Drug Interaction Management as Drug Related Problems in Patients Hospital Acute Respiratory Infections in Health Jumpandang Baru, Makassar

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Abstract

Acute Respiratory Infections (ARI) in developing countries is the most common cause of death. Drug Related Problems (DRPs) are unexpected events, such as patient experience that involves drug therapy. The purpose of this study is to determine the percentage of occurrence of each of the DRPs which include drugs incorrect, inaccurate doses which doses less and dosages, and potential drug interactions in the therapeutic treatment of acute respiratory infections in hospitalized patients Jumpandang Baru Health Centre , Makassar 2015. This research is non experimental descriptive research design and data retrieval of medical records retrospectively. Of the 81 cases of ARI hospitalized patients who entered the inclusion criteria, the patients recorded acute respiratory tract infections include sinusitis, and pharyngitis, as well as patients undergoing inpatient treatment were recorded to get treatment at public health centers of Jumpandang Baru Makassar 2015. Data collection using purposive sampling. Analysis incidence of drug related problems is done by comparing the results with standard book descriptively. The results of the 81 cases of patients who met the inclusion criteria showed the incidence of drug interaction categories DRPs were 51 cases (62.96%), a dose of less than 40 cases (49.38%), doses were 26 cases (32.10%) and not finding any drugs DRPs category of total drugs analyzed.

Keywords: ISPA; Drug Related Problems; Inpatient Health Center New Jumpandang Makassar.

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1. Introduction

Infections of the respiratory tract is a common disease that occurs in people. Respiratory infection by area of infection is divided into upper respiratory tract infection and respiratory tract infection upper respiratory tract. Infection include rhinitis, sinusitis, pharyngitis, laryngitis, epiglottitis, tonsillitis, otitis.

Whereas lower respiratory tract infection include infection of the bronchi, alveoli such as bronchitis , bronkhiolitis, pneumonia. upper respiratory tract infection, if not treated properly can cause lower respiratory infections.

Upper airways infection of the most common as well as the need to tackle well as the impact of harmful complications are otitis, sinusitis, and faringistis [1].

The high prevalence of acute respiratory infections (ARI) and the effect it has brought due to the high consumption of OTC drugs (like anti-influenza, cough medicine, multivitamin) and antibiotic. In fact many antibiotics to treat infections.

Excessive antibiotics are included on respiratory tract infections, especially acute upper respiratory tract infection, although most of the causes of this disease is a virus.

One reason is the excessive use of clinicians to antibiotics is mainly to prevent secondary infection caused by bacteria, which actually cannot be prevented [2].

From the data obtained, antibiotics are most often prescribed by doctors to patients suffering from infections are Amoxicillin, Ciprofloxasin, Cotrimoksasol, co-amoxiclav, and Erythromycin.

Antibiotics are effective and safe has grown so rapidly in order to reduce mortality from infectious diseases such success drastic. However, disturbed by the number of antibiotic-resistant bacteria.

This is due to the use of drugs irrational use of antibiotics that are not in accordance with, whether it be the use of incomplete or use without basic checks clear things need to be addressed in one subject of drug related problems or commonly known as the Drug Related Problems (DRPs).

2. Materials and Methods

2.1. Research design

This type of research is non-experimental research design with a descriptive study with retrospective data collection, which takes the patient's medical record data in the past starting from the dependent variable then find independent variable to obtain the percentage of cases [3].

2.2 Research approach

This study uses a statistical test approach parametric and cross sectional approach chi square that is based on the determination of the mean and standard deviation.

2.3 Subject Criteria

Subjects of research done of a sample of the population who meet the inclusion and exclusion criteria as follows:

1. Criteria for inclusion

a. Patients were diagnosed with acute respiratory infection (ARI).

b. Patients taking antibiotics and therapies with other drugs

2. Exclusion criteria

a. Patients who use drugs that are not appropriate uses.

b. Patients improper treatment.

