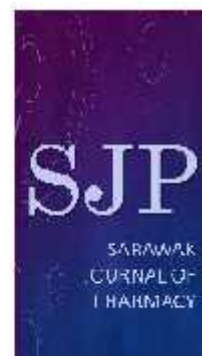




Sarawak Journal of
Pharmacy

Journal Homepage: <http://jksarawak.moh.gov.my/spj/>



Research Title: Nurses' knowledge of drug-drug interaction of commonly administered drugs in the adult intensive care setting of Miri General Hospital

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Abstract

Objective: To evaluate adult intensive care unit (ICU) nurses' knowledge of medication interactions of the commonly administered ICU drugs in Miri General Hospital.

Methods: We recruited all nurses working in adult ICU ward in Miri General Hospital (N=32). Data collected through a questionnaire of 10 sets of medications with or without drug interactions. The answers given a score of 10 (100%) to determine their knowledge on drug interactions. The answers determined using the LEXICOMP database.

Results: There was a large variation of scores obtained among the ICU nurses. The knowledge of nurses regarding the drug-drug interactions used in ICU setting in Miri General Hospital analysed according to the variables collected and found to have no correlation with their age, education level, years of working experience in hospital setting and years of experience working in the ICU setting.

Conclusion: It is important to inform the authorities and professionals about the importance of the knowledge of medication interactions for nurses working in the ICU setting, and to implement actions for patient safety related to drug therapy.

Keywords: Nurses knowledge, Drug interactions, Medication safety

INTRODUCTION

Administering medicines is an important aspect of nurses' professional practice. In administering any medication, nurses must exercise professional judgment and apply their knowledge and skills in the given situation acting in the best interests of the patient. Currently, in intensive care units (ICU), the exposure of patients to situations in the clinical practice that can affect their health condition has become a concern. The main aggravating factor for this exposure is the multiple drugs these patients receive, together with deteriorating organ function (for example, kidney or liver impairment). Drug interactions (DI) are among the main problems associated with the use of drugs in intensive care units, and can cause irreversible harm to patients. Studies point out that DI is frequent in ICU patients with higher incidences compared to patients admitted to other units.

The nursing team has a unique work in preventing DI, because they are responsible for scheduling, preparing, and administering and following-up drug effects. Therefore, they must have sufficient knowledge to identify the possible DI so patients not exposed to unwanted situations. Considering the knowledge of DIs is an important tool to optimize nursing care, the present study carried out to assess the knowledge of nurses working in adult intensive care units of Miri General Hospital.

METHODS

This study carried out in adult ICU in Miri General Hospital. There were 32 nurses who working in adult ICU took part in this study. The nurses asked to give written consent before they had answered the questionnaire.

The questionnaire built based on 'Medication interaction: knowledge of nurses in intensive care units'. Information from Lexicomp and product inserts used to identify drug-drug interaction contribute to the 10 pairs of drugs which frequently used in adult ICU included in this study.

Data analysis on relationship between the variables (age, educational level, years of working experience in hospital setting or years of working experience in ICU setting) and total score analysed by using either Pearson's correlation or Fisher exact test. The relationship between variables considered significant when $p\text{-value} < 0.05$.

RESULTS

The population made up by 32 nurses in adult ICU setting in Miri General Hospital, ranging from ages 24 to 44 years old. . Only 9 out of 32 nurses underwent post basic course.

The score ranged from three to eight. Majority of the nurses) achieved a score of six, eight nurses (25%) scored less than six, while 24 nurses (75%) scored more than or equal to six as shown in Table 1.

Table1: Score on the knowledge of drug interaction

	Frequency	Percent	Valid Percent	Cumulative Percent
Marks	3	1	3.1	3.1
	4	1	3.1	6.3
	5	6	18.8	25
	6	15	46.9	71.9
	7	5	15.6	87.5
	8	4	12.5	100
Total	32	100	100	

We attempted to explore potential linear relationship between age, years of working experience and educational level with drug-drug interaction by using Pearson Correlation, however our finding did not suggest any significant correlation.

DISCUSSION

There were large variations of total scores among nurses. The findings from this study showed the total scores of drug-drug interaction does not have significant correlation with age, level of education, years of working experience in hospital setting and years of working experience in ICU setting. Nurses who are older, with higher educational level and/or longer working experience either in hospital setting or ICU setting does not necessarily score better than those younger, with lower educational level and/or shorter working experience in either hospital setting and ICU setting.

The knowledge of nurses on drug-drug interaction was found to be lacking (1). The knowledge of nurses on drug-drug interactions is crucial because patients in ICU setting usually receive

multiple drugs for their multiple co-morbidities (2). Therefore, the risk of drug interactions as well as adverse effects increases greatly with administering multiple drugs to a critically ill patient. Inexperienced nursing staff can have a negative impact on the quality of care delivered to critically ill patients where errors are more likely to happen especially when there is a shortage of staff (3). By equipping themselves with knowledge on drug-drug interactions, nurses can make appropriate clinical assessments and exercise professional judgement before administering the medications, thus preventing medication errors and promoting safety in medicines management.

Some studies showed there were no significant differences of drug knowledge between nurses of differing levels of experience (1, 4, 5) due to experience increases knowledge when it coupled with a specific learning programme to enhance their performance. Hence, supplementary education needed for nurses in adult ICU setting for safer medicines management, focusing on the common drugs they administer.

A study found that there were significant differences in the scores obtained by nurses in different grades (6). Nurses with postgraduate qualifications were more knowledgeable than undergraduate nurses. Our study proved to be opposite. The insignificant correlation is most probably affected by the small sample size of nurses who undertook post basic course.

CONCLUSION

The knowledge drug-drug interactions of adult ICU nurses working in Miri General Hospital does not seem to correlate with their age, level of education, years of working experience in hospital setting and years of working experience in ICU setting. This result may

be contributed by the limitations in our study, which includes small sample size and single centre study.

It is important for nurses to be able to identify drug-drug interactions when administering multiple drugs to patient, especially in the ICU setting as it will have an impact on the treatment outcome in critically ill patients. Therefore, more effort should be done to increase the awareness of drug interactions for nurses which includes supplementary pharmacology education in their post basic courses. It is also necessary to sensitise the authorities and professionals about the importance of medication interactions in the ICU, and to implement actions for patient safety related to drug therapy.

Acknowledgements

We thank CRC Miri Sarawak for assistance with this write up and for comments that improved the manuscript.

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