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Article Reviews: Evaluation of the Use of Antidiarrheal Drugs and Antibiotics in Hospitalized Patients in a Number of Health Institutions

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ABSTRACT

Diarrhea is one of the health problems that are often faced by the community, usually caused by microorganisms such as bacteria, parasites, viruses, and protozoa that are transmitted between individuals through the fecal-oral route. The handling of diarrhea recommended by WHO is referred to as cross-management of diarrhea by providing rehydration, zinc supplements, nutrition, antibiotics and education for parents or caregivers. The research method used is to collect several articles from the latest published journals which were then reviewed and reviewed. The purpose of this review article is to know the evaluation of the use of antidiarrheal drugs and antibiotics based on categories of inpatients in several hospitals. The results show that the prevalence of diarrhea in patients is dominated by men with an age range of 0-14 in children and the elderly over 50 years. Diarrhea can be managed by giving rehydration, zinc supplements, nutritional therapy, antibiotics, antidiarrheals, antipyretics, analgesics and antiemetics to reduce the symptoms and duration of diarrhea. Diarrhea therapy at several health facilities has shown quite good results through evaluation of drug administration through several observations including the right indication, right patient, right drug, right dose, right administration and right time of administration.

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1. INTRODUCTION

Diarrhea is a public health problem, usually caused by microorganisms such as bacteria, parasites, viruses, and protozoa which are transmitted between individuals via the fecal-oral route (WHO, 2017). In children, diarrhea is most commonly caused by the Rotavirus type. This virus can enter the body through contaminated food or drink. Someone who is said to have diarrhea is characterized by a frequency of bowel movements that exceeds normal and the consistency of liquid or mushy stools. Diarrhea is also influenced by several factors such as the environment, socio-economic and not implementing a clean and healthy lifestyle. These things trigger an increased potential for diarrhea in a person, especially in children and the elderly. In addition, the high rate of occurrence of diarrhea is also caused by the suitability of treatment which has not reached 100% percentage (Sari Chynthia Pradiftha, Indriani Hilda Yunita and Febrianti Yosi, 2018).

Based on WHO data in 2019, there were around 1.7 billion cases of diarrhea which had reached a death rate of up to 760,000 in children under 5 years of age. In Indonesia, according to data from the Indonesian Ministry of Health in 2020, the recapitulation of outbreaks of diarrhea in toddlers reached a presentation of 4.00%. The high cases of diarrhea cause diarrhea to be ranked third as the most common cause of death in children, especially those aged 5 to 14 years. The management of diarrhea recommended by WHO is referred to as cross-diarrhea management by providing rehydration, zinc supplements, nutrition, antibiotics and education to parents or caregivers (Kemenkes RI, 2011).

To reduce the risk due to the occurrence of diarrhea, several appropriate treatment therapies can be given, including CRO (Oral Rehydration Liquid) to prevent dehydration, adsorbents and antiemetics and antibiotics if the patient has diarrhea with indications of a pathogenic infection (Siswidiasari Arifani, Astuti Ketut Widyani and Yowani Sagung Chandra, 2014). Treatment and research on cases of diarrhea have been carried out in relation to the procedures for treatment and use of antibiotics and their management. However, there are often differences in the management of diarrhea in each health institution between regions (Ariastuti Reni and Kusumawati Dunung, 2020). Referring to this background, a study was carried out on the description of the treatment of diarrhea cases in different health institutions. The intended assessment is the rationalization of treatment which includes the right indication, the right patient, the right drug, the right dose, the right time of administration and the right way of administration. Through this review of the description of diarrhea treatment, it is hoped that it can provide information and evaluation to each health institution to evaluate whether the therapy given to patients is in accordance with the RI Ministry of Health's treatment guidelines. Thus, rational drug use can be a preventive measure in preventing diarrhea problems that may occur in the future (Wijayanti, 2014).

2. METHOD

The writing of this review was carried out by collecting several articles as a source of literature sourced from Google Scholar and the most recent published journals with a range of years from 2012 to 2022. This collection of several articles was then reviewed in its entirety. Keywords used in this search include diarrhea, antidiarrheal and antibiotics.

The data collected is the result of several studies using descriptive research methods retrospectively, namely by using previously available data such as medical records. Then the data is evaluated based on literature study and described through tables and graphs.

3. RESULTS AND DISCUSSION

A literature search with the keywords diarrhea, antidiarrheal and antibiotics obtained 10 main articles that had passed the screening. Thus, the 10 articles are considered relevant for self-review.