2.4 sample size

To set the number of samples used purposive sampling with the formula [4]:

$$n = \frac{Z^2\, a/2\ \times p\ (1-p)\ N}{d^2(N-1) + Z^2\, a/2\ \times p\ (1-p)}$$

$$n = \frac{1{,}96\ \times 0{,}55\ (1-0{,}55)\ 133}{(0{,}05)^2(133-1) + 1{,}96 \times 0{,}55\ (1-0{,}55)}$$

$$n = \frac{1{,}96\ \times 33}{0{,}33 + 0{,}4851}$$

$$n = \frac{64{,}7}{0{,}8}$$

$$n\ =\ 80{,}8 \rightarrow 81$$

where,

n = number of sample

Z2a / 2 = value 2 on the degree of confidence 1- A / 2 (1.96)

p = proportion studied (0.55)

d = level of confidence or accuracy of the selected 5% (0.05)

N = the number of population (133)

From the calculation formula above, then the number of samples in this research rounded up to 81 patients.

Table 1

Gender		Diagnosis			Total
		faringitis	ISPA	Sinusitis	
	Male	24	8	0.	32
	Female	32	15	2	49
	Total	56	23	2	81

characteristics of Drugs

Drugs usage

Information   :

level of significance

1 = major, suspected (the effect can be fatal or cause permanent damage, the effect could arise and there is data available).

2 = moderate, suspected (can wait clinical status of patients, adjunctive therapy, inpatient hospital or inpatient hospital extension might be needed, (the effect can arise and no data are available). Established (shown to occur in clinical trial)

3 = minor, suspected (effect is mild, do not interfere with the results of therapy, the effect could arise and there is data available).

4 = major / moderate, possible (the effect may appear, but the data are limited).

5 = minor, possible / unlikely (the effect may appear, but the data are limited or doubtful, no data on its clinical).

Table 2: Distribution of drugs used for pediatric patients Acute respiratory infections in health centers Jumpandang Baru 2015

Therapy class	Medicine used	Number (n=100)
Antibiotik	Amoksisilin	10
	Ampisilin	23
	Cefadroxil	43
	Ciprofloxacin	5
	Klorampenikol	2
	Metronidazole	2
Analgetik-antipiretik	Ibuprofen	2
	Paracetamol	70
Antihistamin	Cetirizine	4
Kortikosteroid	Dexamethasone	10
	Metilprednisolon	34
	Prednisolone	34
Ekspektoran	Ambroxol	10
	Glyceryl Guaiacolate	5
Bronkodilator	Salbutamol	1
Antikonvulsan	Diazepam	2
	phenobarbital	2
H2-Blocker	Ranitidin	2
	Total	**271**

Table 3: Percentage of Total Drug Interactions Based significance is in hospitalized patients of Acute Respiratory Infections (ARI) in Puskesmas, Jumpandang Baru, 2015

		Case number		Total
		Male	Female	
Level Significant	2	1	3	4
	4	26	5	31
	5	5	10	15
	No information	0	1	1
Total		32	19	51

Table 4: Percentage of Drug Related Problems Category Drug Interactions in hospitalized patients of Acute Respiratory Infections (ARI) in Puskesmas Jumpandang Baru ,2015

Level Of Significant	Level of seriousness	Dokumentation	Interacted medicine	Interation	Handling	Jml
1 (Tatro, 2001) 2 (Tatro, 2001)	- Moderat	- Established	- Fenobarbital	- Dexametason can stimulate the second metabolisme from fenobarbital by inducting eiBym from liver, as a results fenobarbital will reduce the effect deksametason [5]	- If this happens, you should avoid the combination of phenobarbital-dexometasone or monitoring carefully if necessary to stop therapy [5]	- 2
3 (Tatro, 2001) 4 (Tatro, 2001)	- Mayor	- *Possible*	- Ampisilin-klorampenikol	- Combination therapy ampisilin-chloramphenicol can increase the resistance of H. influenzae chloramphenicol can reduce the effects of penicillin	- No handling during an interaction but requires monitoring. The combination of ampicillin-klorampenikol also	- 1

