ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES

Published by JK Welfare & Pharmascope Foundation Journal Home Page: https://ijrps.com

Detection of bacterial pathogens causing a chronic suppurative otits media and study of antibiotic susceptibility in Iraqi patients

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Article History:

Received on: 17.05.2019
Revised on: 05.08.2019
Accepted on: 09.08.2019

Keywords:

Chronic supportive otitis media, Pseudomonas aeruginosa, antibiotic susceptibility, Amikacin

ABSTRACT

A complete number of 100 ear swabs were researched for the present study. This investigation is to discover the microbiological profile and their antimicrobial affectability designs in patients with constant suppurative otitis media in an Al-hububi clinic. Gram recoloring, direct microscopy with KOH, culture affectability and biochemical tests were completed to distinguish the living beings and to realize the affectability design. Every one of the swabs were gathered from patients with the clinical conclusion of unending suppurative otitis media. Pseudomonas aeruginosa (37.21%) was generally secluded life form pursued by Staphylococcus aureus (27.91%) from the samples. Amikacin was found to be the most effective antibiotic with low resistance rate. The investigation of microbial example and their anti-infection affectability decides the predominant living beings causing unending suppurative otitis media in neighborhood begins fitting treatment of otitis media and its intricacies for effective result.

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ISSN: 0975-7538

DOI: https://doi.org/10.26452/ijrps.v10i3.1511

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INTRODUCTION

CSOM (The media of perpetual suppurative otitis) is an unending provocative procedure in the central space of that outcome in long haul or lasting variation of the film of eardrum including atelectasis, dimeric layer arrangement, puncturing, tympanosclerosis, withdrawal stash, or cholesteatoma. There is a critical medical issue in our community inappropriate, and unseemly treating of CSOM may lead to a wide scope of complexities. The reason might be the spread of life which forms to structures adjoining the ear or to nearby harm in the central ear. These intricacies run along tireless otorrhoea, mastoiditis, labyrinthitis, facial nerve loss in the motion to increasingly genuine intracranial abscesses or thromboses (Hillman and Todd, 2003).

Microbial medication opposition is a developing worldwide issue. In a negative gram of microorganisms, most safe pathogens are E. coli; Klebsiella species; and Psudomonas aeruginosa, with expanding patterns watched in every real enemy of negative gram operators (beta-lactams, fluorquinolones and aminoglycosides) (Rossolini *et al.*, 2007). Genuine diseases brought about by positive gram of microbes which can be progressively hard to work due to causes of diseases, for example, methicillin-safe S. aureus (MRSA), and penicillin-safe S. pneumoniae (Menichetti, 2005). Recognition of different drugs safe separates can additionally confine remedial alternatives. In this manner, the culture of microbes and affectability may be a benefit in the proper administration of the media of otitis and its intricacies and along these lines keeping the development of safe bacterial strain. There is a need to comprehend the study of disease transmission and microbiology of CSOM so as to create success-

ful techniques for essential counteractive action and better administration of the ailment (Ghonaim *et al.*, 2011).

The media of Otitis is a polymicrobial multi-operator sickness infection that may be assuming the main job in making ear diseases which are adenovirus, flu infection and kinds A; and B the two kinds, respiratory syncytial infection (RSV), enterovirus, rhinovirus; and coronovirus additionally the infection of Para flue.

The most widely recognized infections which reason top respiratory contamination; and in the end starts a chain which extends to the throat and ear disease within convoluted states. It could be seen infections lead to irritation of central ear and prompts intense otitis externa. So in order to keep away viral contaminations, diverse antibodies can be accessible in various infections such immunizations might totally keep from ear infections and different diseases brought about by infections. Specific antiviral antitoxins may likewise be extremely certain to cure ear disease resulted from viral pathogens. For example, cebosch, and so forth, salivation infection is available in typical bacterial greenery in oral depression, and it is ended up being non-pathogenic yet, in addition, keep from an assortment of pathogenic life forms. It was likewise seen that salivation infection because of the development of BLIS could keep the development of microscopic organisms identified with throat torment (Kubba *et al.*, 2000).

