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Characteristics Of Acute Otitis Media Patients

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ABSTRACT
Otitis media (OM) is an inflammatory process that occurs in part or all of the middle ear mucosa, eustachian tube, mastoid antrum, and mastoid cells. OM is divided into Acute Otitis Media (OMA) and Otitis Media Effusion (OME). Acute Otitis Media (AOM) is an inflammation of the middle ear caused by blockage of the Eustachian tube, immune system disorders, and recurrent upper respiratory tract infections. Risk factors for acute otitis media are young age, orofacial abnormalities, exposure to cigarette smoke, short duration of breastfeeding, and family history of AOM. One of the main risk factors for acute otitis media is age. This literature review aims to determine the characteristics of patients with acute otitis media. The method used is literature review with Narrative Review design. The results obtained in this literature are that there are 7 articles obtained with restrictions from 2019 - 2024 and an in-depth analysis of the strengths and limitations of each article regarding the characteristics of patients with acute otitis media, 7 articles mention the characteristics of patients with acute otitis media. Acute otitis media in children is mostly caused by upper respiratory tract infections (URTIs), which are more commonly experienced by boys. This is due to boys who tend to be more active and cause a higher risk of exposure to ARI, and facilitate the occurrence of AOM.

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INTRODUCTION

Otitis media (OM) is an inflammatory process that occurs in part or all of the middle ear mucosa, eustachian tube, mastoid antrum, and mastoid cells. 1,2 OM is divided into Acute Otitis Media (OMA) and Effusion Otitis Media (OME). Acute Otitis Media (AOM) is inflammation of the middle ear caused by blockage of the Eustachian tube, immune system disorders, and recurrent upper respiratory tract infections.

Although the etiology of AOM is well established, with the most common microorganisms represented by Streptococcus pneumoniae, Haemophilus influenzae, and Staphylococcus aureus, antimicrobial resistance data focus primarily on Streptococcus pneumoniae, with limited data on other microorganisms. Worldwide, there is large variation (0–65.8%) in the lack of susceptibility of Streptococcus pneumoniae to penicillin, because of different rates of pneumococcal conjugate vaccination, and because of a lack of uniformity in the availability of and compliance with AOM guidelines.5,6,[7] There is inflammation in the

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respiratory tract which causes occlusion of the eustachian tube. The presence of occlusion causes the formation of negative pressure and the accumulation of exudate in the middle ear which is good for the growth of pathogens, which can cause middle ear inflammation or AOM.8

Epidemiological data for AOM cases is still rare. Research in Eastern Europe found that the incidence of AOM was 160.7 cases per 1000 person years. Indonesia does not yet have data on the number of this disease.9 The World Health Organization (WHO) estimates that in 2023 there will be 250 million (4.2%) of the world's population who have suffered from acute otitis media accompanied by hearing loss, 75 to 140 million in Southeast Asia. There are 278 million people in the world who suffer from hearing loss. Approximately two-thirds occur in developing countries. In 2014, the rate of hearing loss in the world increased to 360 million people, which is around five percent of the world's population. In Southeast Asia, Indonesia is among the fourth countries with the highest prevalence of ear disorders (4.6%). The other three countries are Sri Lanka (8.8%), Myanmar (8.4%) and India (6.3%).10

Risk factors for acute otitis media are young age, orofacial abnormalities, exposure to cigarette smoke, short duration of breastfeeding, and family history of AOM. One of the main risk factors for acute otitis media is age. Children tend to be more at risk of experiencing middle ear infections than adults because the anatomical structure of the euthachian tube in children has a more horizontal position, is shorter, and is more flexible than that of adults. The course of acute otitis media begins when the pathogen that causes AOM enters the middle ear and infection occurs, characterized by fluid or effusion in the middle ear. The infection continues to develop until pus appears accompanied by signs of inflammation.11

AOM is divided into five stages, namely occlusion, hyperemia, suppuration, perforation and resolution. 12 There are 3 general terms, acute otitis media (AOM) is the term used for middle ear infections, otitis media with effusion occurs when there is fluid in the space. uninfected middle ear. This does not require antibiotics and otitis externa is an infection of the space outside the eardrum and involves the ear canal. Sometimes, this condition is known as swimmer's ear.

