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RISK FACTORS OF ACUTE OTITIS MEDIA

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Abstract
In AOM, the presence of an infected effusion in the middle ear cleft occurs in conjunction with the rapid onset of one or more local or systemic signs and symptoms of acute infection. There is an advantage in grading the severity of AOM, since treatment guidelines should be graded according to the severity of theillness. Patients and methods The present study is conducted in the ENT clinics in Razkari teaching hospital in Erbil city. The hospital is located in the center of city and it delivers services to many areas in Erbil city. This hospital which has (400) beds , receive cases either directly from their causality unit or referred cases from primary health care units (PHCS) which are distributed throughout Erbil city, the ENT clinics running by the ENT specialists with assistances of seiner house officers and deliver services to about 150 patients daily. Results One hundred children with otitis media had been included in the study in addition to 100 children with no otitis media (controls). The mean age + SD of the whole sample was 3.1 + 1.7 years, ranging from 0.3 to 6 years. The median was 3 years. The mean age + SD of the controls (3.7 + 1.6 years) was significantly ($p < 0.001$) higher than the mean age + SD of the cases (2.5 + 1.6 years). Discussion: In this case control study, the maximum frequency of AOM was observed in the age group 1-2 years (29%), age group 2-3 year constitute (35%), the lowest frequency was at the age group 4-5 years

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(21%). Moreover children up to 24 months formed (44%) of all attacks of AOM among the study population. Conclusions The highest frequency of acute otitis media occurred in the age group 1-2 years, slightly more frequent AOM attack occurred inmales.The main Clinical presentation among the cases were fever, otalgia, otorrhea, irritability ,loss of appetite , vomiting , diminished hearing and few patients presented with tinnitus andvertigo.

Keywords: Acute otitis media (AOM), primary health care units (PHCS), middle ear, Risk.

Introduction

Otitis media is a prevalent infectious disease in children, characterized by inflammation of the middle ear cleft. The cause or pathophysiology of this condition is unknown. When making a differential diagnosis of fever, OM plays a significant role and is the most common cause for doctor visits and antibiotic usage. It ranks high among children's causes of hearing loss.

From short-lived, harmless conditions to long-term, complex diseases, the clinical spectrum can cover it all. The fact that OM often becomes chronic and returns is a key feature of the condition. A child is more likely to experience severe future struggles with middle-ear effusion, including recurrence frequency, intensity, and persistence, if the first episode occurs earlier in life.

The impact of Acute Otitis Media (AOM) is substantial, with significant direct and indirect societal and economic expenses and a diminished quality of life, even if severe consequences are uncommon in developed nations. One (1) Acute Otitis Media (AOM) is characterized by the fast onset of one or more local or systemic signs and symptoms of acute infection, as well as the presence of an infected effusion in the middle ear cleft. One benefit of AOM severity grading is that it will help with creating treatment guidelines that are more appropriate for more severe cases.

Part One: Acute Myringitis (Otitis Media) Without Effusion: The eardrum will become red and opaque as a result of this. In instances of "bullous myringitis," blisters or bullae could be visible. It could be challenging to determine clinically whether a middle ear effusion is present in myringitis instances. one (1): Recurrent Otitis Media: Evidence that the middle ear has returned to normal in between episodes; three or more well-documented and independent episodes in the past six months; four or more episodes in the past twelve months; and at least one episode in the past six months. one (1) In cases of otorrhoea, the fluid drains from the ear canal and can originate from various locations such as the external auditory canal, middle ear, mastoid, inner ear, or intracranial cavity. In cases of severe acute otitis media, there is either moderate to severe otalgia or a fever of 39 degrees Celsius or higher. In cases of non-severe acute otitis media, there is mild otalgia but no fever lower than 39 degrees Celsius (1). Middle Ear Effusion: Liquid in the middle ear without regard to etiology, pathogenesis, pathology, or duration (1). Otitis Media With Effusion: Inflammation of the middle ear with collected liquid in the middle ear, although no acute infection symptoms are present (1). Medical evaluation

Middle ear effusion (MEE) and a history of sudden onset of symptoms are necessary for a diagnosis of acute onchocerciasis (AOM). The symptoms of middle ear irritation are also presented. in section seven: Components of prerequisites: (7)

1) The appearance of middle ear infection symptoms, which often occur suddenly:

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A. Otalgia in infants (earache, or pulling on the ear).
Infants and toddlers (Class B) may experience irritability.
C. Otorrhea, often known as ear leakage.
Section D: Fever. Secondly, middle ear effusion (MEE) can be confirmed via pneumatic otoscopy, which requires an appropriately sized speculum to create a seal in the external auditory canal. If any of the following are present, it is likely that MEE is present:
A. The appearance of tympanic membrane bulging is the strongest indicator of middle ear effusion (MEE).
B. Level of air-fluid behind TM.
C. Middle ear fluid—TM movement is limited or nonexistent.
D. Diarrhea.
3) Symptoms or signs of inflammation in the middle ear:
A. The TM's distinctive redness
B. Consistent otalgia (pain) that gets in the way of daily life or sleep: Common results from TM (7)
1) Shade: A pearly gray is the standard.

