregnancy, the importance of folic acid supplementation in reducing teratogenesis among women with childbearing potential and most women with epilepsy have healthy babies.

Our results were consistent with prior studies conducted using the KOWIE-II to assess the knowledge of pharmacists in Ohio and Palestine. In the previously published studies by McAuley et al. (2009) and Shawahna et al. (2017), 86.8% and 58.1% of pharmacists respectively knew that women with epilepsy should not discontinue AEDs during pregnancy. The two studies also showed that 77% and 91.4% of the pharmacists were aware of the importance of folic acid supplementation respectively (4,5). This awareness can help pharmacists to serve their patients of childbearing age by advising them to take folic acid supplementation. Most pharmacists were also able to correctly answer the question on chances of having healthy babies in the study in Ohio (82.9%) and Palestine (63.5%) (4,5).

Our pharmacists were fairly knowledgeable on issues pertaining to women's general health issues. Certain issues such as knowledge concerning interaction between certain AEDs and contraceptives as well as the negative effect of AEDs on bone were areas of relative strength in our study. Our results were consistent with those previously reported in Ohio and Palestine (4,5). It is crucial for pharmacists to identify AED interaction with contraceptives. With this knowledge, pharmacists can help in reducing unplanned pregnancy in women with epilepsy by providing suitable counselling to them. In view of the fact that reduced bone mass could increase risk of morbidity and mortality associated with fractures, it is essential for pharmacists to be aware of the long term effect of AEDs on bone too. In a study conducted by McAuley et al. (2009), patients highlighted that drug interaction screening and adverse effect identification were aspects of care that needed for enhanced discussion with their pharmacists (4,11).

There is a need for the respondents in our survey to increase their awareness in certain issues of both areas. Less than half of our respondents could answer the questions pertaining to breastfeeding and sexual dysfunction in women with epilepsy correctly. Even lesser of our pharmacists were aware of the relationship between hormones and seizure control. These results were consistent with McAuley et al. Study (4,5). Being one of the most easily accessible healthcare professionals for patients, it is necessary for pharmacists to be well informed on these specific issues.

Contrary to prior investigations that showed a positive relationship between larger number of patients seen per month and scores obtained, we did not find a similar association (4,5). A difference between these results might be due to the small sample size in our study. In prior studies, the results demonstrated that pharmacists who interact with more patients per month are more knowledgeable in women's issues in epilepsy in comparison to those who see fewer patients. The number of patients seen each month appears to be the only statistically significant predictor of knowledge (4,5).

Our findings are in accordance with previous studies that demonstrated the lack of knowledge of women's issues in epilepsy of health care professionals (4,5,12). It is interesting, the "I don't know" option was selected by many pharmacists in our study. This implied that our pharmacists were able to admit the existence of gaps of knowledge. However, in this study, we did not survey pharmacists on their desire for more continuing education. Prior study among pharmacists in Ohio stated that they welcomed further education on women's health related issues in pregnancy (4). It was suggested that short courses on epilepsy management by experts in the field would be useful in enhancing awareness of pharmacists on women's health issues in epilepsy (4,14). Health care professionals providing care for women with epilepsy should take up the responsibility to educate themselves on issues specific to women to facilitate patient care and improving outcomes. Our results clearly support the need to further educate pharmacists on these critical issues.

Our study is not without limitations. The target population is small and this resulted in small sample size in our study. Another limitation is that the KOWIE-II questions used in our study are not "case based". If the questions were case based, the pharmacists might be able to perform differently. In our study, the respondents not allowed to refer to any resources for answers when completing the questionnaire. One should take note that in real practice, pharmacists can refer to any resources when delivering care to patients.

CONCLUSION

In conclusion, our findings show that although pharmacists are knowledgeable in certain issues relating to women's health in epilepsy, there are still gaps in knowledge in some areas that warrant educational interventions. Pharmacists should be responsible in increasing their knowledge of health issues among women with epilepsy.

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