The diagnosis of acute otitis media can be made from the results of the history and physical examination. Symptoms of AOM vary and can depend on the child's age, developmental status, and disease progression. The most specific symptom is sudden and severe ear pain that often wakes babies or young children while sleeping. Other symptoms that may arise are fluid from the middle ear, high fever, hearing loss, history of coughs, colds or history of ARI, difficulty sleeping, if the child cannot yet talk, the child can continue to hold the affected ear, and if the tympanic membrane has ruptured, complaints It can be in the form of secretions coming out of the ear accompanied by reduced pain.14

Guidelines issued by the American Academy of Pediatrics support treatment of AOM with antibiotics in children of any age who exhibit severe signs or symptoms (moderate or severe otalgia or otalgia ≥48 hours or temperature ≥ 39C) and in children younger than 24 months who shows non-severe bilateral AOM.15

Once the diagnosis of acute otitis media is made, the goal of treatment is to control the pain and treat the infectious process with antibiotics. Nonsteroidal anti-inflammatory drugs (NSAIDs) or acetaminophen may be used to control pain. There is controversy regarding the

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administration of antibiotics in early otitis media, and guidelines may differ from country to country. However, if there is clinical evidence of suppurative AOM, oral antibiotics are indicated to treat this bacterial infection, and high-dose amoxicillin or second-generation cephalosporins are first-line agents. If there is a TM perforation, treatment should be continued with ototopical antibiotics that are safe for use in the middle ear, such as ofloxacin, rather than systemic antibiotics, because they provide much higher antibiotic concentrations without systemic side effects. 16 Complications of AOM are rare in developing countries, but includes serious and potentially fatal disease entities such as meningitis and brain abscess.17

Paying attention to the problem of acute otitis media, it is necessary to look for ways to solve the problem, because complications that may arise from acute otitis media, mastoiditis, labyrinthitis, chronic suppurative otitis media, cholesteatoma, otitic hydrocephalus, and otitic meningitis must be taken seriously. Seeing this condition, researchers are interested in conducting further research related to the characteristics of acute otitis media sufferers.

METHOD

This research is a Literature Review research with a Narrative Review design. This method is used to identify, review, evaluate, and interpret all available research. By using this method, a systematic review and identification of journals can be carried out, with each process following predetermined steps or protocols. This research also used the PICO method to search for literature.

The type of data in this research is:secondary data, namely databases from various references, such as research journals, review journals, annual reports, books and data relating to the characteristics of acute otitis media sufferers published in 2019-2024. Literature searches were carried out through electronic databases, namely Google Scholar, Clinical Key, PubMed, Researchgate, national survey results such as RIKESDAS, PSG and WHO, searched using the keyword: Cholelithiasis. Content analysis was carried out using a synthesis table by comparing research methods, research subjects and objects, and the variables studied included the characteristics of acute otitis media sufferers.

Eleven articles were analyzed using a synthesis table to see the variables studied by each study regarding the characteristics of acute otitis media sufferers. Of the 7 articles that discuss the characteristics of acute otitis media sufferers, 11 articles mention the characteristics of acute otitis media sufferers, four articles use a retrospective descriptive design (journals 3, 4, 5, 7), one article uses a literature review (journal 1), one article uses quantitative descriptive (journal 2),

The results of the analysis regarding the characteristics of acute otitis media sufferers, 7 articles discussed the characteristics of acute otitis media sufferers based on age (journals 1, 2, 3, 4, 5, 6, 7), four articles used a retrospective descriptive design (journals 3, 4, 5, 7), one article uses a literature review (journal 1), one article uses quantitative descriptive (journal 2),

One of the strengths of these articlesis the use of nationally and internationally representative data with the latest edition and a large sample size that is sufficient to analyze the characteristics of acute otitis media sufferers. In addition, several variables may be significant risk factors for the characteristics of acute otitis media sufferers. This is important so that interventions can be carried out to reduce the risk of acute otitis media and to know

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whether these factors influence the occurrence of acute otitis media.

One of the limitations that needs to be considered in several articles that use a cross-sectional design is that relatively large or many research subjects are required, with the assumption that there are quite a lot of independent variables that have an influence, which is less able to describe the process of disease development accurately. Researchers may tend to select data that fits their hypothesis, which can influence research results and introduce bias in the study. The data sources available in a literature study may not be complete to answer all research questions. In addition, some articles use less population coverage. In the analysis of the characteristics of acute otitis media sufferers in the article, it was limited to only a few characteristics, several characteristics of acute otitis media sufferers were not included in the study. This is to ascertain whether the exclusion criteria allow for selection bias. Thus, the authors suggest future research with better methodology, larger sample sizes, and more variables. Further research is needed to combat and reduce the number of cholelithiasis patients and reduce risk factors.

