HEALTHCARE PROVIDERS' KNOWLEDGE TOWARDS MEDICATION USE IN BREASTFEEDING: AN INTERVENTIONAL STUDY

Hamat NN[1], Yusof NN[1], Ramli NI[1], Zubir NZ[1], Wahairi N[1], Jusoh N[1], Razak FAA[1], and Rahman NHA[1].
[1] Pharmacy Department, Pejabat Kesihatan Daerah Dungun, Jalan Yahya Ahmad, 23000 Dungun, Terengganu, Malaysia

Correspondence:
Nurul Izzaty Ramli
Pharmacy Department,
Pejabat Kesihatan Daerah Dungun,
Jalan Yahya Ahmad,
23000 Dungun, Terengganu, Malaysia
Email: nurulizzaty.ramli@yahoo.com

Abstract

Background: Most postpartum women are prescribed at least one medication; so the safety of the medication is a major concern. In 2017, 11% of 815 questions received by the Pharmacy Drug Information Services at seven clinics in Dungun is related to medication use in breastfeeding. Thus, this study was carried out to evaluate the attitudes of healthcare providers (HCPs) and to investigate the effect of knowledge about medication use in breastfeeding among HCPs; pre- and post-educational intervention.

Methods: An interventional study was carried out among medical officers, assistant medical officers, pharmacists and pharmacist assistants from seven clinics in the district of Dungun, Malaysia. The questionnaires were distributed during pre- and post-intervention period. The interventions in this study included continuous medical education (CME) and the use of a booklet regarding medication use for breastfeeding women. The data collected were analyzed using Statistical Package for Social Studies (SPSS) and presented as frequencies, means, and standard deviations.

Results: Fifty HCPs were enrolled in this study and over 20% of them advised mothers to discontinue breastfeeding whenever they are prescribed any medication. The knowledge of HCPs about medication use in breastfeeding women was significantly improved ($Z = -5.917$, $p<0.001$) following the educational intervention.

Conclusion: CME and a simplified booklet appeared to have a positive impact on the knowledge of HCPs regarding medication use in breastfeeding.

Keywords: *Breastfeeding, Medicine, Knowledge, Attitudes, Malaysia*

Introduction

When a drug enters the body, it undergoes four phases; absorption, distribution, metabolism, and excretion. Excretion from the body could be through urine, stool, sweat gland or even through breast milk. Excretion through milk is a major concern for lactating women as it is indirectly consumed by the breastfed infant. However, does it really affect the baby? Many medicines are transferred to breast milk, but usually the amount received by the infant is less than 10% of the maternal dose. Furthermore, once a drug has entered the mother's milk and has been ingested by the infant, it must traverse through the infant's gastrointestinal tract prior to absorption. Drugs that can be excreted through milk are the drugs that have high concentrations in maternal plasma, low in molecular weight (< 800), low protein binding and can pass into the brain easily (1).

During the postpartum period, women sometimes may need medication due to various health reasons. There are issues where some of them fail to take the medication due to the possible risk to their infant (2). About 30% of mothers in Turkey did not take their medication during breastfeeding despite doctors 'advice, due to the fear of harm to the infant (3). The benefit of using medications should outweigh the risk for these breastfeeding women.

In Malaysia, the use of medications in breastfeeding women is fraught with difficulties. In 2017, 11% of 815 questions received by the Pharmacy Drug Information Services at seven clinics in the district of Dungun,

Malaysia is related to medication use in breastfeeding. The percentage of questions posed may be reduced if some form of educational intervention is introduced. Strategies in enhancing the knowledge on medication safety during lactation have previously been-recommended (4). Hence, this study was conducted to assess the baseline and post-intervention perception towards medication use for breastfeeding women among health-care providers (HCPs) in the district of Dungun, Malaysia.

Materials and Methods

Study design

An interventional study was carried out from July until September 2018 at seven clinics in the district of Dungun, Malaysia which consisted of a month each of pre-intervention period, interventional period and post-intervention period. For the pre-intervention period, self-administered questionnaires were distributed to all prescribers and selected pharmacy staffs (excluding the investigators) to assess the baseline knowledge and attitude regarding medication use in breastfeeding women. During the interventional period, continuous medical education (CME) were provided and booklets regarding safe medication use in breastfeeding women distributed. The post-intervention period involved the distribution of the same questionnaires to the same respondents during the pre-intervention period. A flow-chart of the study can be found in Figure 1.