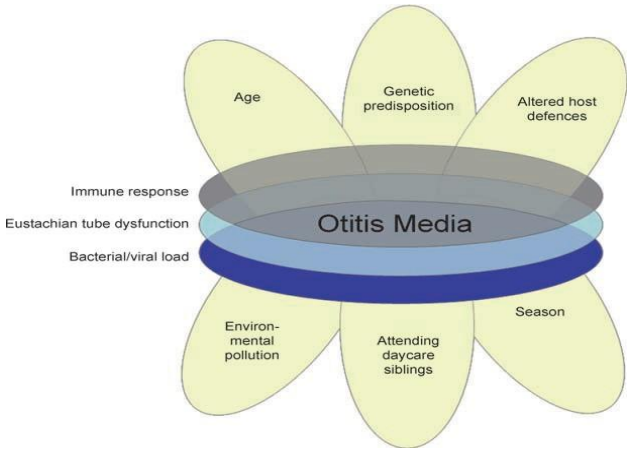

Figure (1.1) Pathogenesis of acute otitis media

B. Inflammation can create redness; it's important to distinguish this from redness caused by crying, fever, or irritation following cerumen removal.
C. An unusual whiteness; this could be due to middle ear fluid or scarring.
2) Shape: A. The normal shape is rather concave.
B. It can be full or bulging in AOM.
C. Typically retracted or in a neutral position while in OME.
Thirdly, transparency: A. Normal is transparent.
Opacity, usually caused by underlying MEE (B).
4) Alterations to the Structure: A. Scarring.
Section B: Puncture.
Section C. Retraction Bags.
5). TM mobility is the most specific and sensitive way to tell whether there is MEE or not. There is reduced or no movement of the TM in MEE. Pneumatic otoscopy allows one to observe mobility.

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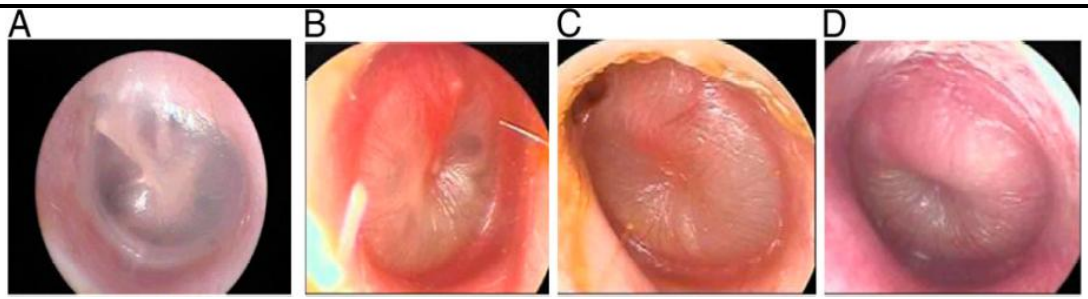


A, Normal TM (Fig. 1.2). Slight bulging of the B, TM. There is moderate bulging on the C.TM. D, TM in a very bloated state.

Differentiating between AOM and OME is crucial in deciding on treatment in an age of rising bacterial resistance; OME does not necessitate antimicrobial therapy when there is no acute infection.

Clinically differentiating AOM from OME is only challenging when purulent otorrhea is not present, since new-onset purulent otorrhea is a hallmark of AOM. At least two of the following tympanic membrane abnormalities—discoloration (white, yellow, amber, or (rarely) blue); opacification (other than scarring-related); and reduced or nonexistent mobility—are present in both AOM without otorrhea and OME, which are physical manifestations of MEE. On the other hand, in OME, it is common for air-fluid levels or air bubbles surrounded by little amounts of fluid to be visible behind the tympanic membrane, which usually means that resolution is on the way (7).

Some additional tests that could be useful in diagnosing MEE include (7):

1. Tympanometry: A. A quick, easy, and painless exam.

B. Provides proof, in an objective way, that MEE is present or not.

C. Provides electroacoustic data on TM compliance that is essentially corresponding to TM mobility as seen with pneumatic otoscopy.

D. Can get the job done in the office, even with the most challenging patients.

Otoscopic findings can be confirmed, refined, or clarified using this.

F. Is able to forecast the likelihood of MEE but confuses OME with AOM.

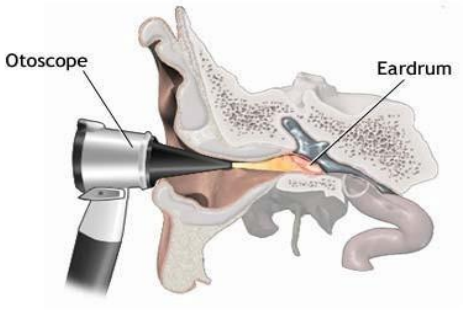
2) Sound reflectometry: "ASR"

A. Clever, compact, and quick to provide readings.

B. Determines middle ear health by measuring TM sensitivity to sound stimuli.

Not as extensive as tympanometry (C).

D. Could tell the difference between OME and AOM but couldn't forecast the likelihood of MEE.



Otoscopic study of the eardrum (Fig. 1.4).

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Table (1.1) The types and frequency of microorganisms which can be involved in the occurrence of AOM.4

Organism	Frequency (%)	Comments
Streptococcus pneumonia	40 to 50	Most common pathogens are serotypes 19F, 23F, 6B, 6A,19A, and 9V
Haemophilus influenza	30 to 40	Nearly one half produce β-lactamase.
Moraxella catarrhalis	10 to 15	Most produce β-lactamase
Group A streptococcus	—	Common in older children. more frequentlyassociated with perforated tympanic membrane and mastoiditis
Staphylococcus aureus	Rare	More common in chronic infection
Anaerobic organisms	Rare	More common in chronic infection
Gram-negative bacilli	—	In newborns, immunosuppressed patients, and patientswithchronic suppurative otitismedia.
Viruses	4-5%	Respiratory syncytial virus,adenovirus, rhinovirus, or influenza virus may act in synergy with bacteria.
Other	Rare	Mycoplasma pneumonia, Chlamydia pneumonia, Chlamydia trachomatis(in infant less than 6 months), mycobacterium tuberculosis (in developing country) parasitic infestation(ascariasis) mycotic infection(aspergellosis,candidiasis)

Patients and Methods

The ear, nose, and throat (ENT) clinics of Erbil's Razkari Teaching Hospital serve as the site of the current investigation. The hospital serves a wide area of Erbil city from its central location. The ENT clinics in Erbil city, run by ENT specialists with the help of senior house officers, see around 150 patients every day, and the 400-bed hospital receives cases either directly or referred from the primary health care units (PHCS). The goals of the current study were met by utilizing a case-control strategy for the research.It is necessary to divide the population into two groups: cases and controls. Then, we can calculate the percentage of cases and controls who have a history of exposure to the risk factors, which will allow us to look at the potential association between exposures to those factors and the development of a disease. duration of study: The six-month data collection period is scheduled to begin on February 1, 2017, and end on August 1, 2017. Data set: Included in this study are 100 preschool-aged children (less than 6 years old) who visited the ear, nose, and throat (ENT) clinics at Al-Razkari Teaching Hospital and were diagnosed with auditory otomaphilia (AOM).