Table 1. The articles are considered relevant for self-review

No.	Journal	Method	Results	
			Category Patient	Treatment rationalization
1.	Evaluation of Drug Use in Patients with Acute Diarrhea in Pediatric Patients at the Bandar Lampung Adventist Hospital for the Period July - December 2019	Study descriptive with data collection _ retrospective.	Patient men (62%); Age 1-5 years (50%); Length of stay stay 1-4 days (70%).	right _ dose and patient (100%); no appropriate medicine (63%) (Subur Widodo, Novita Tri Wahyuni and Lea Yekti Utami, 2019).
2.	Evaluation of DRPs Treatment of Diarrhea in Toddler Patients at the Inpatient Installation of Azra Bogor Hospital	Study descriptive with data collection _ retrospective .	Patient male (5 6%); Age 0 - 1 year (20.39 %) .	Clinically significant drug interactions (48%); therapy without indication (20%); indication without therapy (7%); overdose (25%); subtherapeutic dose (10%)(Afqary and Si, 2019).
3.	Evaluation Therapy Drug Diarrhea in Patients Outpatient Toddlers at the Health	Study descriptive with data collection _ retrospective .	Patient male (50.27%); Age 2-5 years (58.911%);	With appropriate indication (100%); Appropriate dose (66.39%); Appropriate description (100%);

	Center Tanjung Pinang, Jambi City in 2019			Appropriate giving (98.65%) (Silviavitari, Dewi and Sanuddin, 2021).
4.	Evaluation of Drug Use in Children's Diarrhea Cases in Inpatient RSIA Sammarie Basra Jakarta	Study descriptive with data collection using technique *purposive sampling* .	Patient male (67%); Age 0-5 years (73%);	With appropriate indication (100%); Appropriate election medicine (100%); Appropriate dose (87.89%); Appropriate giving (100%) (Riyanti and Kesturi, no date).
5.	Evaluation of the Use of Antibiotics in Pediatric Patients with Diarrhea at the Inpatient Installation of Sultan Imanuddin General Hospital, Pangkalan Bun, Central Kalimantan, 2018	Study non-experimental descriptive with data collection _ retrospective .	Patient men (38%); Age 1-4 years (77.02%); Diarrhea mild (100%).	With appropriate indication (100%); Appropriate medicine (100%); Appropriate dose (94.59%); Appropriate award (100%); Appropriate description (100%) (Firmansyah and Yogie Irawan, 2020).
6.	Evaluation Use Antibiotics in Patients Diarrhea In the Work Area Public health center Ward Mojokerto Regency	Study descriptive with data collection _ retrospective and *purposive sampling* .	Patient male (65.7%); Age 41-50 years (32.9%).	With appropriate medicine (76%); Appropriate dose (67%); Appropriate indication (73%) (Fery Yuniarto *et al.*, 2021).
7.	Evaluation of the Use of Antibiotics in Diarrhea Toddler Patients in Inpatient Room X Hospital for the January – March 2020 Period	Study descriptive with data collection _ retrospective .	Patient male (60.7%); Age 1-3 years (73.2%); Diarrhea acute (32.1%); Diarrhea accompanied other diseases (67.9%).	With appropriate medicine (81.8%); Appropriate dose (88.9%) (Supandi, Marlindasari and Muhammadiyah Kuningan, 2021).
8.	Evaluation of Antibiotic Use in Pediatric Patients with Acute Diarrhea in the Pediatric Inpatient Room of RSUD dr. Soekardjo Tasikmalaya	Study observational descriptive with data collection _ qualitative.	Male patients (54.39%); Age <1 year (61.5%); Length of stay 3 days (28.07%); Body weight 5-10 kg (68.42%).	Right indication (98.2%); Right drug (98.2%); Right dose (93%); Right patient (100%); Right time of administration (98.2%); Right way of administration (100%) (Anshory, 2021).
9.	Evaluation of the Use of a Combination of Zink and Probiotics in the Management of Diarrhea in Children in the Inpatient Installation of H. Abdul Manap General Hospital Jambi in 2020	Study descriptive with data collection _ retrospective .	Male patients (59%); Age 0-5 years (83%).	Right dose of Zink drug (89%); Right dose of probiotic drug (85%); Right patient (100%); Right time interval for giving Zink (100%); Proper time interval for giving probiotics (85%); No drug interactions (100%) (Dewi *et al.*, 2021).

