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Potential Drug Interactions in Coronary Heart Disease Inpatients at RSUD Patut Patuh Patju

Laili Apriani [1)], Syamsul Rahmat[2)], Annisa Apriani[3)], Khaeditama Purnama[4)], Aya Shaufia Itsnayain[5)], Ardila Putri Anggun[6)*]
cantikardila23@gmail.com

[1,2,3,4,5,6)]Department of Pharmacy, Faculty of Health, Qamarul Huda Badaruddin University Bagu, Indonesia

ABSTRACT

Coronary heart disease (CHD) is the leading cause of death worldwide and requires long-term therapy with a combination of several drugs, which increases the risk of potential drug interactions. Evaluating potential drug interactions is essential to ensure therapeutic safety and prevent serious adverse effects. This study aimed to identify the types and severity of potential drug interactions in hospitalized CHD patients at Patut Patuh Patju Regional Hospital, West Lombok, in 2025. This research employed a retrospective descriptive design based on the medical records of hospitalized CHD patients from January to April 2025 who met the inclusion criteria. Data were analyzed using Drugs.com to identify potential drug interactions and classify them according to severity. Of the 61 patients, the majority were male (57.5%) and aged 60–69 years (32.78%). All patients had comorbidities, mainly hypercholesterolemia (48%), hypertension (35%), and diabetes mellitus (17%). The most frequently prescribed drug classes were loop diuretics (14.74%), ACE inhibitors (11.15%), and thiazide diuretics (9.15%). A total of 144 potential drug interactions were identified, categorized as moderate (75.69%), major (15.27%), and minor (9.02%). The most common interactions were atorvastatin–clopidogrel, furosemide–ramipril, and spironolactone–ramipril. The level of potential drug interactions among hospitalized CHD patients at Patut Patuh Patju Regional Hospital, West Lombok, was relatively high, with most classified as moderate. Close monitoring and pharmaceutical interventions are required to minimize risks and enhance therapeutic safety.

Keywords: Coronary Heart Disease, Potential Drug Interactions, Polypharmacy, Patut Patuh Patju Regional Hospital.

1. BACKGROUND

Coronary heart disease (CHD) remains one of the leading causes of morbidity and mortality worldwide. According to the World Health Organization (2023), cardiovascular diseases account for approximately 32% of all global deaths. In Indonesia, CHD represents a significant public health burden, with prevalence continuing to rise due to aging populations, lifestyle risk factors, and comorbid conditions such as hypertension and diabetes (Rahayu et al., 2021).

Pharmacological therapy plays a central role in the management of CHD, aiming to alleviate symptoms, prevent complications, and reduce mortality (Katzung, 2018). However, CHD patients are often prescribed multiple drugs, including antiplatelets, statins, beta-blockers, ACE inhibitors, and diuretics. The combination of these medications, while clinically necessary, increases the likelihood of drug–drug interactions (Brunner & Suddarth, 2018).

Drug interactions in CHD can result in reduced therapeutic efficacy or heightened adverse effects, posing a challenge for clinicians and pharmacists (Tatro, 2018). Identifying the prevalence and patterns of drug interactions in hospital settings is essential for optimizing treatment strategies and ensuring patient safety. This study therefore investigates the potential drug interactions among CHD inpatients at RSUD Patut Patuh Patju to provide

evidence-based recommendations for safer pharmacotherapy.

2. RESEARCH METHODS

This research applied a **descriptive quantitative design** with a **retrospective observational approach**. Data were collected from the medical records of **61 CHD inpatients** at RSUD Patut Patuh Patju, Lombok Barat, during January–April 2025.

Participants/Sample: Inclusion criteria were patients diagnosed with CHD who received at least two medications during hospitalization. Exclusion criteria were incomplete medical records.

Instruments: Data collection used a structured extraction form to document demographics, comorbidities, prescribed drugs, and potential interactions.

Data Collection: Drug interaction analysis was conducted using standard references, including *Drug Interaction Facts* and Micromedex. Interactions were classified into **minor, moderate, and major** categories based on clinical significance.

Data Analysis: Frequency distribution was used to describe patient characteristics, drug utilization, and interaction profiles. Results were presented in tables and percentages.

3. RESULTS AND DISCUSSION

The majority of patients were male (57.5%), with the dominant age group 60–69 years (32.78%). Most patients had comorbidities: hypercholesterolemia (48%), hypertension (35%), and diabetes mellitus (17%).

Drug Utilization

The most frequently prescribed drugs were diuretic loop (14.74%), ACE inhibitors (11.15%), and potassium-sparing diuretics (9.16%). These drug groups contributed significantly to the observed drug interactions.

Table 1. Drug Interaction Findings

A total of **144 potential interactions** were identified:

Severity of Interaction	Frequency	Percentage
Major	22	15.27 %
Moderate	109	75.69 %
Minor	13	9.02%
Total	**144**	**100%**
Severity of Interaction	**Frequency**	**Percentage**

Figure 1. Distribution of potential drug interactions among CHD inpatients

The most frequent interactions included:

- **Atorvastatin + Clopidogrel**: reducing clopidogrel efficacy.
- **Furosemide + Ramipril**: risk of hypotension and electrolyte imbalance.
- **Spironolactone + Ramipril**: risk of hyperkalemia and renal impairment.

These findings align with previous studies showing that polypharmacy, advanced age, and comorbidities significantly increase the risk of moderate interactions (Lestari et al., 2022; Nur'aini et al., 2019). While major interactions were less frequent, their clinical consequences could be severe, requiring careful monitoring or alternative therapy.

4. CONCLUSION

This study concludes that CHD inpatients at RSUD Patut Patuh Patju face a high prevalence of potential drug interactions, predominantly moderate in severity. The frequent combinations of atorvastatin–clopidogrel, furosemide–ramipril, and spironolactone–ramipril highlight the need

for vigilant clinical monitoring. Integration of clinical pharmacy services is essential to ensure safe and effective pharmacotherapy.

5. THANKS

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