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Additionally, there are 100 control individuals in the same age group whose evaluations did not reveal the presence of AOM. Case definition: Participants: All children under the age of six who visit the otoscopic clinics at Al-Razkari Teaching Hospital and are diagnosed with acoustic neuroma by the attending ENT expert will be considered as cases for this study. Control Definition: As a control group, this study will comprise all children under the age of six who visit the otoscopic clinics at Al-Razkari Teaching Hospital and are determined not to have auditory or middle ear problems by the attending ENT expert. Instrument for gathering data: A questionnaire was designed specifically to gather all the pertinent details about the research population. Age, gender, socioeconomic status, family size (as measured by rooms and beds), parental education level, bedroom sharing, household income, and risk factors for acute otitis media (such as daycare attendance, bottle feeding, supine bottle feeding, pacifier use, passive tobacco smoke, preterm birth, genetic predisposition, siblings in the household, craniofacial anomaly, and allergy) are all part of the questionnaire. The medical history, including the patient's complaints and current symptoms, is also included in the questionnaire.

Origin of the data:

The primary data was collected from the parents or guardians of the children who were either cases or controls. This was done through investigator-led interviews and the use of a questionnaire designed to capture all pertinent details about the sample's cases and controls. The ENT physician in charge of the case evaluations uses otoscopic examination of the tympanic membrane to determine its location, color, translucency, and light reflex.

Examining data: To determine the statistical correlation, the chi-square (x^2) test was utilized.

A substantial statistical relationship is defined as a p-value less than 0.05.

Results

One hundred children with otitis media had been included in the study in addition to 100 children with no otitis media (controls). The mean age + SD of the whole sample was 3.1 + 1.7 years, ranging from 0.3 to 6 years. The median was 3 years.

The mean age + SD of the controls (3.7 + 1.6 years) was significantly ($p < 0.001$) higher than the mean age + SD of the cases (2.5 + 1.6 years).

Table 1 shows that more than half (54%) of the control group aged ≥ 4 years, compared with 21% of the cases ($p < 0.001$). The table shows that 56% of the whole sample were males, with no significant difference in the gender distribution between the two groups ($p = 0.776$). It is evident also that around two thirds (69.5%) of the whole sample were living in urban areas, and no significant differences were detected in the residency distribution of the two groups ($p = 0.091$).

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Table 1. Distribution of sample by age, gender and residency.

	Control		Case		Total		
	No.	(%)	No.	(%)	No.	(%)	p
Age							
< 2	17	(17.0)	44	(44.0)	61	(30.5)	
2-3	29	(29.0)	35	(35.0)	64	(32.0)	< 0.001
≥ 4	54	(54.0)	21	(21.0)	75	(37.5)	
Gender							
Female	45	(45.0)	43	(43.0)	88	(44.0)	0.776
Male	55	(55.0)	57	(57.0)	112	(56.0)	
Residency							
Rural	25	(25.0)	36	(36.0)	61	(30.5)	0.091
Urban	75	(75.0)	64	(64.0)	139	(69.5)	
Total	100	100.0	100	100.0	200	100.0	

Table 2 shows no significant association between otitis media with mother education (p = 0.344), father education (p = 344), mother occupation (p = 0.0710), and father occupation (p = 0.395). In general, as presented in table 2, the majority of fathers and mothers were of low educational levels, and work in a relatively lower rank occupations.

Table 2.Mothers and fathers educational levels and occupations.

	Control		Case		Total		
	No.	(%)	No.	(%)	No.	(%)	p
Mother education							
Illiterate/read & write	12	(12.0)	13	(13.0)	25	(12.5)	0.344
Primary	52	(52.0)	61	(61.0)	113	(56.5)	
Secondary	19	(19.0)	17	(17.0)	36	(18.0)	
Institute & above	17	(17.0)	9	(9.0)	26	(13.0)	
Father education							
Illiterate/read & write	5	(5.0)	9	(9.0)	14	(7.0)	0.344
Primary	39	(39.0)	43	(43.0)	82	(41.0)	
Secondary	31	(31.0)	32	(32.0)	63	(31.5)	
Institute & above	25	(25.0)	16	(16.0)	41	(20.5)	
Mother occupation							
Housewife/manual worker	58	(58.0)	68	(68.0)	126	(63.0)	0.071
Skilled manual worker	28	(28.0)	13	(13.0)	41	(20.5)	
Non-manual worker	8	(8.0)	11	(11.0)	19	(9.5)	
High rank occupations	6	(6.0)	8	(8.0)	14	(7.0)	
Father occupation							
Unskilled manual worker	52	(52.0)	60	(60.0)	112	(56.0)	0.395
Skilled manual worker	23	(23.0)	15	(15.0)	38	(19.0)	
Non-manual worker	11	(11.0)	14	(14.0)	25	(12.5)	
High rank occupations	14	(14.0)	11	(11.0)	25	(12.5)	
Total	100	(100.0)	100	(100.0)	200	(100.0)	

The most common clinical presentation was fever (41%), otalgia (33%), ear pull (19%), and irritability (15%), in addition to other symptoms that are presented in Table 3.