Where infections can be a basic reason that may cause otitis media microscopic organisms can be additionally significant reasons incite ear contamination. Most normal microorganisms associated with otitis media are Pneumonia; Strepto; Catharlis and Flu to make any disease microbes initially go within-host body which requires colonization that is a dynamic procedure (Tagg, 2004).

There was account for such Haemophillus flu make synergism impact if Streptococcus pneumonae additionally assault which equivalent single catching flu infection kinds. These two kinds additionally obstruct mutual impacts at times. Distinctive specialists utilized against an assortment of disease factors as neomycin is just powerful against Staphylococcus aureus and Proteus kinds as it is rather compelling against aeruginosa and anaerobes, so polymyxin B utilized in opposition to certain kinds.

Beside the chloramphenicol can be considered as strong against an assortment in life forms. Fluoroquinolones having ciprofloxacin is normal anti-infection to cure media of otitis.

Aminoglycosides, for example, gentamycin and amikacin can be regularly utilized against negative gram of microscopic organisms by the objective implementation of ears. (Burton *et al.*, 2006).

Subsequently, amoxicillin anti-microbial is sufficient against all gram-positive bacteria's. Every now and again, respiratory disease, infected throat or pharyngitis may prompt ear contamination (Vandenbroucke, 1982).

Parasites can likewise cause otitis externa. All things considered, the ear ought to be perfect through, or it very well may be wash by 1% acidic corrosive in liquor endorsed by a specialist. An assortment of anti-creams can be likewise utilizing to cure ear contamination. Clotrimazole is adequate versus Candida and Aspergillus types of parasites. Diseases caused by parasites are, in all respects, strangely happen (Ragland and Tagg, 1990).

MATERIALS AND METHODS

Source of Specimens

100 samples were collected from patients in Al-Hububi hospital for both sexes and for all age groups during the period from December 2017 to January 2018. This study was led in the lab of Nursing College, University of Thi- Qar.

Preparing culture media

The media utilized within such examination was set up as indicated by makes directions Oxoid, Ear release was gathered utilizing steriled swab sticks that were marked and handed to the research center for bacteriological culture ponders. The swabs were set on MacConkey agar, Blood agar and Chocolate agar and hatched vigorously at 37 °C for 24 hours.

Identification of bacteria

Living beings are distinguished by standard microbiological strategies (Akortha and Ibadin, 2008).

Antibiotic susceptibility testing

Every single segregated strain were tried for weakness to anti-infection agents on Mueller Hinton Agar utilizing Kirby Bauer plate dissemination technique. Results were translated utilizing Clinical Research center Measures Foundation (CLSI) rules (Bauer *et al.*, 1966).

RESULTS AND DISCUSSION

Gender distribution on patients

Chronic suppurative otitis media (CSOM) have been improved the situation all the 100 patients. For both sexes and for all age groups (Figure 1).