10.	Rationality of the Use of Antibiotics for the Treatment of Diarrhea in Pediatric Patients at the Inpatient Installation of RSUD RAA Soewondo Pati in 2017	Study descriptive with data collection _ retrospective and *purposive sampling* .	Male patients (52%); Age 6-10 years (65%); Weight 14-19 kg (41%)	Right indication (100%), right patient (100%), right drug (100%), right dose (98%), right duration of administration (96%), right administration (96%) (Amik Megawati and della Fatma Sari, 2018).

Based on several studies conducted on hospitalized diarrhea patients in various hospitals, it is known that the percentage of patients with male sex is more common than female. This is in line with data from the Indonesian Ministry of Health in 2011 which stated that the prevalence of diarrhea was more prevalent in men at 9.1%, while women were around 8.9%. There is no significant relationship between gender and the incidence of diarrhea. However, it is suspected that men do more activities outside the home so that they have the potential to be more easily exposed to agents that cause diarrhea when compared to women who tend to move indoors (Asyikin A., 2017; Oktaviani Diah Ayu, Dini Intan Rahmania Eka and Hardian, 2022).

Age is also a factor that needs to be considered as a cause of diarrhea. Based on the data above, most diarrhea occurs in children aged 0-5 years and the elderly over 50 years. At the age of children, the occurrence of diarrhea can be caused by the frequency of playing in a dirty outdoor environment and immunodeficiency factors when the child's immune system has not been able to resist pathogens that enter the body or when the immune system is decreasing, so children tend to experience diarrhea more easily (Wulandari A., 2012). In addition, from a physiological point of view, children with this age range have an immature digestive system which makes them susceptible to disease. While the cause of diarrhea in the elderly is closely related to health, in old age the condition of many organs decreases so that it also affects a person's immune system which causes an increased potential for disease exposure.

Based on the assessment and evaluation of the description of the treatment of diarrhea in a number of health institutions, it is necessary to further observe the rationalization of the treatment given to patients, including appropriate indication , right patient , right medicine , right dose , right time giving and right method description .

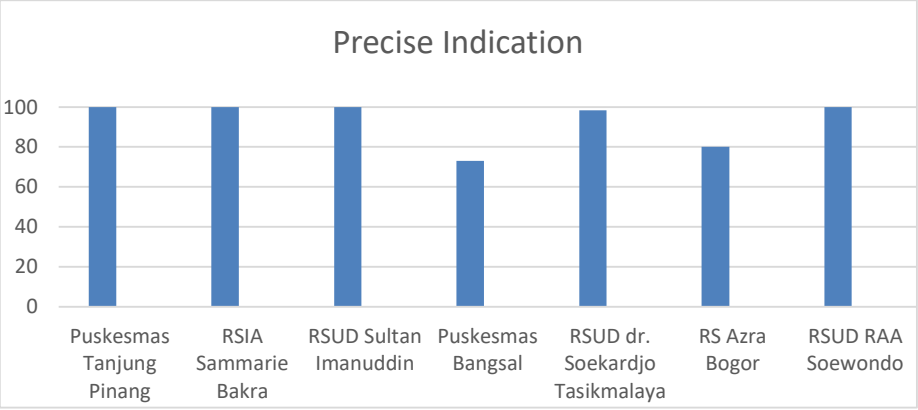

Figure 1. Precise Indication

Right indication is the accuracy in giving the drug based on the patient's symptoms. Based on the data, there are four health agencies that have reached 100% correct indication percentage including the Tanjung Pinang Health Center, RSIA Sammarie Bakra, Sultan Imanuddin Hospital and RAA Soewondo Hospital. While other health agencies such as the Bangsal Health Center only reached 73%, dr. Soekardjo Tasikmalaya 98.2% and Azra Bogor Hospital 80%. Thus, an average indication of 93.02% is obtained.

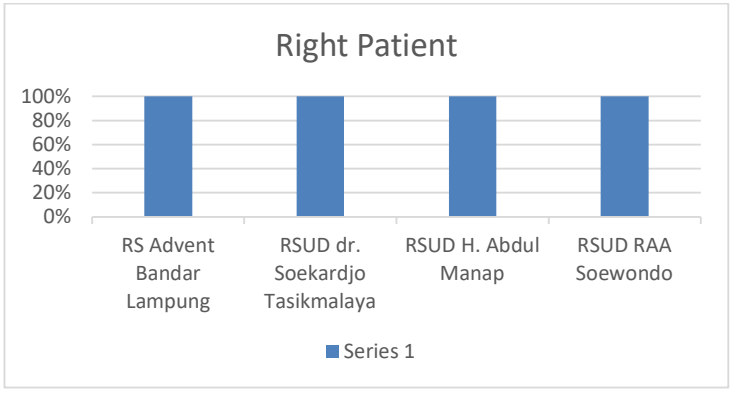

Figure 2. Right patient

Right patient is the accuracy in giving the drug to the appropriate patient. Based on the data, there are four health institutions that have achieved the correct patient percentage of 100% including Adventist Hospital Bandar Lampung, RSUD dr. Soekardjo Tasikmalaya, H. Abdul Manap Hospital and RAA Soewondo Hospital. Thus, the average patient accuracy is 100%.