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Table 3. Clinical presentation of children affected with otitis media.

	No.	% (n = 200)
Fever	82	(41.0)
Otalgia	66	(33.0)
Ear pull	38	(19.0)
Irritability	30	(15.0)
Loss of appetite	20	(10.0)
Otorrhea	19	(9.5)
Vomiting	16	(8.0)
Diminished hearing	11	(5.5)
Tinnitus	4	(2.0)
Vertigo	3	(1.5)

Half of the patients took analgesics, 41.5% took amoxicillin, and 9.5% took nasal decongestants (Table 4). The other types of drugs are presented in the mentioned table.

Table 4.Types of treatment taken by patients.

	No.	% (n = 200)
Analgesics	100	(50.0)
Amoxicillin	83	(41.5)
Nasal decongestant	19	(9.5)
Amoclan	6	(3.0)
Ceftriaxone	4	(2.0)
Erythromycin	4	(2.0)
Antihistamine	3	(1.5)
Trimethoprim + Sulfamethoxazole	2	(1.0)
Cefixime	1	(0.5)
Steroid	0	(0.0)
Antihistamine + decongestant	0	(0.0)

The proportions of all the studied risk factors were significantly higher among cases than the controls except for the presence of cranio-facial anomalies (p = 0.621). The proportions of risk factors among cases compared with the controls were as follows: day care attendance (16% vs. 4%), bottle feeding in the first year of life (19% vs. 6%), supine bottle feeding (23% vs. 8%), pacifier use (18% vs. 4%), smoking parents (57% vs. 35%), prematurity (27% vs. 14%), family history of AOM (20% vs. 6%), allergy (25% vs. 12%), and history of taking traditional treatment at home (17% vs. 0%). All are presented in Table 5.

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Table 5. Risk factors among cases and controls.

	Control (n = 100)		Case (n = 100)		Total (n = 200)		
Risk factors	**No.**	**(%**	**No.**	**(%**	**No.**	**%**	**p**
Day care attendance	4	(4)	16	(16)	20	(10)	0.005
Bottle feeding	6	(6)	19	(19)	25	(12.5)	0.005
Supine bottle feeding	8	(8)	23	(23)	31	(15.5)	0.003
Pacifier	4	(4)	18	(18)	22	(11)	0.002
Passive smoking	35	(35)	57	(57)	92	(46)	0.002
Prematurity	14	(14)	27	(27)	41	(20.5)	0.023
Family history	6	(6)	20	(20)	26	(13)	0.003
AOM among Siblings	30	(30)	52	(52)	82	(41)	0.002
Cranio-facial anomalies	1	(1)	3	(3)	4	(2)	0.621*
Allergy	12	(12)	25	(25)	37	(18.5)	0.018
Traditional treatment at home	0	(0)	17	(17)	17	(8.5)	< 0.001

*By Fisher's exact test

Discussion

Distribution by Age and Gender:

In this case-control study, the highest incidence of AOM was seen in children aged 1-2 years (29%), followed by those aged 2-3 years (35%), and the youngest in the age range of 4-5 years (21%). Additionally, among the research group, 44% of all AOM attacks were in children less than 24 months.

These numbers are in line with what other researchers have found; for example, Alho O.P. et al. (1991) observed that 50% of all AOM attacks involved children less than 24 months old in a study of 2512 children in Finland. Nasir Hindi Serhan (1997) also found that a similar percentage of children less than 24 months old accounted for 48.4% of all AOM cases in Baghdad city. (31)

Johannes A. Seventy-one percent of the children in the Netherlands surveyed by et al. (2010) had experienced an AOM attack by the time they were 24 months old. (32)

Males accounted for 57% of AOM patients and females for 43% in this research. Consistent with previous research, Nasir H. Serhan also discovered that men make up 51.6% of patients and females 48.4%. (31) .According to research conducted in the United States by Jack L.et al. (1997), the frequency of AOM attacks was consistently greater in males than in females.

Symptoms experienced by the research population due to AOM:

Among the most common symptoms of AOM, according to Del-Castilo et al.(1996) al. (1996)in Spain, the following were listed: otalgia or irritability (92.7% of cases), fever (63.5%), discharge (24.9%), and vomiting (21.4%). His name is Heikkinen T. plus O. Runskanen. Of the 302 children studied in the United States in 1995, 92% reported experiencing earache as a symptom of AOM. However, 11% of those children did not show any signs of earache, and 31% did not have fever. (35).

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In his study, Nasir H. Serhan discovered that 89.2% of patients experienced otalgia, which can be described as excessive sobbing, head rolling, or irritation. Additionally, 62.8% of patients had fever, 37.2% had discharge, and 29.9% had vomiting.

Most children with AOM experienced fever (82%), otalgia (66%), irritability (30%), ear pulling (38%), discharge (19%), and vomiting (16%), according to the current study. The current study's symptom frequencies are similar to a certain degree to those of the aforementioned research.

Treatment al. (1996): Treatmentchoices for AOM cases managed by Kozyrsky J. The current investigation confirmed that five days of antibiotic treatment is beneficial for uncomplicated AOM, in line with the findings of et al. (2000), who examined short-course antibiotics for AOM and found that five days of antibiotic treatment is efficacious for uncomplicated ear infections (54) (55).

Nevertheless, considering the potential side effects, the minimal benefit of antibiotics for AOM in children (since most cases would resolve spontaneously) must be weighed against this (56). A study by Galsziou et al. (2004) demonstrated this.

Due to the lack of certainty regarding patients' ability to return for follow-up if their symptoms do not improve within 48-72 hours, antibiotics were administered to all infants and children aged 1–2 in this trial.