Bacterial isolates from otitis media

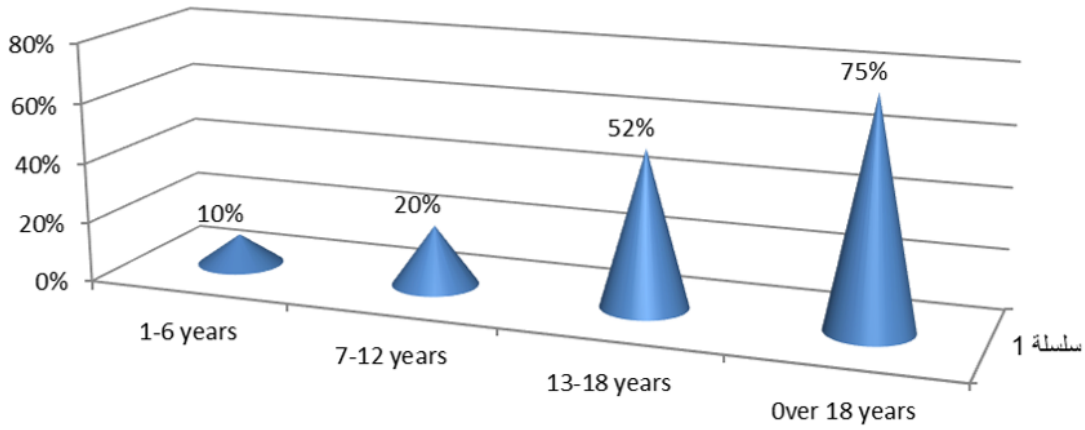

Figure 1: Gender distribution according patients

Table 1: The microscopic organisms distinguished in the examples

Bacteria Isolated from Swab Culturew	Number	Percentage
Pseudomonas aeruginosaw	32	37.21%
Staphylococcus aureusw	24	27.91%
klebsiella pneumoniaew	12	13.95%
Proteus	9	10.46%
Esterichia colia	4	4.65%
Streptococcus pneumoniaeq	3	3.49%
Streptococcus pyogensw	2	2.33%
Total	86	100%

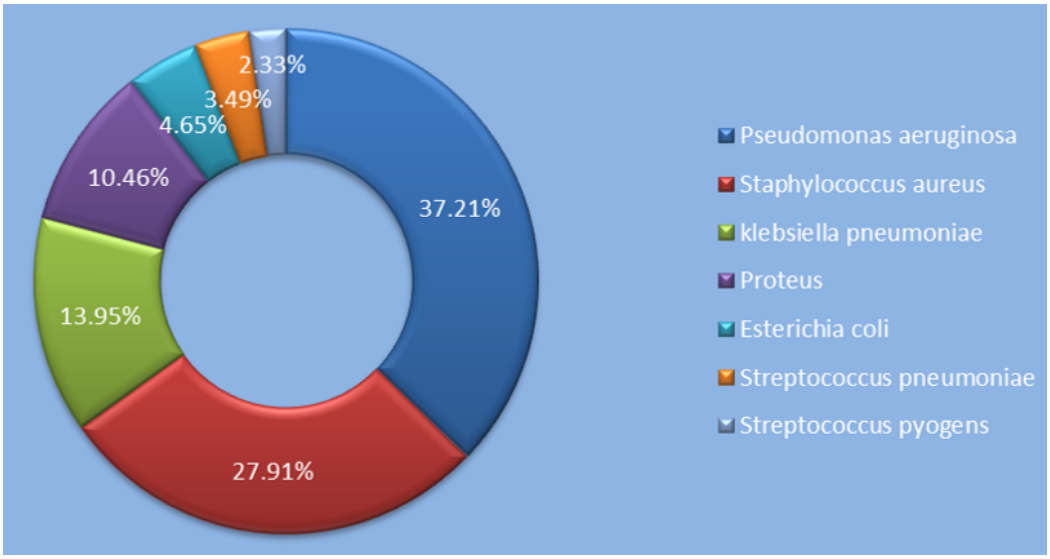

Figure 2: Percentage of pathogens causing ear infection

Table 2: Antibiotic susceptibility test for the identified bacteria

Antibiotic disc	Pseudomonas Sp (mm)	Klebsiella Sp (mm)	Proteus Sp (mm)	E. coli (mm)	S. Aureus (mm)	Sensitivity percentage (%)
Gentamicin	8	8	8	8	8	100
Tetracyclin	6	-	6	-	-	40
Streptomycin	6	7	-	3	-	45
Ampicillin	7	8	5	8	8	80
Amoxicillin	7	-	5	5	-	30
Nitrofurantoin	6	-	5	5	-	30
Chloramphenicol	5	-	5	-	7	50
Septrin	7	-	-	5	-	25
Erythromycin	7	-	5	5	-	30

