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ARTICLE

Evaluation of Gastritis Medication in Patient Prescriptions at the Inpatient Ward of Labuang Baji Regional General Hospital in Makassar City

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ABSTRACT
Background: Gastritis is an inflammation of the gastric mucosa caused by various factors, such as dietary patterns, lifestyle, irritation, and infection. The disease occurs due to inflammation in the gastric lining, leading to abdominal pain. The purpose of this study was to determine the use and suitability of ranitidine medication in gastritis patients admitted to the inpatient ward of RSUD Labuan Baji in Makassar City. **Method**: This research employed a descriptive design with a cross-sectional approach. The sample consisted of inpatients from the period of 2018-2020. The data collected were secondary data obtained by the researchers from medical records and the pharmacy department regarding inpatient gastritis patients. **Result**: The drug interaction identification indicated that the highest percentage of interactions was related to pharmacokinetic mechanisms, specifically absorption, accounting for 85.7% when the effect was reduced. The lowest percentage of interactions, at 14.3%, was related to pharmacodynamic interactions that exhibited a synergistic effect when intensified. **Conclusion**: Gastritis is a prevalent disease in Indonesia with an increasing number of patients each year. It is crucial to take gastritis seriously as it can impair gastric function and elevate the risk of fatal stomach cancer. Additionally, drug interactions should be considered due to their potential harmful or beneficial consequences.

I. INTRODUCTION

The irrational use of drugs (IUD) has become a focus of attention for the World Health Organization (WHO) because more than 50% of drugs worldwide are prescribed, dispensed, and sold without compliance and proper use by patients. IUD refers to three main indicators: prescribing, patient care, and facilities. Inaccurate drug prescribing can lead to problems such as failure to achieve therapeutic goals, increased side effects, antibiotic resistance, and drug wastage. Therefore, rational drug use is crucial to improve the effectiveness and efficiency of treatment.[1]

Gastritis is an inflammation of the gastric mucosa caused by various factors such as diet, lifestyle, irritation, and infection. Gastritis occurs due to inflammation of the stomach lining, resulting in abdominal pain. Usually, gastritis is more common in adolescents. Imbalance between aggressive factors and defense mechanisms, as well as inflammation of the gastric mucosa, is the main cause of gastritis that can trigger an inflammatory response.[2–4] Gastritis affects a significant number of people worldwide. For example, in the United Kingdom, approximately 22% of the population suffers from gastritis, while in China, it is around 31%, Japan 14.5%, Canada 35%, and France about 29.5%. In Southeast Asia, the number of people affected by

gastritis reaches 583,635 individuals every year.[5] In Indonesia, gastritis is among the top 10 diseases suffered by outpatient patients, with a total of 30,154 cases in 2018. The prevalence of gastritis in Indonesia is 274,396 cases out of a total population of 283,452,952 individuals, while in South Sulawesi, there are 1362 cases.[6]

Gastritis significantly affects daily activities in both adolescents and adults. The peak of gastritis occurs at the age of 40, which can be caused by Helicobacter pylori infection or autoimmune disorders. There are two common types of gastritis: acute and chronic gastritis. Acute gastritis is erosion damage to the surface of the gastric mucosa due to inflammation, which can be caused by factors such as stress, alcohol consumption, and medications.[7] The interaction between drugs that affects the effectiveness or toxicity of a drug is called drug interaction. Drug interactions can occur in two forms: pharmacodynamic and pharmacokinetic. Pharmacodynamic interactions occur when two drugs have similar or opposite pharmacological effects or side effects. On the other hand, pharmacokinetic interactions occur when one drug alters the absorption, distribution, metabolism, or excretion of another drug.[8]

Acute gastritis can be treated with medications such as cimetidine, sucralfate, or omeprazole. Acute gastritis is generally temporary inflammation of the gastric mucosa surface. Helicobacter pylori infection is a common cause of gastritis. Chronic gastritis can be addressed by eradicating Helicobacter pylori bacteria through a combination of drugs such as clarithromycin and amoxicillin. Individual health behavior in responding to disease-related objects, healthcare systems, food, beverages, and the environment also influences gastritis.[7,9,10]

Gastritis occurs due to factors such as stress, medication consumption, bacterial infection, and autoimmune gastritis.[7] This disease should be taken seriously because if left untreated, it can cause damage to gastric function and increase the risk of fatal stomach cancer. Therefore, the author conducted a case study on the evaluation of ranitidine medication in patient prescriptions at Labuang Baji General Hospital in Makassar City during the period of 2018-2020.[7] Drug interactions can occur between medications, food, or beverages consumed by patients. Changes in the effects due to drug interactions can have both harmful and beneficial consequences.[11]