	Moderat	*Possible*	Parasetamol-Penobarbital	(Tatro, 2001) Paracetamol may decrease the therapeutic effect of phenobarbital [5]	have a synergistic effect [5]	9
	Moderat		Klorampenikol-phenobarbital	Chloramphenicol increases levels of phenobarbital by lowering metabolism [5]	Monitoring is done only when paracetamol-penobarbital given [5] Monitored antibiotic levels in plasma levels. If side effects occur due to the interaction of phenobarbital dose should be lowered when combined with klorampenikol [5]	4
5 (Tatro, 2001)	Minor	*Unlikely*	Klorampenikol –parasetamol	Concurrent use of parasetamol-klorampenikol can affect the pharmacokinetics of action klorampenikol [5]	No need to be monitored for rare discovery of interaction [5]	15
Tidak ada keterangan	-	-	FEnobarbita-metronidazole	Phenobarbital may increase the metabolism of metronidazole and treatment failure [6]	Monitoring the effects of the two drugs, when combined [6]	1
Total						**51**

Table 5: Percentage incidence of DRPs in hospitalized patients of Acute Respiratory Infections (ARI) in Puskesmas Jumpandang Baru 2015

Kind DRPs	Varian	(n) cases	n (%)	Total (%)
Drug interaction	Potential	51	62,96	81 (100%)
	No	30	37,40	
Doses	Exact	15	18,51	81 (100%)
	More	26	32,10	
	Less	40	49,38	

4. Discussion

Table 1. It can be concluded that the distribution of ARI diagnosis PHC hospitalization highest was in Jumpandang Baru, Makassar in 2015 that 56% of pharyngitis. This is because the group A hemolytic streptococci (Streptococcus pyogenes) are often found in cases of pharyngitis as much as 5-20% in the adult pharyngitis [7]. Based on the results of the study were 58 cases that enter the criteria for classification as a diagnosis of sinusitis and pharyngitis, while 23 cases were diagnosed as having ISPA but the medical record is not clear what kind of respiratory diseases suffered by patients, not bias classified for analysis. According to the table 2 from the analysis of the use of other drug therapy in the treatment of respiratory infections, obtained the largest drug use is an analgesic-antipyretic paracetamol that as many as 70 drugs (97.8%). Analgesic-antipyretic used for symptomatic treatment. Paracetamol can treat heat that can occur because of an infection in a patient, so that the body has a metabolic disorder resulting in increased body temperature. The use of paracetamol is preferred because it is less irritating to the stomach than aspirin [8,9].

The type of antibiotic prescribed for acute respiratory tract infections based on the results of the study of which are amoxicillin, ampicillin, cefadroxil, ciprofloxacin, klorampenikol, metronidazole. Seen in Table 2, that antibiotics are the most widely used are penicillins that as many as 43 drugs ampicillin (45.3%). Based on the research result of 58 cases of classification of sinusitis and pharyngitis, 40 cases (49.38%) the less DRPs divided into massive doses less as many as 34 cases (85%), with no evidence duration less in research DRPs category less than the total dose of drug analyzed. As for the 23 cases are diagnosed and recorded the ARI because it is not clear what kind of acute respiratory tract infections what a patient, so it cannot be classified to be analyzed. Increased drug side effects and even death caused by the use of antibiotics that are not rational., In addition to the use of too short or too long on the types of antibiotics will cause resistance [10].

a. dose More

Beyond the standard dosing administering to the patient may increase the risk of toxic effects harmful to the patient [11]. Drug related problems more doses category are patients who receive the drug to the duration, frequency and duration exceeds the usual dose. Genesis DRPs category doses were 26 cases (32.10%) of the total drug was analyzed in 58 cases of classification of sinusitis and pharyngitis. As for the 23 cases are diagnosed and recorded the ARI because it is not clear what kind of acute respiratory tract infections what a patient, so it cannot be classified to be analyzed.

b. Drug interactions

Identification of drug-related problems for drug interaction categories based on using the same drug in one day. Drug interactions occur when two or more drugs interact so that the toxicity and its affectivity change of one or two drugs [12].

In this research, drug interactions are analyzed by standard book Drug Interaction Stockley and his colleagues [6] and the Drug Interaction Facts by Tatro, [5] which was later discovered the existence of multiple drug interactions in patients with ARDs.

5. Conclusion

From the results of research on a sample of 81 hospitalized patients Acute Respiratory Infection (ARI) in 2015 found DRPs Puskesmas Jumpandang Baru , drug interaction categories were 51 cases (62.96%), a dose of less than 40 cases (49.38%), doses much 26 cases (32.10%), and not finding any drugs DRPs category of total drugs analyzed.

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