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SAFETY EVALUATION ON THE USE OF HIGH ALERT DRUGS IN RSUD ARIFIN ACHMAD RIAU PROVINCE

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ABSTRAK

Obat *high alert* merupakan obat yang persentasenya tinggi dalam menyebabkan risiko bahaya pada pasien. Untuk mencegah terjadinya kesalahan, maka obat *high alert* harus digunakan secara tepat termasuk penyimpanan dan penandaannya. Tujuan dari penelitian ini adalah mengetahui keamanan penggunaan obat *high alert* di RSUD Arifin Achmad Provinsi Riau. Penelitian ini merupakan penelitian deskriptif dengan sampel yang digunakan sebanyak 68 orang petugas farmasi. Pengumpulan data menggunakan kuesioner dan dianalisis secara univariat menggunakan sistem komputer. Hasil penelitian menunjukkan bahwa ketepatan penggunaan obat *high alert* berdasarkan prinsip 5 tepat sudah dalam kategori baik sebanyak 65 orang (95.6%) baik dalam tepat pasien, 67 orang (98.5%) baik dalam tepat obat, 66 orang (97.1%) baik dalam tepat waktu pemberian, 65 orang (95.6%) baik dalam tepat dosis, serta 66 orang (97.1%) baik dalam tepat rute pemberian. Keamanan penyimpanan dan pelabelan obat *high alert* dalam kategori baik sebanyak 67 orang (98.5%). Kesimpulan dari penelitian ini penerapan prinsip lima tepat, keamanan penyimpanan, dan pelabelan obat *high alert* di RSUD Arifin Achmad Provinsi Riau sudah dalam kategori baik.

ABSTRACT

Safety Evaluation On The Use Of High Alert Drugs In Rsud Arifin Achmad Riau Province. High alert drugs are drugs that have a high percentage of causing risk of harm to patients. To avoid errors, high alert drugs must be used properly, including storage and marking. The objective of this study was determine the safe use of high alert drugs at Arifin Achmad Hospital in Riau Province. This was a descriptive study that included 68 pharmacy officers. A questionnaire was used to collect data, which was the univariately analysed on a computer system. The result showed that the accuracy of the use of high alert drugs based on the 5 principles was in the good category. As many as 65 people (95.6%) were good at the right patient, 67 people (98.5%) were good at the right drug, 66 people (97.1%) were good at the right time of administration, 65 people (95.6%) were good at the right dose, and 66 people (97.1%) were good at the right route of administration. As many as 67 (98.5%) rated the storage safety and labelling of high alert drugs as good. The conclusion of this study is that the implementation of the five rights principle of medication, storage safety and labelling of high alert drugs at Arifin Achmad Hospital in Riau Province has reached a good level.

INTRODUCTION

Patient safety is a system aimed at enhancing security in patient care. This system includes risk assessment, identification, and management, incident reporting and analysis, as well as implementing solutions to reduce risks and prevent injuries resulting from errors in executing procedures or failure to take necessary actions.[1] Presently, patient safety has become a global issue.[2] Joint Commission International (JCI) in collaboration with the World Health Organization (WHO) has established definitive guidelines for advancing patient safety through the adoption of International Patient Safety Goal (IPSG) standards.[3]

High alert drugs are medication that pose a significant risk of causing harm to patient if not used correctly.[4] Examples of such medications include heparin and insulin, which can lead to serious adverse effect when not properly used. The Ministry of Health Republic Indonesia has identified medication administration errors as the most prevalent incident in patient safety within Indonesia.[5] Ensuring the safety of high alert drugs requires hospitals to identify specific risk associated with each medication. This involves considering aspects such as prescribing processes, storage, preparation, documentation, administration, and monitoring.[6]

World Health Organization (WHO) has reported that approximately 50% of global medication usage is characterized by inappropriate practices in prescribing, preparation, and dispensation, with an additional 50% being improperly utilized by patient.[7] In 2016, RSPAD Gatot Soebroto recorded a high alert drug safety compliance rate of 85% which fell short of the targeted 100% [8] Research conducted by Meilita in 2018 revealed that 10% of high alert drugs at RSUD Tidar Magelang were improperly stored without adherence to standard operating procedures.[9]

In safe medication administration, healthcare providers must adhere to the five rights: the right patient, the right drug, the right dose, the right route, and the right time of administration. Preparation and administration of medications must be executed accurately by healthcare personnel to prevent errors or unintended incidents.[10] Based on these considerations, the researcher is motivated to evaluate the safety of high alert drug usage at RSUD Arifin Achmad in Riau Province, serving as a referral center for the region.