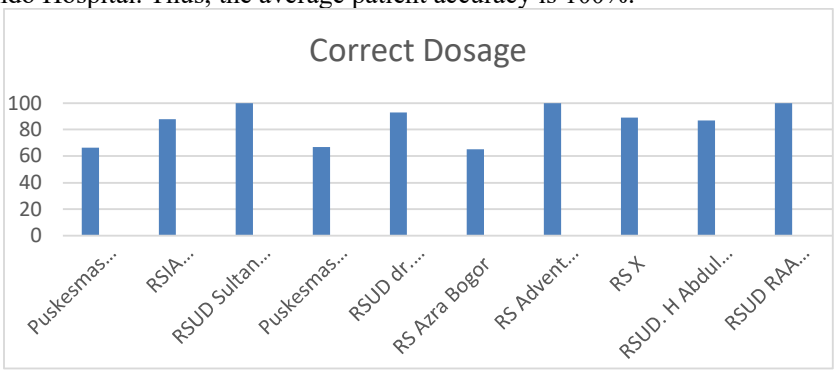

Figure 3. Correct Dosage

The right dose is the accuracy in giving a dose that can produce a therapeutic effect. Based on the data, there are three health agencies that have achieved the correct dose percentage of 100% including Sultan Imanuddin Hospital, Bandar Lampung Adventist Hospital and RAA Soewondo Hospital. While there are still many health agencies that have not reached 100% percentage, namely Tanjung Pinang Health Center 66.39%, Sammarie Bakra RSIA 87.89%, Ward Health Center 67%, dr. Soekardjo Tasikmalaya 93%, Azra Bogor Hospital 65%, RS.X 88.9% and RSUD. H Abdul Manap 87%. Thus, the average correct dose is 85.51%.

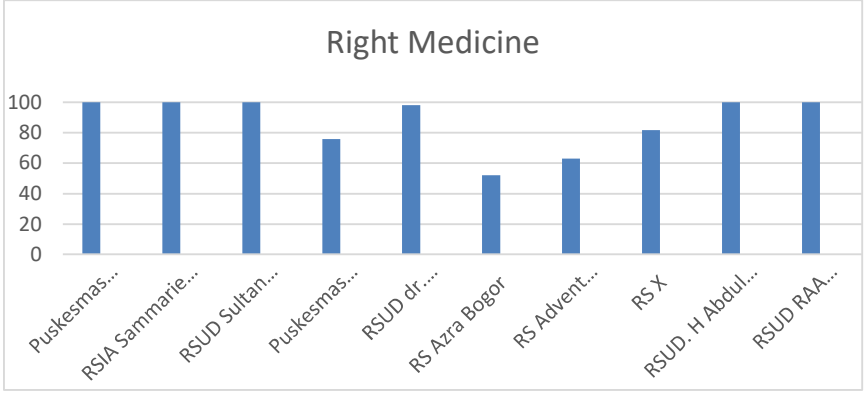

Figure 4. Right Medicine

The right drug is the accuracy in choosing the drug according to the symptoms and diagnosis of the patient's disease. Based on the data, there were five health agencies that achieved 100% correct drug selection percentage including the Tanjung Pinang Health Center, Sammarie Bakra RSIA, Sultan Imanuddin Hospital, RSUD. H Abdul Manap and RSUD RAA Soewondo. While other health agencies that have not reached 100% percentage, namely the Ward Health Center 76%, dr. Soekardjo Tasikmalaya 98.2%, Azra Bogor Hospital 52%, Bandar Lampung Adventist Hospital 63% and RS. X 81.8%. Thus, the average correct drug is 87.1%.

