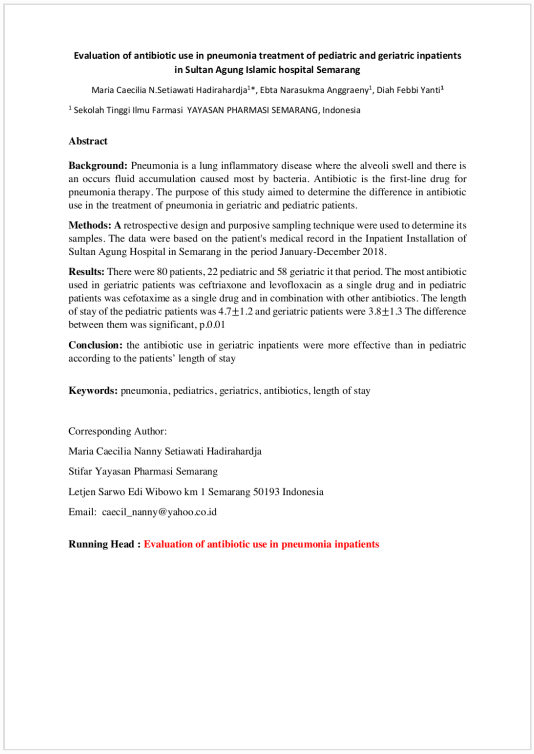
Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author:	Maria Caecilia N.setiawati Hadirahardjam, Ebta Narasukma ...
Assignment title:	PENELITIAN
Submission title:	Evaluation of antibiotic use in pneumonia treatment of pedi...
File name:	Fulltext-Pneumonia_-ICPHS-2020_Autosaved_Autosaved.docx
File size:	1.21M
Page count:	11
Word count:	1,738
Character count:	10,243
Submission date:	27-Apr-2023 09:20AM (UTC+0700)
Submission ID:	2076729032



Evaluation of antibiotic use in pneumonia treatment of pediatric and geriatric inpatients in Sultan Agung Islamic hospital Semarang

Maria Caecilia N.Setiawati Hadirahardja[1]*, Ebta Narasukma Anggraeny[1], Diah Febbi Yanti[1]

[1] Sekolah Tinggi Ilmu Farmasi YAYASAN PHARMASI SEMARANG, Indonesia

Abstract

Background: Pneumonia is a lung inflammatory disease where the alveoli swell and there is an occurs fluid accumulation caused most by bacteria. Antibiotic is the first-line drug for pneumonia therapy. The purpose of this study aimed to determine the difference in antibiotic use in the treatment of pneumonia in geriatric and pediatric patients.

Methods: A retrospective design and purposive sampling technique were used to determine its samples. The data were based on the patient's medical record in the Inpatient Installation of Sultan Agung Hospital in Semarang in the period January-December 2018.

Results: There were 80 patients, 22 pediatric and 58 geriatric it that period. The most antibiotic used in geriatric patients was ceftriaxone and levofloxacin as a single drug and in pediatric patients was cefotaxime as a single drug and in combination with other antibiotics. The length of stay of the pediatric patients was 4.7±1.2 and geriatric patients were 3.8±1.3 The difference between them was significant, p.0.01

Conclusion: the antibiotic use in geriatric inpatients were more effective than in pediatric according to the patients' length of stay

Keywords: pneumonia, pediatrics, geriatrics, antibiotics, length of stay

Corresponding Author:

Maria Caecilia Nanny Setiawati Hadirahardja

Stifar Yayasan Pharmasi Semarang

Letjen Sarwo Edi Wibowo km 1 Semarang 50193 Indonesia

Email: caecil_nanny@yahoo.co.id

Running Head : Evaluation of antibiotic use in pneumonia inpatients

Evaluation of antibiotic use in pneumonia treatment of pediatric and geriatric inpatients in Sultan Agung Islamic hospital Semarang

by Maria Caecilia N.setiawati Hadirahardjam, Ebta Narasukma Anggraeny, Diah Febbi Yanti