College of Butler. The decision between azithromycin and Sulfamethoxzole-trimethoprim : Treatmentsulfamethoxazole-trimethoprimdepends on the expected bacteria, however sulfamethoxazole-trimethoprim; however,et al. (2005) established amoxicillin as the first option of antibiotic for AOM treatment (57).

Patients with penicillin allergies were given Sulfamethoxzole-trimethoporim,; however,sulfamethoxazole-trimethoprim, cifixime,sulfamethoxazole-trimethoprim,cefixime, or Erythromycin,cefixime,erythromycin, and 83% of cases were treated with amoxicillin.

Justice Barenkamp. Research by et al. (2005) indicates that budesonide is effective in treating AOM; however, fluticazon erythromycin,fluticasonedoes not work for this condition, and antihistamines work best when used in conjunction with other allergens; children who are more likely to experience otitis media do not develop an adequate protective antibody response (58)

fluticasone(58).According to Flynn et al. (2004), there is no evidence to suggest that children with AOM should be routinely treated with antihistamines, and the use of decongestants is not suggested. (59) Philip D. In a study conducted by et al. (2012), it was discovered that oral or nasal steroids are more effective in clearing effusion faster during AOM. However, when combined with decongestants, antihistamines had more side effects and were not recommended for AOM. In the current study, only 3% of patients with AOM and a history of allergies were given antihistamines, and 19% were given nasal decongestants. Children with AOM who were not treated with steroids, antihistamine-decongestants, or oral decongestants were included in the study population.

The research population's risk variables for AOM. The relationship between AOM and day care attendance:

Children who attended childcare centers were more likely to acquire AOM than those who received care at home, according to research by Alho OP et al. (1991). (30)

Uhari et al. found that in their Finnish meta-analysis, children whose caretakers worked outside the home were more likely to experience AOM.((58).AOM. 36)(37)

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Mr. Jack L. Researchers et al. (1997) found that children who attended day care were less likely to experience AOM.

Consistent with the results of the aforementioned research, the current investigation also discovered a robust correlation between AOM incidence and day care attendance (P=0.005).

: The first year of life and the prevalence of AOM with bottle feeding:

This study confirms previous findings that suggest a high correlation between the use of bottle feeding in the first year of life and the occurrence of AOM (P=0.005).

Mr. Jack L. A study carried out in the United States by et al. (1997) indicated a strong protective association between exclusive breastfeeding throughout the first year of life. (33).

Among 121 children younger than two years old diagnosed with AOM, Nasir H. Serhan discovered that 30.58 percent were breastfed and 69.42 percent were bottle fed.AOM. -fed.

Breastfeeding within the first three months of life lowers the incidence of AOM by 13%, according to a meta-analysis by Uhari et al. (1996). However, not all studies found a positive effect. Dr. Jose F. et al. (2006) found no statistically significant difference in the frequency of otologic visits among infants who were exclusively breastfed, breastfed with supplementary feeding, or bottle fed-fed.-fed alone in a retrospective cohort study of 106 nursing infants in Brazil during the first year of life.

Issues with AOM and bottle propping while the patient is lying on their back:

Consistent with previous research, our study demonstrated that supine bottle feeding was substantially related to the incidence of AOM (P=0,003).-fed(P=0.003).

Dr. Jose F. In a study that tracked 698 children from birth to two years old, researchers found that the supine bottle feeding(P=0.003).-feeding position was linked to an earlier onset of AOM. This finding supports the idea that "positional OM" is one of the mechanisms at work in the link between bottle feeding and OM. (38)

It was determined by Uhari et al. that the risks associated with putting a baby bottle in bed were too diverse to be pooled.(-feedingpooled. 36)(39)(40)

: The relationship between AOM and pacifier use:

In a study conducted in Finland, Niemela et al. (1994) found that pacifier users were more likely to present with four or more episodes of AOM compared to non-users.

The use of a pacifier was found to raise the risk for AOM by 24%, according to Uhari et al. (1996). (36)

The American study by Warren et al. (2001) found that pacifier sucking was strongly linked to air obstructive musculoskeletal (AOM) from the sixth to the ninth month, anpooled. month andd showed a strong tendency towards statistical significance from the ninth to the twelfth month (43).

Additionally, the current study shows that pacifier use is significantly associated with the occurrence of AOM (P=0.002).

Tobacco use at home and the risk of AOM:

According to Nasir H. Serhan (1997), the incidence of AOM was 53.2% in households where smoking was prevalent, compared to 46.8% in non-smoking families.(month andfamilies. 31)(44)

Research by Uhari et al. (1996) indicated that having a parent who smokes doubled the likelihood of AOM. Additionally, Jack L. Researchers et al. (1997) discovered that the presence of smokers in the household was positively correlated with the incidence of acute otitis media (AOM) in the first year of life, but not in the second (33).

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However, while Jose F.et al. (2006) found no evidence that passive smoking increases the likelihood of non-recurrent AOM, they did identify passive smoking as a likely risk factor for recurrent AOM (38).

There was a statistically significant correlation between parental tobacco use and the development of AOM in this study (P=0.002). The findings were consistent with those of numerous previous research carried out in Iraq and elsewhere.The development of the baby (based on the gestational age) and the presence of AOM:

This study's findings are consistent with those of others that have shown a link between immaturity and the incidence of AOM: The risk of AOM is increased in preterm birth (<33 weeks of gestation) and very low birth weight (<1500g), families. (<1500 g),according to the findings of a study conducted in the United States by Becken et al. (2001).