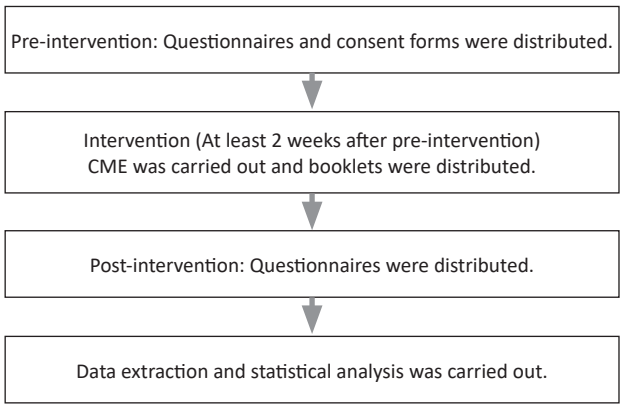

Figure 1: Flowchart of the study

Two educational intervention tools were used; CME and distribution of booklet to each prescriber in each clinic in PKD Dungun. CME was carried out by seven presenters at seven sites of investigation for collection of data. The slides used were standardized to ensure similarity of information delivered. A booklet on compatibility of medications in breastfeeding was prepared as a reference for the HCPs. These tools explained drug classification for breastfeeding based on World Health Organization (WHO) and common drugs used in a primary care setting. The booklet consists of a list of medication, classified into 5 classes; (i) compatible with breastfeeding, (ii) compatible with breastfeeding; monitor infant for side-effects, (iii) avoid if possible; monitor infant for side-effects, (iv) avoid if possible; may inhibit lactation, and (v) avoid. Any other medications that are used in primary care setting with no information on usage during breastfeeding are also included in the booklet.

The questionnaires were adopted from Al-Sawalha et al. (5) in the English language and consisted of three main sections: (i) demographic characteristics, (ii) attitudes of prescribers towards medication use during breastfeeding, and (iii) knowledge about the safe use of medications during breastfeeding. The knowledge questions have three answer options: (i) yes, (ii) no, and (iii) not sure (to avoid guessing); and were related to the most commonly used medications during breastfeeding. As stated in Al-Sawalha et al, the correct answers were verified according to the World Health Organization (WHO) and American Academy of Pediatrics (AAP) (5). The attitude statement was trichotomised (yes (always), no, or sometimes) (5). Ethical approval was obtained from the Ministry of Health, Malaysia (National Medical Research Register No: NMRR-18-2279-40971).

Statistical analysis

Data were analyzed using Statistical Package for Social Studies, (SPSS) version 23 and presented as frequencies, means and standard deviations. The answers of 17 questions about medication knowledge were categorized using a cut-off point of total scores. Total scores ≥ 8 (out of the 17) is categorized as good knowledge, otherwise low knowledge. Wilcoxon Signed Rank Test was applied as appropriate. $p \leq 0.05$ was considered statistically significant.

Results

Fifty HCPs completed the questionnaires in the pre- and post-intervention phase of whom 34% were assistant medical officers, 32% were medical officers, 24% were pharmacist assistants and 10% were pharmacists. The participants were predominantly (64%) females. Most of them were aged between 25 to 30 years having graduated around 2010 with working experience of less than 5 years. The demographics of the participants are shown in Table 1.

Table 1: Participant's demographic data

Characteristics	Number of HCPs, N (%)
Gender	
Male	18 (36)
Female	32 (64)
Age (years)	
25 – 30	30 (60)
31 – 35	12 (24)
> 35	8 (16)

Characteristics	Number of HCPs, N (%)
Year of graduation	
Before 2010	13 (26)
2010 and after	37 (74)
Working experience (years)	
< 5	26 (52)
6 – 10	15 (30)
> 10	9 (18)
Medical field	
Medical officer	16 (32)
Assistant medical officer	17 (34)
Pharmacist	5 (10)
Pharmacist assistant	12 (24)

The attitude of HCPs towards medication use during breastfeeding is shown in Table 2. The results showed that 38% of HCPs always experience concerns from nursing mothers on medication use followed by 58% that sometimes experience concern and 4% who experience no concerns. Sixty four percent of HCPs used the recommendation from the American Academy of Pediatrics (AAP) and WHO as reference for medication used in breastfeeding. Twenty two percent of HCPs adviced mothers to discontinue breastfeeding when taking medication in the preintervention period. The post-intervention result showed no differs from pre-intervention phase.