Submission date: 27-Apr-2023 09:20AM (UTC+0700)
Submission ID: 2076729032
File name: Fulltext-Pneumonia_-ICPHS-2020_Autosaved_Autosaved.docx (1.21M)
Word count: 1738
Character count: 10243

Evaluation of antibiotic use in pneumonia treatment of pediatric and geriatric inpatients in Sultan Agung Islamic hospital Semarang

Maria Caecilia N.Setiawati Hadirahardja[1]*, Ebta Narasukma Anggraeny[1], Diah Febbi Yanti[1]

[1] Sekolah Tinggi Ilmu Farmasi YAYASAN PHARMASI SEMARANG, Indonesia

Abstract

Background: Pneumonia is a lung inflammatory disease where the alveoli swell and there is an occurs fluid accumulation caused most by bacteria. Antibiotic is the first-line drug for pneumonia therapy. The purpose of this study aimed to determine the difference in antibiotic use in the treatment of pneumonia in geriatric and pediatric patients.

Methods: A retrospective design and purposive sampling technique were used to determine its samples. The data were based on the patient's medical record in the Inpatient Installation of Sultan Agung Hospital in Semarang in the period January-December 2018.

Results: There were 80 patients, 22 pediatric and 58 geriatric it that period. The most antibiotic used in geriatric patients was ceftriaxone and levofloxacin as a single drug and in pediatric patients was cefotaxime as a single drug and in combination with other antibiotics. The length of stay of the pediatric patients was 4.7±1.2 and geriatric patients were 3.8±1.3 The difference between them was significant, p.0.01

Conclusion: the antibiotic use in geriatric inpatients were more effective than in pediatric according to the patients' length of stay

Keywords: pneumonia, pediatrics, geriatrics, antibiotics, length of stay

Corresponding Author:

Maria Caecilia Nanny Setiawati Hadirahardja

Stifar Yayasan Pharmasi Semarang

Letjen Sarwo Edi Wibowo km 1 Semarang 50193 Indonesia

Email: caecil_nanny@yahoo.co.id

Running Head : Evaluation of antibiotic use in pneumonia inpatients

Evaluation of antibiotic use in pneumonia treatment of pediatric and geriatric inpatients in Sultan Agung Islamic hospital Semarang

Introduction

Pneumonia is one of the most acute respiratory infections which causes death in children under five and geriatrics. Pneumonia is the main killer of children under five and has become the major killer of young children or the main killer of children under five. Pneumonia most often occurs in children aged less than 5 years and elderly (seniors) who are more than 60 years old (Langke, 2016). Lack of attention to this disease can cause a very high mortality rate for children under five (WHO, 2013: 10).

In Indonesia, pneumonia is also the second leading cause of death in children under five and the fifth leading cause of death in geriatrics. The 2018 Basic Health Research (Riskesdas) reported that the incidence of pneumonia increased in 2013 by 1.6% to 2% in 2018 of the under-five population, while geriatrics increased in 2013 by 3.1% to 4.5% of the population. geriatric poupulation. Pneumonia can be caused by bacteria, viruses, and fungi. Most of them are caused by bacteria (Misnadiarly, 2008: 85).

Antibiotic recommendations for the treatment of Pneumonia empiriccally, are based on selecting agents effective against the major treatable bacterial causes of pneumonia (Metlay, 2019). Pneumonia occurs from airborne infection which includes bacteria, virus, fungi, or other parasites. Pneumonia has been classified as either community or hospital-acquired pneumonia.

Pneumonia is a common and serious disease, with high rates of morbidity and mortality. Antibiotic is a first-line drug for pneumonia therapy. The recommendations for antibiotic choice are different based on the severity of the disease, distinguishing an antibiotic scheme. The purpose of this studyaimed to determine the diference of antibiotic use in the treatment of pneumonia on geriatric and pediatric patients.

Materials and Methods

This study had already approved by the Health Research Ethics Committee of STIFAR YAYASAN PHARMASI SEMARANG , with reference No: 038/CN-SW/ KEPK/ STIFAR/ EC/XI/2019.