METHOD

This study employs a descriptive method conducted in the pharmacy department of RSUD Arifin Achmad in Riau Province from December 2023 to February 2024. The research population comprises all 74 pharmacy personnel, including pharmacists and pharmacy technicians at RSUD Arifin Achmad. Sampling is conducted through proportional random sampling. Data collection is carried out using an online questionnaire consisting of 15 statements regarding actions related to the accuracy of handling and storage of high alert drugs, which has been validated and tested for reliability.

The data will be processed univariately and presented descriptively in tabular form along with narrative descriptions to facilitate drawing conclusions. This research has been granted ethical approval by the Medical and Health Research Ethics Committee of the Faculty of Medicine University of Riau, with approval number: B/124/UN19.5.1.1.8/UEPKK/2023 issued on August 25, 2023.

RESULTS

Table 1 shows the questionnaire blueprint consisting the indicator, statement number, items (favorable and unfavorable).

Table 1 *Questionnaire Blueprint*

Indicator	Statement Number	Items		Total
		Favorable	*Unfavorable*	
The right patient	1, 2	1	2	2
The right drug	3, 4	3, 4	-	2
The right time of administration	5, 6	6	5	2
The right dose	7, 8	7, 8	-	2
The right route	9, 10	9, 10	-	2
Storage	11, 12, 13	11, 12, 13	-	3
Labelling	14, 15	14, 15	-	2
Total		**13**	**2**	**15**

Based on the findings presented in Table 2, the study indicates that a significant majority of respondents demonstrated proficiency in applying essential principles of medication administration. Specifically, 65 individuals (95.6%) were noted for their adherence to the principle of administering medication to the right patient, while 67 individuals (98.5%) were proficient in ensuring the right medication was administered. Moreover, 66 respondents (97.1%) were classified as competent in administering medications at the appropriate times, and an equal number of 65 individuals (95.6%) demonstrated accuracy in delivering the right dosage. Additionally, 67 respondents (97.1%) were effective in adhering to the right route of medication administration.

Table 2. Overview of the Application of Five Rights Principles in High Alert Drug Use (N=68)

The Five Right Principles	N (%)
The right patient	
Average	3 (4,4)
Good	65 (95,6)
The right drug	
Average	1 (1,5)
Good	67 (98,5)
The right time of administration	2 (2,9)
Average	66 (91,1)
Good	
The right dose	
Average	3 (4,4)
Good	65 (95,6)
The right route	
Average	2 (2,9)
Good	66 (91,1)

Based on Table 3, it can be seen that the majority of research respondents were categorized as proficient in implementing the safety of storing high alert drugs, totaling 67 individuals (98.5%).

Table 3. Overview of High Alert Drug Storage Safety (N=68)

Storage	N (%)
Storage	
Average	1 (1,5)
Good	67 (98,5)

Based on Table 4, it is evident that the majority of research respondents were categorized as proficient in labeling high alert drugs, totaling 67 individuals (98.5%).

Table 4. Overview of High Alert Drug Labelling Safety (N=68)

Labelling	N (%)
Labelling	
Average	1 (1,5)
Good	67 (98,5)

DISCUSSION

The five rights principle is fundamental in medication administration, especially for high alert drugs. These principles include the right patient, right drug, right time, right dose, and right route of administration. Based on these principles, medication administration ensures that the correct patient receives the appropriate medication at the scheduled time, in the correct dosage, and through the proper route. Adhering to these principles helps minimize the risk of medication errors, particularly with high alert drugs that have a higher potential to cause significant harm if administered incorrectly.