Table 2: Attitude of HCPs about medication use during breastfeeding

Characteristics	Pre- and post-intervention, n (%)		
	Yes (always)	No	Sometimes
Experience any concerns from nursing mothers about medication use	19 (38)	2 (4)	29 (58)
Use recommendation from American Academy of Pediatrics (AAP) and WHO for medication use during breastfeeding	32 (64)	18 (36)	-
Advice mother to discontinue breastfeeding when taking medication	11 (22)	39 (78)	-

Table 3 reports the effect of knowledge about medication use in breastfeeding among HCPs pre- and post-educational intervention. In pre- and post-intervention phase, the median of knowledge score were 9.5 and 14.8, respectively. This showed that the knowledge score increased significantly with p value < 0.001.

Table 3: Pre- and post-intervention related to knowledge of HCPs about medication use during breastfeeding

Knowledge score pre- intervention, median (IQR)	Knowledge score post- intervention, median (IQR)	P values
9.5 (8 -13.3)	14.8 (12 – 16)	< 0.001

Note: computed using Wilcoxon Signed Rank Test.

Discussion

To date there is no other study that investigates the effect of the use of education as an interventional tool to assess the use of medication in breastfeeding mothers among HCPs. A study conducted in New Zealand used professional development to increase pharmacy staff's knowledge about medication use in breastfeeding (6). The present study showed better HCPs' knowledge on the safe use of medications during breastfeeding after educational interventions. This outcome was an improvement from the studies carried out among physicians,nurses and pharmacists in Jordan and Singapore (5, 7).

More than half of HCPs in this study sometimes experience concerns about medication use from breastfeeding mothers. This result is similar to the study in Jordan. Physicians were most likely to be asked about this (5). More than half of the pharmacists never asked women if they were breastfeeding but yet were very comfortable with giving advice to breastfeeding women (8, 9).

In this study, most of the HCPs followed the recommendation from AAP and WHO regarding medication use in breastfeeding. In contrast, other studies showed that half of HCPs did not follow the recommendation as they mostly resort to internet search engines. Physicians are mostly aware about this compared to other HCPs (5). About 80% of general practitioners (GPs) in Australia found that it was helpful using internet for obtaining information while others were using textbooks and telephone advice from a pharmacist (10). However, two-thirds of HCPs wrongly perceived drug directories as a good reference (7). They preferred to have a reliable online database to be referred anytime. It is advisable that they always aquire updated scientific information. There are many sources available but LactMed is the most reliable reference in terms of consistency, quality and extent of citations (11).

Most of the HCPs in this study did advice on continuing lactation when taking medication; before and after the intervention. In another study, they sometimes adviced mothers to discontinue lactation when taking medication (5, 7). About 90% of GPs in Melbourne also adviced mother to stop breastfeeding temporarily if taking medication because there is a lack of reliable information about this concern (2). Therefore, the study did not give impact on the HCPs' attitude on medication use in breastfeeding. A longer duration of study should be done in determining the changes of attitude.

The knowledge score increased significantly among HCPs post-intervention of this study. Only 19% of HCPs had good knowledge about medication use in breastfeeding with score more than 7 out of 13 questions (5). Moreover, only 35% among 65 HCPs answered correctly the knowledge assessment (7). The predictors of good knowledge were gender and medical field where pharmacists were likely to have good knowledge compared to other HCPs. Low knowledge could lead to inappropriate breastfeeding advice.

This study was only carried out among medical officers, assistant medical officers, pharmacists and pharmacist assistants. Future studies should also include nurses that too interact with lactating mothers.

Conclusion

The score knowledge of HCPs about medication use for breastfeeding is significantly improved following an intervention period of CME and the use of a simplified booklet. The HCPs were able to consider the safety of the medication in breastfeeding by weighing the risks and benefits to the mother and her infant.

Acknowledgement

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Competing interests

The authors declare that they have no competing interest.

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