Sampling was done by purposive sampling. Data collection was carried out retrospectively according to the medical record data of pneumonia pediatric (< 5 years) inpatients and geriatrics (>60 years) at the Inpatient Installation of Sultan Agung Islamic Hospital Semarang for the period January-December 2018

Results

Demographic data include gender, age, length of stay at the Inpatient Installation can be seen in Table 1. The length of stay and Payment can be seen in table 2.

Discussion

This study was conducted to analyze the use antibiotic for pneumonia inpatient in Sultan Agung Islamic Hospital. Pneumonia occurs secondary to airborne infection which includes bacteria, virus, fungi, parasites, among others. The typical bacteria which cause pneumonia are S*treptococcus pneumoniae*, *Staphylococcus aureus*, Group A *Streptococcus*, *Klebsiella pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhali*s, anaerobes, and gram-negative organisms (Pahal, 2020)

Globally, pneumonia is a leading cause of morbidity and mortality in children younger than the age of 5 years(Gupta, 2012). Neonates should receive ampicillin plus an aminoglycoside or third-generation cephalosporin, however, not ceftriaxone, as it can displace bound bilirubin and lead to kernicterus. Atypical pneumonia is common in infants 1 to 3 months old, and this group should have additional antibiotic coverage with erythromycin or clarithromycin.

For infants and children over 3 months old, *S. pneumoniae* is the most common, for which the drug of choice is high-dose oral amoxicillin or another beta-lactam antibiotic (Matera

MG, 2018). Optimal treatment to select an empiric antibiotic regimen (before knowing results of the microbiologic tests) that targets pathogens and avoiding drugs that extend the spectrum of organisms not causing infection (jones BE, 2015)

The most single antibiotic used in paediatric patients was cefotaxime (31,82%) and Ceftriaxone (13,64%). The use of cefotaxime is recommended for the treatment of pneumonia in paediatric patients (Ruterlin, 2017). But the Widespread use of cefotaxime, may lead to increased incidence of resistance to this antibiotic. Several studies have reported on risk factors associated with resistanceto cefotaxime (Sucipta, 2012).

The most single antibiotic used in geriatric patients was ceftriaxone (46,55%) and levofloxacin (31,03%). The Infectious Diseases Society of America (IDSA) guidelines recommend that either respiratory quinolone or beta-lactam plus azithromycin to be used as a first line therapy for Community Acquired Pneumonia; Ceftriaxone is one of the recommended regimens among beta-lactam antibiotics (Postma, 2015)

Ceftriaxone is an empirical antibiotic commonly used to treat pneumonia. However, its use to treat infections caused by methicillin-susceptible *Staphylococcus aureus* (MSSA) is controversial given limited evidence of its clinical efficacy(Eljaaly, 2019)

The treatment should include a respiratory fluoroquinolone (levofloxacin or moxifloxacin) as monotherapy or the combination of a β-lactamic (third-generation cephalosporin, ertapenem or ampicillin/sulbactam) medication and a macrolide (azithromycin or clarithromycin) (Stupka JE, 2010). Ceftriaxone is one of the treatment choices for Community Onset of Pneumonia (Hasegawa S, 2019)

Appropriate antibiotic use, in hospitalized adult patients with a suspected bacterial infection appears to be associated with a shorter LOS and therefore positively contributes to patient outcome and healthcare costs. (Bosch C, 2016). The mean LoS in geriatric patients

(3.8±1.3 days) is shorter than in paediatric (4.7±1.2days) . The difference between them was significant, p.0.01

Greater lengths of stay in a hospital for patients results in a greater risk of patients experiencing nosocomial infections and an increased burden of patient care costs.