The research findings indicate that 95.6% of pharmacy personnel, including pharmacists and pharmacy technicians, adhere to the right patient principle. These results are consistent with Dewi's study, where healthcare providers implementing the right patient principle totaled 80.65%. However, they differ from Kevin's study, which found that 70.59% of nurses in the inpatient setting did not implement all aspects of the right patient principle.[11] The initial step in safe medication administration is understanding the right patient principle. Errors in its application can lead to adverse outcomes for patients and healthcare providers alike.[12]

Ensuring safe and accurate administration of medications to patients is among the most crucial responsibilities of healthcare providers. This study reveals that 95.6% of pharmacy personnel adhere to the right drug principle. These findings align with Pranasari's research, which indicated a good adherence rate of 87.8% to the right drug principle.[13] Similarly, this study is consistent with Sthephani's findings, where 85.5% of nurses demonstrated good adherence to the right drug principle.[14]

The study results indicate that 97.1% of pharmacy personnel adhere to the right timing principle in medication administration. These findings are consistent with Kevin's research, which demonstrated high compliance among healthcare providers in implementing all aspects of the right timing principle in medication administration.[11] Adherence to the correct timing significantly reduces the risk of medication timing errors. This principle is crucial for the success of patient treatment procedures. Administering medication at the appropriate times contributes to patient recovery by ensuring that the medications exert their therapeutic effects as intended.[15]

The study results indicate that 95.6% of pharmacy personnel adhere to the right dose principle. This finding is consistent with research by Tirtawati, which highlights that accurate dosing can reduce medication errors. Healthcare providers are responsible for double-checking medications and doses when there is ambiguity in drug names or dosages.[16] Ensuring the correct dose is administered is crucial for medication safety, aiming to minimize treatment errors and ensure patient safety during treatment.

The study results indicate that 97.1% of pharmacy personnel adhere to the right route of administration principle. This finding is consistent with Kevin's research, which explains that a majority of healthcare providers comply with all aspects of the right method of administration in medication delivery.[11] Administering medication according to the prescribed or instructed route is essential for ensuring its effectiveness and safety.

Safe storage of high alert drugs and Look Alike Sound Alike (LASA) medications is a critical aspect of medication management in healthcare facilities. This ensures a reduction in errors and guarantees the availability of safe and effective medications for patients. Research findings indicate that the safety of high alert drug storage at RSUD Arifin Achmad Riau Province is categorized as good, with 67 individuals (98.5%) meeting the criteria. This aligns with Bayang's study, which identified medication administration errors stemming from inadequate storage procedures, particularly for LASA medications.[17] Maulidie's research also found that 83.48% of high alert drug storage practices at Rumah Sakit Daerah Idaman Banjarbaru complied with standard operating procedures (SOPs).[18]

The use of clear and accurate labels on drug packaging facilitates precise identification and proper use of medications by healthcare providers. Research findings indicate that labelling of high alert drugs at RSUD Arifin Achmad is categorized as good, with 67 individuals (98.5%) meeting the criteria. This corresponds with Nur's study, which showed that a significant portion of labelling for high alert drugs at the Inpatient Pharmacy Installation of Rumah Sakit Mitra Plumbon complied with the Indonesian Ministry of Health Regulation No. 72 of 2016, with an average percentage of 81.43%.[19] Proper labelling of high alert drugs is crucial for ensuring patient and healthcare provider safety.[20]

Based on the findings of this study, it is evident that the safety of high alert drug use at RSUD Arifin Achmad in Riau Province is categorized as good. This achievement is attributed to the consistency and commitment in conducting patient safety training at RSUD Arifin Achmad, which occurs annually at the hospital. The implementation of these training sessions directly contributes to the adherence to patient safety principles in daily practices.

In discussing these results, it is important to note that this study utilized a cross-sectional design, providing a snapshot of the situation at one point in time and precluding long-term analysis or causal relationships. Additionally, there is potential for bias in data reporting that could affect the accuracy of the results. The study also did not account for contextual factors such as variations in clinical practices across different locations or differences in professional experience levels, which could impact the findings. These limitations should be considered when interpreting the results and when planning future research to achieve a more comprehensive understanding.

CONCLUSION

The overall implementation of the five rights principle, encompassing right patient, right drug, right time, right dose, and right route of administration for high alert drugs at RSUD Arifin Achmad, is categorized as good. The safety of storage for high alert drugs at RSUD Arifin Achmad is also rated as good, with a percentage of 98.5%. Additionally, the labelling of high alert drugs at RSUD Arifin Achmad is categorized as good, also with a percentage of 98.5%.

For future research, it is recommended to continue with methods such as data collection through interviews or observations to validate findings and establish connections between knowledge levels and the safety of high alert drug use.

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