Furthermore, the author identified 6 articles that discussed the characteristics of acute otitis media sufferers based on gender and there were several similarities between these articles, namely journals where the results of the analysis showed a significant relationship between gender and the incidence of acute otitis media. One of the strengths of some of these articles is that they are relatively quick to carry out, researchers can collect all variables at once and prevalence for all factors can be measured.

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RESULTS

NO	Authors	Publisher	Objective study	Subject	Method	Result
1	Waqqas SA et al (2024)	Tambusai Health Journal	This study aims to determine the characteristics of patients suffering from acute otitis media	The population of this study were patients suffering from acute otitis media	This research uses the Literature Review method with a Narrative Review design	From the results it was concluded that acute otitis media can attack anyone. Based on age, most patients experience the age range: children 1-6 years and adults 17 – 25 years. Based on gender, more women experience acute otitis media than men. Based on the clinical symptoms that sufferers most often complain about, namely decreased hearing and otorrhea. Based on stage, most cases are in the hyperemia and suppuration stages. Based on the side of the ear that is infected, it was found that more sufferers experienced unilateral than bilateral acute otitis media. It was also found that patients affected by acute otitis media had a history of the same complaints and had also had upper respiratory tract infections.
2	Arief T et al (2021)	JIKSH: Sandi Husada Health Scientific	This study aims to determine the characteristics of acute otitis media	The sampling location is in the medical records room. The population of this study was all patients at the ENT	This type of research uses quantitative descriptive	From the 40 samples studied, the frequency of the 40 samples studied was obtained, it was found that the highest age range was 21-40 years and

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NO	Authors	Publisher	Objective study	Subject	Method	Result
		Journal	patients.	Polyclinic who experienced Acute Otitis Media, namely 63 patients. The sample collection method is consecutive sampling with a sample determination technique using the Slovin formula		41-60 years as many as 13 people (32.5%). The majority of genders were men, 22 people (55%). For the frequency distribution of pain, the most frequent was mild pain as many as 20 people (50%). The main complaint experienced by acute otitis media patients was hearing loss, which was reported by 26 people (65%)
3	Mahardika IWP et al (2019)	Medical E-Journal	The aim of this study was to determine the characteristics of AOM sufferers who sought treatment at the SMF ENT Outpatient Installation at Sanglah Central General Hospital (RSUP) Denpasar in 2014.	Data collection was carried out from March to July 2015. The sampling technique in this research used a total sampling technique. So the sample for this study was taken from the target population, namely all AOM patients at Sanglah Denpasar Central General Hospital from January to December 2014.	This research uses a descriptive research method with a retrospective cross sectional design	The results showed that the highest proportion distribution was < 2 years old (38.9%), male (59.7%), ear pain (84.4%), unilateral (54.5%), and a history of ISPA (81.8%). The incidence of AOM is quite frequent in society, especially among children
4.	Yuniarti D, et al (2019)	Health & Medical Journal	The aim of this study was to determine the	The sampling technique is simple random sampling. The minimum sample size to be	This type of research is descriptive retrospective using	The research subjects were 63 Acute Otitis Media patients. This study reports the frequency distribution of study

NO	Authors	Publisher	Objective study	Subject	Method	Result
			prevalence of acute otitis media at the Siti Rahmah Islamic Hospital in Padang	taken in the research is 63 people.	secondary data in the form of medical records. The research was conducted from July 2018 – January 2019 in the ENT section of the Siti Rahmah Islamic Hospital, Padang	characteristics such as age, gender, stage, and infected ear. Results This study reports the prevalence of 63 patients with Acute Otitis Media. Based on age, 12 cases (19%) occurred in toddlers. Based on gender, women suffered the most with 35 cases (55.6%). Based on stage, the most cases were in the hyperemic stage, 31 cases (49.2%). Based on infected ears, most cases occurred unilaterally with 61 cases (96.8%).
5.	Lismarani A, et al (2021)	Int. J. Trop. Vet. Biomed. Res.	The aim of this study was to determine the characteristics of acute otitis media patients at the Image Battle Clinic in 2020 based on gender, age and clinical symptoms.	This research was carried out by collecting data from medical records at the Medan Struggle Image Clinic in 2020. The number of samples collected was 72 people.	In this study, a descriptive research method was used with a retrospective cross-sectional design in acute otitis media (OMA) patients at the Citra Medan Perjuangan Clinic.	The highest distribution was male at 61.1%, 1-5 years old at 61.1%, and fever at 58.3%.
6.	Wijayanti SP, et al (2021)	Journal of Public Health	This study aims to identify risk factors and characteristics	3574 children from 6 areas in Banyumas Regency were recruited for AOM detection	This research is an analytical research with a case-control design in	Of the 125 samples studied, the frequency studied was obtained, it was found that the largest age range was 8-