Based on research conducted on gastritis patients at a hospital in Riau Province, approximately 54.03% of the patients were female, about 79.84% of the patients were adults (18-55 years old), and lymphocytic gastritis was the most common type of gastritis. Generic drugs classified as proton pump inhibitors are the most commonly used gastritis medications.[12] Another study at Dr. Moewardi Regional General Hospital in 2016 showed that the population of hospitalized gastritis patients was 1250, and the sample that met the inclusion criteria was 157 patients. This study involved medical records that were not always complete, so some patients did not meet the inclusion criteria.[13]

2. MATERIALS AND METHODS

A non-experimental research that observes a number of subject characteristics (variables) according to their condition through a descriptive approach is a simple research design with retrospective data collection, which means looking back at past records. The population used in this research consists of inpatient data obtained from the polypharmacy department of Labuang Baji Regional General Hospital in Makassar City. The sample is taken from the polypharmacy department using a descriptive observational method with total sampling. The inclusion criteria for this research are patients with gastritis of all ages, both male and female, who are using ranitidine medication and undergoing inpatient treatment, and whose records are available in the polypharmacy department for the period of 2018-2020. The exclusion criteria are patients who use medications other than gastritis medication, patients with gastritis who receive outpatient treatment, and patients whose gastritis prescriptions are torn or unreadable. The data collected are secondary data obtained by the researcher from the polypharmacy department on inpatient gastritis patients. The data analysis is presented in the form of tables with descriptive presentation, and the analysis is performed using SPSS.

3. RESULTS

Based on the collected medical records, the characteristics of individual patients at Labuang Baji Regional General Hospital in Makassar City are described in Table 1. The research conducted in the working area of Labuang Baji Regional General Hospital involved 47 respondents. The majority of the respondents were female, accounting for 57.4%. Most of the patients fell into the age groups of 14-26 years and 27-39 years, comprising 21.3% each. In terms of the year of treatment, the majority of patients were treated in

2019, accounting for 44.7%. The average length of hospital stay for patients was 4 days, constituting 36.2%. Among the comorbidities experienced by patients, hypertension was the most common, affecting 18.8% of the respondents.

TABEL 1. Individual Characteristics

Variable	Category	Total	Percentage (%)
Gender	Male	20	42,6
	Female	27	57,4
Age (Years)	1 – 13	8	17,0
	14 – 26	10	21,3
	27 – 39	10	21,3
	40 – 52	9	19,1
	53 – 65	4	8,5
	66 – 78	6	12,8
Years of Care	2018	13	27,7
	2019	21	44,7
	2020	13	27,7
Length of Treatment	3	5	10,6
	4	17	36,2
	5	12	25,5
	6	8	17,0
	7	2	4,3
	8	1	2,1
	9	1	2,1
	10	1	2,1
Concomitant Diseases	Spasmodic dysphonia	1	6,3
	Hypertension	3	18,8
	Diabetes mellitus	1	6,3
	Pulmonary tuberculosis	1	6,3
	Hepatitis	1	6,3
	Fever	2	12,5
	Dehydration	1	6,3
	Urticaria	1	6,3
	Dyspepsia	1	6,3
	Typhoid fever	1	6,3
	Abdominal colic	2	12,5
	Anemia	1	6,3

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TABEL 2. Distribution of Gastriis patients based on drug class

Drug interactions	Significant	Mechanism
Metocloporamid + Paracetamol	Minor	Farmakokinetik
Cefadroxil + Ketorolac	Minor	
Sukralfat + Lansoprazol	Minor	Farmakokinetik
Ranitidin + Cyankobalamin	Minor	Farmakokinetik
Meloxicam + Ketorolac	Mayor	Farmakodinamik
Omeprazole + Cyanokobalamin	Mayor	Farmakokinetik

From the results of the research conducted in the working area of RSUD Labuang Baji, Makassar City, the highest percentage is the interaction between Ranitidine and Cyanocobalamin, which accounts for 42.9%.

This indicates the possibility of an interaction between these two drugs in the patients' bodies, which may affect the pharmacological or pharmacokinetic effects of the drugs. This drug interaction needs to be considered as it can impact the effectiveness and safety of the patients' treatment.

TABEL 3. Distribution based on significance or severity

Significant	Total	Percentage (%)
Mayor	2	14,3
Minor	12	85,7

Table 3 shows that the level of significance or severity of patients is mostly minor 85.7%. This indicates that the majority of patients have experienced minor levels of significance or severity in their conditions. It suggests that the observed symptoms or effects of the disease or treatment are not severe or life-threatening in most cases. However, it is important to note that even though the majority of cases are minor, there may still be some cases with significant or severe levels of significance. Further analysis and evaluation of individual cases are necessary to fully understand the overall severity of the patients' conditions.