As an alternative, Joost A. Birth weight, gestational age, and the incidence of AOM were not shown to be associated, according to et al. (2010). (32)

: The relationship between AOM and family history:

A positive family history was significantly associated with the prevalence of AOM in this study (P=0.003). Contrarily, Jose F.et (<1500 g),F. etal. (2006) discovered that it was extremely difficult to separate the influence of a positive family history of AOM from care in day care centers, socioeconomic level, and the exclusive effect of the number of siblings,F. etsiblings; the risk factors was siblings;wereclassified as unlikely. Another study by Uhari et al. (1996) found that the occurrence of AOM increased when there is a positive family history of the disease.(weredisease. 36)

Household siblings and the incidence of AOM:

The current research established a statistically significant correlation between AOM and having siblings in the household (P=0.002), and furthermore, Jack L. et al.(1997) disease. al. (1997)found that the presence of older siblings or other children in the household was positively correlated with the prevalence of AOM. (33)al. (1997) (33)..

According to research by Jose F.et (33).F. etal. (2006), there is a higher occurrence in large families, particularly when a large number of children are younger than five years old.

Johannes A. The incidence of AOM rose in the second year of life for children whose households included many siblings, according to research by et al. (2010). (32)

AOM and craniofacial abnormalities:

Based on their research, Boston M. According to a study conducted in the USA by et al. (2003), children with uncorrected cleft palate had a higher incidence of AOM compared to normal children. However, when the cleft is corrected, the recurrence of AOM is reduced. The present study did not find any association between CraniofacialF. etcraniofacial anomaly and the occurrence of AOM, which is likely due to the small sample size and low number of cases of Craniofacialcraniofacialcraniofacial abnormalities.

peculiarities that are a part of the sample under investigation.

Anaphylaxis of food allergies:

Results were similar to those of a previous study by Bernstein JM.craniofacialJM,, which also indicated a statistically significant correlation between allergies and AOM (P=0.018). Eventually,

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viruses and bacteria can build up in ear effusion due to atopic Eustachian tube obstruction, which can cause AOM (48)(49) JM,(48)(49),in a study conducted in 2002 in New York, USA.

While there is evidence from epidemiologic, mechanical, and therapeutic studies that suggests allergic rhinitis has a role in the development of AOM, Jose F.et (48)(49),F. etal. (2006) concluded that additional research is necessary to reach firmer conclusions.

I, Vogaziano E. et al.(2007) eF. etal. (2007),xamined 262 children in the Czech Republic and concluded that, while allergies may play a role in the development of AOM, there was no evidence linking atopy to the prevalence of AOM in their data.

The relationship between immunodeficiency and AOM:

Research by Ito et al. (2008) indicated that immunodeficiencies, including chronic granulomatous disease, immunoglobulin deficiencies, and others, are common among Japanese children.

AOM is more common in people with cancer and in individuals whose immune systems are suppressed as a result of medication. Also, compared to typically developing infants, AIDS-positive children have OM more frequently. (51)

According to research by Kelvin Kong and Harvey LC. Coates (2009) on a sample of 25,000 children in Australia, immunodeficiencies linked to AOM may include low levels of secretory IgA, a protein that plays a role in nasopharyngeal bacterial colonization.

Because of the small sample size and low prevalence of immunodeficiencies in the study population, the current investigation did not find a statistically significant correlation between immunodeficiency and AOM.

Income level and the prevalence of AOM:

Mr. Jack L. A substantial correlation between low socioeconomic level and the prevalence of AOM was discovered by et al. (1997). (33)

In a researal. (2007),researchch involving children in Nigeria ranging in age from one day to twelve years, Y.B.A. Musa et al. (2005) discovered that AOM was more common among those from poor socioeconomic class (researchclasses53).

Keith K. classesK.,together with Harvey C. (2009) K.,(2009),discovered that AOM was more common among people from low-income backgrounds who had less access to health care. (52)

The current study's finding that AOM is more common among those with lower socioeconomic position (2009),positionsis consistent with these other findings.

Conclusions

The current study's findings allow us to draw the following conclusions:

1.Attacks positions1. Attacksof acute otitis media were somewhat more common in males, and the age range of 1-2 years old had the greatest frequency.

2.There 1. Attacks2. Therewere a few occurrences of vertigo and tinnitus, but fever, otalgia, otorrhea, irritability, lack of appetite, vomiting, and reduced hearing were the most common clinical presentations.

3.Daycare 2. There3. Daycareattendance, bottle feeding (including supine feeding), pacifier usage, parental cigarette smoke, preterm birth, family history, household siblings, and allergy were significant risk factors for AOM.

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4.Antibiotics, 3. Daycare4. Antibiotics,analgesics, nasal decongestants, and antihistamines were among the therapy choices utilized in case management.

Recommendation

1.Supporting 4. Antibiotics,1. Supportingotoscopy in primary care and integrating clinical algorithms into existing outpatient guidelines would allow for the early detection and treatment of AOM. Complicacies 1. SupportingComplicationsand long-term effects of AOM can be better avoided if this is done.

2.Primary Complications2. Primaryhealth care priorities in remote communities should include promoting2. Primary early immunization, advising children with hearing impairments on effective communication strategies, and accurately assessing middle ear disease in the first 18 months of life, as well as supporting strategies that reduce the transmission of bacterial infections to infants and toddlers.