Conclusion

The antibiotic used for pneumonia therapy in Sultan Agung Islamic Hospital is rational and its more effective in geriatric compared with in paediatric patients

References

1. Postma DF, van Werkhoven CH, van Elden LJ, et al. Antibiotic treatment strategies for community-acquired pneumonia in adults. N Engl J Med. 2015;372:1312–23.
2. Hasegawa, S., Sada, R., Yaegashi, M. *et al*. 1g versus 2 g daily intravenous ceftriaxone in the treatment of community onset pneumonia – a propensity score analysis of data from a Japanese multicenter registry. *BMC Infect Dis* **19,** 1079 (2019). https://doi.org/10.1186/s12879-019-4552-8
3. Metlay JP, Waterer GW, Long AC, et al. Diagnosis and treatment of adults with community-acquired pneumonia: An official clinical practice guidelines of the American Thoracic Society and the Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019;200(7):e45-e67. doi: 10.1164/rccm.201908-1581ST.
4. Sucipta AA, Subanada I, Wahab S. Risk factors for cefotaxime resistance in children with pneumonia. PI [Internet]. 31Oct.2012 [cited 1Oct.2020];52(5):255-. Available from: https://paediatricaindonesiana.org/index.php/paediatrica-indonesiana/article/view/470
5. Caroline M. A. van den Bosch, Marlies E. J. L. Hulscher, Reinier P. Akkermans, Jan Wille, Suzanne E. Geerlings, Jan M. Prins, Appropriate antibiotic use reduces length of hospital stay, *Journal of Antimicrobial Chemotherapy*, Volume 72, Issue 3, March 2017, Pages 923–932, https://doi.org/10.1093/jac/dkw469
6. Jones BE, Jones MM, Huttner B, et al. Trends in antibiotic use and nosocomial pathogens in hospitalized veterans with pneumonia at 128 medical centers, 2006-2010. *Clin Infect Dis*. 2015;61(9):1403-1410. doi: 10.1093/cid/civ629.
7. Eljaaly K, Wali H, Basilim A, et al. Clinical cure with ceftriaxone versus ceftaroline or ceftobiprole in the treatment of staphylococcal pneumonia: a systematic review and meta-analysis. *Int J Antimicrob Agents*. 2019; doi:10.1016/j.ijantimicag.2019.05.023.

8. Valles J, Martin-Loeches I, Torres A, et al. Epidemiology, antibiotic therapy and clinical outcomes of healthcare-associated pneumonia in critically ill patients: a Spanish cohort study. *Intensive Care Med*. 2014;40(4):572-581. doi: 10.1007/s00134-014-3239-2.
9. Matera MG, Rogliani P, Ora J, Cazzola M. Current pharmacotherapeutic options for pediatric lower respiratory tract infections with a focus on antimicrobial agents. Expert Opin Pharmacother. 2018 Dec;19(18):2043-2053. [PubMed: 30359143]
10. Gupta GR. Tackling pneumonia and diarrhoea: the deadliest diseases for the world's poorest children. Lancet. 2012 Jun 09;379(9832):2123-4. [PubMed: 22682449]

Table 1: Demographic data, pneumonia inpatients of Sultan Agung IslamicHospital

Demographic data	Category	N	Percentage (%)
Gender	Male	55	68.75
	Female	25	31.25
Age (years)	< 1	16	20.00
	1-2	5	6.25
	3- 4	1	1.25
	60-69	35	43.75
	70-79	15	18.75
	80-89	7	8.75
	≥ 90	1	1.25
Insurance	BPJS	38	47.5
	General	42	52.5

Table 2 Length of Stay and insurance of pneumonia inpatients of Sultan Agung Islamic Hospital

	Pediatric	Geriatric	Percentage (%)
Length of Stay (days)			
1-2	0	3	3.75
3-4	4	20	30.00
5-6	12	30	52.50
7-8	6	4	12.5
>8	0	1	1.25
Total	22	58	100
Insurance			
General	12	30	
BPJS	10	28	

Insurance	**Total**		**Percentage (%)**	
	Pediatric	**Geriatric**	**Pediatric**	**Geriatric**
General	12	30	54,55	51,72
BPJS	10	28	45,45	48,28
Total	**22**	**58**	**100**	**100**

Table Antibiotic used in pneumonia inpatients

Pediatric

Antibiotic Therapy	Drug names	Patients	Percentage (%)
Single	Cefotaxime	7	31,82
	Ceftriaxone	3	13,64
	Meropenem	2	9,10
	Cefepime	1	4,54
Dual	Cefotaxime + Cefixime	4	18,20
	Ceftriaxone + Gentamysin	1	4,54
	Cefotaxime + Amoxyciline	1	4,54
	Gentamysin + Cefixime	1	4,54
	Cefotaxim + Gentamysin	1	4,54
Triple	Cefepime + Gentamysin + Cefixime	1	4,54
Total		**22**	**100**