TABEL 4. Distribution based on mechanism

Mechanism	Total	Percentage (%)
Farmakokinetik	12	85,7
Farmakodinamik	2	14,3

Based on the results in Table 4, it is indicated that the majority of mechanisms in patients are pharmacokinetic, accounting for 85.7%. Pharmacokinetic mechanisms involve how drugs are absorbed into the bloodstream, distributed to target tissues, metabolized by the body, and eliminated from the body. It is important to consider these pharmacokinetic interactions when prescribing medications to ensure their efficacy and safety in patients.

TABEL 5. Distribution based on pharmacodynamics

Farmakodinamik	Total	Percentage (%)
Synergistic	2	100

Table 5 shows that all patients experienced synergistic pharmacodynamic interactions, accounting for 100%. Synergistic pharmacodynamic interactions occur when the combined effect of two or more drugs is greater than the sum of their individual effects.

TABEL 6. Distribution based on pharmacokinetic mechanisms

Farmakokinetik	Total	Percentage (%)
Absorption	12	100

Based on the results in Table 6, it indicates that all patients 100% experienced drug interactions based on the pharmacokinetic mechanism, specifically absorption. Pharmacokinetic drug interactions occur when one drug affects the absorption, distribution, metabolism, or elimination of another drug, potentially altering its therapeutic effectiveness or increasing the risk of adverse effects.

4. DISCUSSION

Gastritis is an inflammation of the gastric mucosa caused by various factors such as dietary patterns, lifestyle, irritation, and infection. It leads to abdominal pain and significantly affects daily activities for both adolescents and adults.[2] There are two common types of gastritis: acute and chronic gastritis. Acute gastritis involves superficial erosion due to inflammation of the gastric mucosa, which can be caused by stress, alcohol consumption, and certain medications.[7]

In terms of gender, the majority of gastritis cases are reported in females, accounting for 57.4% in the study. This finding is consistent with research conducted at the Weru Health Center in Manado, which also found a higher prevalence of gastritis in females. Differences in dietary patterns and nutritional needs between males and females may contribute to the development of gastritis.[14]

The study indicates that the highest percentage of gastritis cases occurs among teenagers, accounting for 21.3%. Teenagers are more susceptible to gastritis due to various risk factors, including irregular eating

patterns, heavy stress, alcohol consumption, and excessive coffee consumption[15]. The research shows that the number of inpatient gastritis cases in 2019 was 44.7%. There has been an increasing trend in the prevalence of gastritis each year, possibly due to factors such as irregular eating habits, unhealthy environments, and modern lifestyles.[14]

Regarding the length of hospital stay, the majority of patients stayed for 4 days, accounting for 36.2%. The duration of hospitalization is influenced by various factors, including the severity of the disease, the patient's response to treatment, the occurrence of complications such as gastrointestinal bleeding or perforation, and individual factors such as overall health condition and the presence of other underlying diseases.[16]

The most common coexisting condition among gastritis patients is hypertension, accounting for 18.8% of cases. Severe stress can increase stomach acid production, and stress itself has negative effects on the digestive system, potentially leading to gastritis. Regarding medication interactions, the study found that the most common drug interaction among gastritis patients involved Ranitidine and Cyanocobalamin, accounting for 42.9% of cases. On the other hand, Omeprazole and Lansoprazole had the lowest frequency at 7.1% as these drugs are commonly used in gastritis treatment. The pharmacokinetic mechanism of drug interactions showed that 85.7% of interactions involved reduced absorption, while 14.3% showed a synergistic effect. This indicates the importance of evaluating medication usage based on patient complaints and ensuring the appropriate administration of drugs based on comorbidities.

5. CONCLUSIONS

Present the main conclusions of the study, along with their implications for future research or science and technology policy. The conclusion of the study conducted at RSUD Labuang Baji in Makassar City is that the use of ranitidine is more frequently prescribed for gastritis patients due to its minimal side effects, which do not cause significant discomfort and therefore do not require additional therapy. Based on the data obtained from patients' medical records, the most common drug interaction in gastritis medication is between ranitidine and cyanocobalamin, accounting for 42.9%, as both drugs belong to the same pharmacokinetic mechanism. On the other hand, the lowest drug interaction rate was observed with omeprazole and lansoprazole, at 7.1%, as these drugs are commonly used in gastritis treatment.

The results of drug interaction identification indicate that the highest percentage of interactions is related to pharmacokinetic mechanisms, specifically absorption, accounting for 85.7% when the effect reduces. The lowest percentage of interactions, at 14.3%, is related to pharmacodynamic interactions that have a synergistic effect when intensified. It can be observed that the use of ranitidine in gastritis patients is appropriate, as evidenced by the improvement in patients' condition.

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