3. All age groups should participate in randomized controlled studies to determine the optimal treatment duration.

4. We need more research on the consequences of AOM.

5. It is advised that more research be conducted on the organisms that cause AOM.

6. Further research is required to identify viable strategies for preventing AOM by lowering risk factors.

References

1. John M. Graham, Glenis K. Scadding. Pediatric ENT. Springer, New York;2007.
2. Morris PS, Leach AJ, Silberberg P. Otitis media in young Aboriginal children from remote communities in Northern and Central Australia: a cross-sectional survey. BMC Pediatrics 2005;5:27.
3. Charles C, James S, Robert H. Rakel. Text book of Family Medicine. 7th ed. New York: Saunders; 2011.
4. Ramakrishnan K, Sparks RA, BerryhillWE. Diagnosis and Treatment of Otitis Media. Am Fam Physician. 2007 Dec1;76(11):1650-8.
5. TeeleDW, Klein JO, Chase C, Menyuk P, Rosner BA. Otitis media in infancy and intellectual ability, school achievement, speech, and language at age 7 years. The Greater Boston Otitis Media Study Group. J Infect Dis 1990;162:685-94.
6. Robert E. Rakel. Essential family medicine: fundamentals & case study. 3rded. Philadelphia, Pennsylvania: Elsevier;2007.
7. Kliegman R.M.: Otitis media. In: nelson text book of pediatrics.19thed. 2011; 2199-2213USA Subcommittee on Management of Acute Otitis Media. Diagnosis and management of acute otitis media. Pediatrics. May2004;113(5):1451-65.
8. Niemela M, Uhari M, Jounio-Ervasti K, Luotonen J, AlhoOP, Vierimaa
9. Lack of specific symptomatology in children with acute otitis media. Pediatr Infect Dis J.1994;13:765–768.
10. Kontiokari T, Koivunen P, Niemela M, Pokka T, Uhari M. Symptoms of acute otitis media. Pediatr Infect Dis J.1998;17:676–679.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

11. Bennett KE, Haggard MP. Accumulation of factors influencing children's middle ear disease: risk factor modeling on a large population cohort. J Epidemiol Community Health. 1998;52:786–793.
12. Duffy LC, Faden H, Wasielewski R, et al. Exclusive breastfeeding protects against bacterial colonization and day care exposure to otitis media. Pediatrics. 1997;100:E7.
13. YasmeenMumtaz, Farida Habib, Ashraf Jahangeer and Adnan Habib. Determinations of Acute Otitis Media in infant. JDUHS 2009; vol.3(1):10-15.
14. Niemelä M, Pihakari O, Pokka T, Uhari M. Pacifier as a risk factor for acute otitis media: a randomized, controlled trial of parental counseling. Pediatrics. 2000;106:483–488.
15. Jacoby P, Coates H, Arumugaswamy A, et al. The effect of passive smoking on the risk of otitis media in Aboriginal and non-Aboriginal children in the Kalgoorlie-Boulder region of Western Australia. Med J Aust 2008; 188:599-603.
16. Engel J, Anteunis L, Volovics A, et al. Prevalence rates of otitis media with effusion from 0 to 2 years of age: healthy-born versus high-risk- born infants. Int J PediatrOtorhinolaryngol 1999; 47:243-251.
17. Kvaerner KJ, Tambs IC, Harris JR, Magnus P. The relationship between otitis media and intrauterine growth: a co-twin study. Int J PediatrOtorhinolaryngol . 1996;37:217–225.
18. Kelly KM Recurrent otitis media: genetic immunoglobulin markers in children and their parents. Int J Pediatr Otorhinolaryngol.1993; l 25:279– 280.
19. Zakzouk S M, Hajjaj M F. Epidemiology of Chronic suppurative otitis media among Saudi children a comparative study of 2 decades .Int J PaediatrOtorhinolarygol.2002;62:215-8.
20. Heavner SB, Hardy SM, White DR. Transient inflammation and dysfunction of the Eustachian tube secondary to multiple exposures of simulated gastro oesophagealrefluxant. Ann OtolRhinolLaryngol. 2004;110:928–934.
21. Skoner DP. Allergic rhinitis: definition, epidemiology, pathophysiology, detection, and diagnosis. J Allergy ClinImmunol. Jul 2001;108(1 Suppl):S2-8.
22. Scottish Intercollegiate Guidelines Network. Diagnosis and management of childhood otitis media in primary care. SIGN guideline No. 66. February2003.
23. Popovtzer A, Raveh E, Bahar G, Oestreicher-Kedem Y, Feinmesser R, Nageris B. Facial palsy associated with acute otitis media. Otolaryngol Head Neck Surg . 2005;132:327–329.
24. Wanna GB, Dharamsi LM, Moss JR, Bennett ML, Thompson RC, Haynes DS. Contemporary Management of Intracranial Complications of Otitis Media. Otology &Neurotology2010;31(1):111-117.
25. Williams RL, Chalmers TC, Stange KC, Chalmers FT, Bowlin SJ. Useof antibiotics in preventing recurrent otitis media and in treating otitis media with effusion: a meta-analytic attempt to resolve the brouhaha. JAMA. 1993;270:1344–1351.
26. Hoberman A, Greenberg DP, Paradise JL, et al. Effectiveness of inactivated influenza vaccine in preventing acute otitis media in young children: a randomized controlled trial. JAMA. 2003;290:1608–1616.
27. Van Kempen MJ, Vermeiren JS, Vaneechoutte M, Claeys G, Veenhoven RH, Rijkers GT, Sanders EA, Dhooge IJ. Pneumococcal conjugate vaccination in children with recurrent acute otitis media: a therapeutic alternative? Int J PediatrOtorhinolaryngol. 2006;70:275–285.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