Geriatric

Antibiotic Therapy	Drug names	Total	Percentage (%)
Single	Ceftriaxone	27	46,55
	Levofloxacin	18	31,03
	Cefotaxim	2	3,45
	Ciprofloxacin	1	1,72
	Ceftizoxim	1	1,72
	Cefixim	1	1,72
Dual	Ceftriaxon + Cefixim	2	3,45
	Levofloxacin + Ceftriaxon		

	Levofloxacin + Meropenem	1	1,72
	Ceftriaxon + Azitromisin	1	1,72
	Cefotaxim + Meropenem	1	1,72
	Ceftazidim + Cefoperazon sulbactam	1	1,72
	Levofloxacin + Ampicillin	1	1,72
Total		**58**	**100**

KOMITE ETIK PENELITIAN KESEHATAN (KEPK)
STIFAR "YAYASAN PHARMASI SEMARANG"
Jl Letjend Sarwo Edie Wibowo Km 1 Plamongansari – Semarang, 50193
Telp. (024) 6706147; 6725272; Fax : 024 - 6706148
Email : kepkstifaryapharm@gmail.com

PERSETUJUAN ETIK
ETHICAL APPROVAL

NOMOR : 038/CN-SW/KEPK/STIFAR/EC/XI/2019

Yang bertanda tangan di bawah ini, Ketua Komite Etik Penelitian Kesehatan Stifar "Yayasan Pharmasi Semarang", setelah dilaksanakan telaah, pembahasan dan penilaian, dengan ini memutuskan protokol penelitian yang berjudul :

The undersigned, Chairperson of the Stifar "Yayasan Pharmasi Semarang" Health Research Ethics Committee, after a thorough review, discussion, and assessment, hereby decides on a research protocol entitled :

Evaluasi Penggunaan Antibiotik Dalam Pengobatan Pneunmonia Pasien Balita Dan Geriatri Di Instalasi Rawat Inap RSI Sultan Agung Periode Januari - Desember 2018

Ketua Peneliti : Diah Febbi Yanti
Chief Researcher

Anggota : Dr. M. Caecilia NS. Hadirahardja, M.Sc., Apt.
Member

Telah menyetujui protokol tersebut dan disetujui pelaksanaannya
Have agreed to the protocol and approved the implementer

Pada Akhir penelitian, laporan pelaksanaan penelitian harus diserahkan kepada KEPK Stifar "Yayasan Pharmasi Semarang". Persetujuan ini berlaku selama 1 (satu) tahun setelah *Ethical Approval* dikeluarkan. Jika ada perubahan protokol dan /atau perpanjangan penelitian, harus mengajukan kembali permohonan kajian etik penelitian (amandemen protocol).

At the end of the study, a report on the implementation of the study must be submitted to KEPK Stifar "Yayasan Pharmasi Semarang". This approval is valid for 1 (one) year after the Ethical Approval is issued. If there is a change in protocol and / or extension of research, you must re-submit a request for a study of research ethics (protocol amendment).

Semarang, 29 November 2019
Ketua Komite Etik Penelitian Kesehatan
Stifar "Yayasan Pharmasi Semarang"

Dr. Maria Caecilia N. Setiawati H., M.Sc., Apt.

Evaluation of antibiotic use in pneumonia treatment of pediatric and geriatric inpatients in Sultan Agung Islamic hospital Semarang

ORIGINALITY REPORT

13%	7%	6%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

1%

★ A. PINI, H. MERK, A. CARNAHAN, I. GALANIS, E. VAN STRATEN, K. DANIS, M. EDELSTEIN, A. WALLENSTEN. "High added value of a population-based participatory surveillance system for community acute gastrointestinal, respiratory and influenza-like illnesses in Sweden, 2013–2014 using the web", Epidemiology and Infection, 2017

Publication

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	Off		