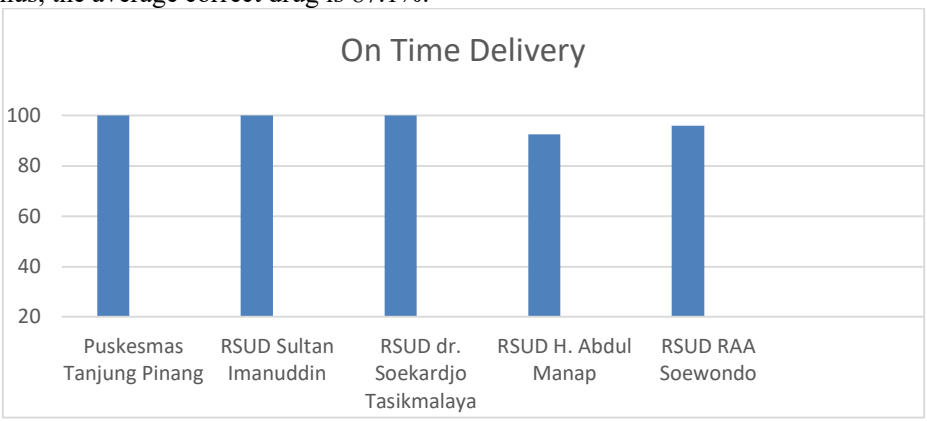

Figure 5. Ontime Delivery

Timely administration is the accuracy in providing the long duration of drug administration to patients . Based on the data, there are three health agencies that have achieved a timely percentage of 100% distribution, namely the Tanjung Pinang Health Center, Sultan Imanuddin Hospital and dr. Soekardjo Tasikmalaya. While other health agencies that have not reached 100% percentage, namely RSUD. H Abdul Manap 92.5% and RSUD RAA Soewondo 96%. Thus obtained an average timely administration of 97.7%.

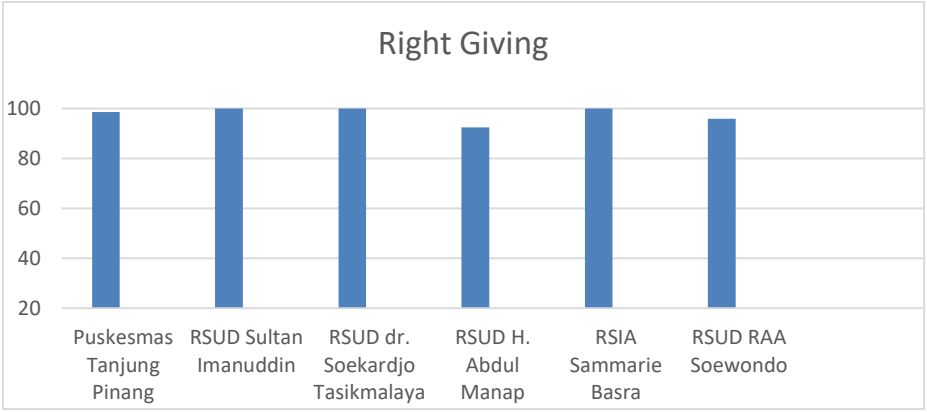

Figure 6. Right Giving

Appropriate administration is a way of administering the drug route in accordance with the dosage form of the drug prescribed to the patient. Based on the data, there are three health agencies that achieve the right percentage of 100% giving including Sultan Imanuddin Hospital, dr. Soekardjo Tasikmalaya and RSIA Sammarie Basra. Temporary agency health others who haven't reach the percentage of 100% is Tanjung Pinang Health Center 98.65 %, H. Abdul Manap Hospital 92.5% and RAA Soewondo Hospital 96%. Thus, the average correct method of administration is 97.85%.

Based on the treatment rationalization above, there are still several health agencies that have not reached 100% percentage as a result of inaccuracies in giving drugs and their dosages, indications without the support of scientific evidence and inappropriate timing and method of drug administration.

This is one of the triggers for the increase in the number of diarrhea in Indonesia, so that the administration of therapy to patients really needs to be considered because if there is a discrepancy it will result in a decrease in treatment response and an increase in the frequency of diarrhea (Abdullah Murdani and Firmansyah M. A, 2013).

4. CONCLUSION

Based on the data that has been collected, it shows that the highest prevalence of diarrhea is dominated by male patients with the age range of children and the elderly. An overview of the treatment of diarrhea in a number of health institutions has shown quite good results in the rationalization of treatment through several observations including an average correct indication of 93.02%, an average of 100% correct patient, an average correct drug of 87.1%, an average the average right dose was 85.51%, the average right time was 97.85% and the right time was 97.7%. Even so, there are still several health facilities that have not met the percentage for evaluating drug use. It is recommended that these health facilities improve and train the performance of professional health workers so they can provide treatment that is more rational and according to the patient's condition.

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