28. "Recommendation of the Immunization Practices Advisory Committee (ACIP) Polysaccharide Vaccine for Prevention of Haemophilusinfluenzae Type b Disease". MMWR Weekly 34 (15): 201–5. 1985-04- 19. ISSN0149-2195.
29. "Haemophilusinfluenzae Serotype b (Hib) Disease". Disease Listing, Centers for Disease Control and Prevention. Accessed via http://www.cdc.gov/hi-disease/clinicians.html on December2014
30. Alho O.P., Koivu M., Sorri M., Rantakallio P. The occurrence of acute otitis media in infants. Int J Pediatr Otorhinolaryngol.1991;21(1):7-14.
31. Nasir Hindi Serhan. Acute otitis media in infant and children. Al- Nahrain University, Medical Collage;1997;4:34-35.
32. Joost A, M. Labout, LiesbethDuijts, et al. Risk factors for otitis media in children with special emphasis on the role of colonization with bacterial airway pathogens: the Generation R study. Eur J Epidemiol 2010; 26:61– 66.
33. Jack L. Paradise, Howard E. Rockette, et al. Otitis Media in 2253 Pittsburgh-Area Infants: Prevalence and Risk Factors During the First Two Years of Life. Pediatrics J1997;99:318.
34. Del Castilo F, Garcia Perea A, BaqueroArtigao F. Bacteriology of acute otitis media in Spain: a prospective study based on tympanocentesis. Pediatr Infect Dis J 1996;15:541–543.
35. Heikkinen T, Runskanen O. Determination whether acute otitis media can be distinguished from upper respiratory tract infection by symptomatology. Arch Pediatr Adolescent Medicine. 1995; 149(1):26- 29.
36. Uhari M, Mantysaari K, Niemela M. A meta-analytic review of the risk factors for acute otitis media. Clin Infect Dis. 1996;22:1079-1083.
37. Mottonen M, Uhari M. Absences for sickness among children in day care. ActaPaediatr 1992;81:929-32.
38. LubiancaNeto JF, Hemb L, Silva DB. Systematic literature review of modifiable risk factors for recurrent acute otitis media in childhood. J Pediatr (Rio J).2006;82(2):87-96.
39. TeeleDW, Klein JO, Rosner B. Epidemiology of otitis media during the first seven years of life in children in greater Boston. J Infect Dis 1989; 160:83-94.
40. Thompson SG. Why sources of heterogeneity in meta-analysis should be investigated. BMJ1994;309:1351-5.
41. Niemela M, Uhari M, Hannuksela A. Pacifiers and dental structure as risk factors for otitis media. Int J PediatrOtorhinolaryngol. 1994;29:121- 7.
42. Larsson E. Dummy and finger-sucking habits in 4-year-olds. Swed Dent J1975;68:219-24.
43. Warren JJ, Levy SM, Kirchner HL, Nowak AJ, Bergus GR. Pacifier use and the occurrence of otitis media in the first year of life. Pediatr Dent. 2001;23:103-7.
44. Ilicali OC, Keles N, Deer K, Asum OF, Guldiken Y. Evaluation of the effect of passive smoking on otitis media in children by an objective method: urinary cotinine analysis. Laryngoscope.2001;11:163-7.
45. Becken ET, Daly KA, Lindgren BR, Meland MH, Giebink GS. Low cord blood pneumococcal antibody concentrations predict more episodes of otitis media. Arch Otolaryngol Head Neck Surg .2001;127:517–522.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

46. Bluestone CD, Klein JO, Paradise JL, Eichenwald H, Bess FH, Downs MP. Workshop on effects of otitis media on the child. Pediatrics. 1983;71:639-52.
47. Boston M, McCook J, Burke B, Derkay C. Incidence of and risk factors for additional tympanostomy tube insertion in children. Arch Otolaryngol Head Neck Surg.2003;129:293-6.
48. Bernstein JM. Immunologic aspects of otitis media. CurrAllergy Asthma Rep 2002; 2 (4):309–15.
49. Kraemer JK, Richardson MA, Weis NS, Furukawa CT, Shapiro GG, Pierson WE. Risk factors for persistent middle-ear effusions. JAMA. 1983;249:1022-5.
50. Vogazinos E., Vogasianos P. ,Janecek D.,Slapak L., Fiala I. Connection of atopy with acute otitis media. SCRIPTA MEDICA (BRNO) December 2007; 80 (6):273–278.
51. Ito M, et al. Usefulness of the Guideline of Diagnosis and Management of Acute Otis Media. Pediatric Otorhinolaryngology Japan. 2008 ; 29(1) : 20-4.
52. Kelvin Kong, Harvey LC Coates. Natural history, definitions, risk factors and burden of otitis media. MJA 2009; 191:S39–S43.
53. Amusa YB, Ijadunola IK, Onayade OO. Epidemiology of acute otitis media in alocal tropical African population. West Afr J Med. 2005 Jul- Sep;24(3):227-30.
54. Kozyrskyj AL, Hildes-Ripstein GE, Longstaffe SE, Wincott JL, Sitar DS, Klassen TP, Moffatt ME. Short course antibiotics for acute otitis media. Cochrane Database Syst Rev.2000;(2):CD001095.
55. Rosenfeld RM, CD Bluestone CD. Clinical efficacy of surgical therapy. In: Rosenfeld RM, Bluestone CD (eds) Evidence-Based Otitis Media (2nd edn). BC Decker, Hamilton. 2003; pp227–240.
56. Glasziou PP, Del Mar CB, Sanders SL, Hayem M. Antibiotics for acute otitis media in children. Cochrane Database Syst Rev 2004; (1):CD000219.
57. Butler CC, Hood K, Kinnersley P, Robling M, ProutH, Houston H. Predicting the clinical course of suspected acute viral upper respiratory tract infection in children. Family Practice; 92-5.2005.
58. Barenkamp SJ, Pearay LO, et al. Microbiology and Immunology, Recent advances in otitis media, report of the 8thresearch conference. Supplement 194. Annals of ORL; 114, number 1, part 2: 60-85.2005.
59. Flynn CA, Griffin GH, Schultz JK. Decongestants and antihistamines for acute otitis media in children. Cochrane Database of Systematic Reviews 2004, Issue 3. Art. No.:CD001727.
60. Philip D. Sloane, Lisa M. Slatt, Mark H. Ebell, Mindy A. Smith, David Power, Anthony J. Viera. Essentials of Family Medicine.6thed. Lippincott Williams &Wilkins;2012.

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webofjournals.com/index.php/5