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NO	Authors	Publisher	Objective study	Subject	Method	Result
		Research	associated with AOM in elementary school children in Banyumas Regency, Central Java, Indonesia.	screening, and confirmation of the AOM diagnosis was determined by an ENT specialist	Banyumas Regency, Central Java, Indonesia. The population of this research is all elementary school children in Banyumas, reaching 50,000 students.	9 years, as many as 51 people (40.8%). The majority of genders were women, 64 people (51.2%).
7.	Dandung MI, et al (2024)	Tambusai Education Journal	This study aims to determine the prevalence of acute otitis media in Haji Hospital Makassar, South Sulawesi Province in 2020-2021.	Based on secondary data obtained from the Makassar Haji Hospital, South Sulawesi Province, the number of patients diagnosed with AOM in the 2020-2021 period was recorded at 115 people.	This research is a retrospective descriptive study with a cross-sectional research design with secondary data collection at one time.	The prevalence of AOM sufferers from 115 people based on gender showed that 60 men suffered from AOM (52.2%). Based on age group, it mostly occurred in the 0-5 year age group as many as 45 people (39.1%). Based on the AOM stage, the stage most frequently found in patients was the hyperemic stage in 42 people (36.5%). Based on the side of the ear involved, AOM was mostly found on one side of the ear (unilateral) in 89 people (77.4%). Then, based on the response to treatment, many of the patients who recovered after being given treatment were 87 people (75.7%).

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Discussion

Acute otitis media (AOM) is an ear disease that causes inflammation of the middle ear. This disease can occur without symptoms, or it can also appear with acute symptoms and signs. Symptoms vary according to the age of the child such as in younger children, it appears with some general symptoms which include fever, difficulty eating, excessive crying, and irritability, pulling at the affected ear, while in older children, it appears with specific symptoms such as earache, discharge from the ear, and fever.18

According to theory, the increased risk of acute otitis media is caused by anatomical conditions, where the Eustachian tube is shorter and more horizontal in younger children compared to adults, in addition to the fact that children's immunity does not work as well as in adults. Marom et al stated that acute otitis media in children is mostly caused by upper respiratory tract infections (ARI), which are more often experienced by boys. This is caused by boys who tend to be more active and cause a higher risk of exposure to ARI, and make it easier for AOM to occur.19

Research conducted by Lismarani A (2021) on the characteristics of AOM patients in the field of battle image clinic, from 72 people aged 1-5 years, the highest percentage was 61.1%. Based on gender, it was found that men accounted for the majority of cases, namely 61.1%. In this study, fever was the most common symptom found, namely 58.3%.20

Another research conducted by Dandung MI, et al, (2024) at the Makassar Haji Regional Hospital, South Sulawesi Province, in 2020-2021, OMA sufferers were mostly experienced by men, mostly occurring in children, with the highest AOM stage being the hyperemic stage, many occurs on one side of the ear (unilateral), and many patients who have been given treatment experience improvement.6

CONCLUSIONS

Based on the results of identification and several studies in this literature review, it can be concluded that age characteristics are the most dominant factor in this literature review, followed by gender. Although there are several other characteristics such as symptoms, stage, ear location, history of AOM and treatment. The suggestions suggested by the researcher are for further research to analyze whether the characteristics found in this study are a risk factor for acute otitis media, as well as using a wider hospital coverage in order to obtain a larger number of research subjects. And for clinicians to be aware of the occurrence of acute otitis media which has identical characteristics to the characteristics of the subjects of this study, so that management planning can be prepared better.

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