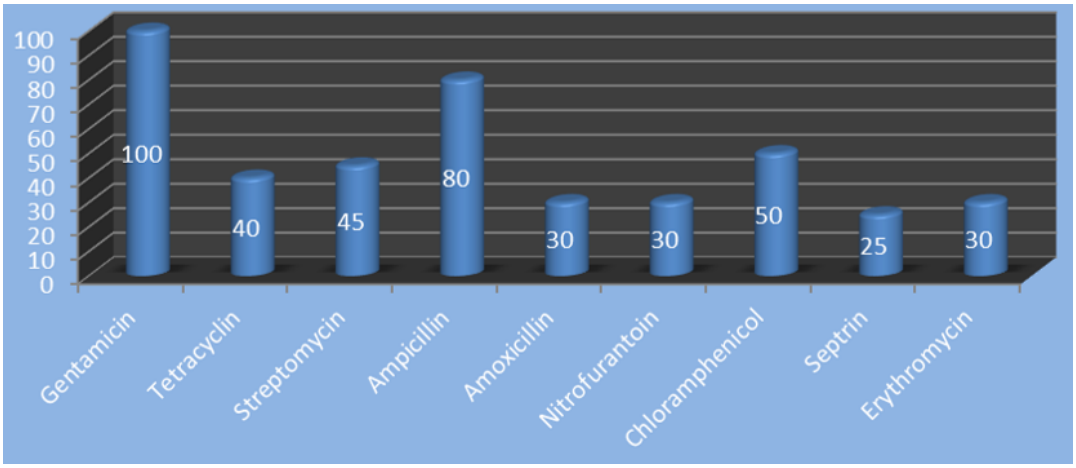

Figure 3: Ratio of antibiotics sensitivity

As per observational examinations and for both genders and all age gatherings, Pseudomonas aeruginosa was the most well-known microscopic organisms separated out of the bacterial culture (n=32; 37.21%) trailed by Staphylococcus aureus (n=22; 27.91%) and klebsiella (n=12; 13.95%) (Table 1) Pseudomonas aerogenosa is well-known reasons that is profoundly touchy (93%) to a great assortment of anti-microbials as appeared in Figure 2.

Antimicrobial susceptibility testing

Anti-microbial affectability test was done utilizing plate dissemination method for all the bacterial confines to the most usually anti-toxin specialists that utilized as a part of this examination as was appeared in Figure 3 was discovered diverse bacterial pathogen was exceptionally touchy to Gentamicin they are enlisted 100% (Table 2) and a large portion of them were likewise very opposed to Erythromycin and Amoxicillin (30%) and Septrin corrosive (25%). The vast majority of the pathogens secluded were reasonably delicate to amoxicillin, Nitrofurantoin and Septrin.

During the microbiological investigation of CSOM, different living beings are secluded. Of the 100 ear swabs refined, parasitic and microbes.

This investigation Pseudomonas aeruginosa (37.21%) was observed as a widely recognized living being trailed by Staphylococcus aureus (27.91%) klebsiella (13.95%), proteus (10.46%), Escherichia coli (4.65%). Studies led by (Vishwanath *et al.*, 2012) likewise presumed that pseudomonas aeruginosa was the most famous seclude pursued by staphylococcus aureus (Vishwanath *et al.*, 2012). While the investigation of (Juyal *et al.*, 2013) stated that staphylococcus aureus was the overwhelming life form in CSOM.

This examination Amikacin was observed to be compelling versus all the bacteriological kinds disconnected. Like our examination discoveries, Amikacin was observed as best medication, in an investigation by Juyal *et al.* (2013). Different investigations additionally watched comparative examples of anti-infection affectability (Gulati, 1997).

In a planned report on the bacteriology of squamous sort of endless otitis media in intricacies, Pseudomonas and Proteus were the actual well-known

life forms detached in patients with inconveniences. Information about the most widely recognized life forms causing constant otitis media with entanglements can keep the equivalent, and the antimicrobial affectability example should direct in suitable administration of CSOM and end the movement of complexity at a beginning time (Viswanatha *et al.*, 2014).

CONCLUSION

Pseudomonas kinds is the main culpable reason in CSOM and Amikacin can be observed as the best anti-toxin of less obstruction average. Creatures can be progressively getting to be impervious to normal and actual anti-infection agents like fluoroquinolones and penicillin assemble drugs. Henceforth, anti-toxin powerlessness tests should control the administration of CSOM.

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