Microorganisms Isolated from Ear Swab Culture, a one year study in Princess Iman Center Microbiology Department

Eng. Dena Al-Dalabeh*, Eng. Iman Khresha*, MLT Yazan F. Jarrah*.

*Quality Control Department, Princess Iman Center, King Hussein Medical City, Amman-Jordan.

DOI: 10.29322/IJSRP.9.03.2019.p8747
http://dx.doi.org/10.29322/IJSRP.9.03.2019.p8747

Introduction:
Otitis media or Otitis externa is an infection or inflammation of the external auditory canal, the auricles, or both. It is mostly often caused by bacterial infection or occasionally fungal infection. The most characteristic symptom is discomfort that is limited to the external auditory canal, while the most characteristic signs are erythema and swelling of the canal with variable discharge. Discharge are collected by ear swab to screen various pathogenic responsible for infection.

Objective:
The aim of this study is to figure out most common microorganism cause otitis media among patients whom visited the ENT outpatient clinic at King Hussien Hospital over one year.

Materials and Methods:
A total number of three hundred fifty three ear swab samples were received to microbiology department at Princess Iman Center from ENT Clinic in King Hussein hospital from the period of Jan-2016 till Dec-2016. All samples were cultured on blood agar, chocolate agar and Sabouraud agar and incubated at 37C° for 24 hour to 48 hour. Identification tests for gram negative bacteria were done by VITEK 2 automated microbiology system from Biomeriux where a GN card was uploaded. For *Pseudomonas spp*. oxidase test was done to confirm the identity of *Pseudomonas*. For gram positive bacteria catalase test were done to distinguish between staphylococci and streptococci, then coagulase test was done to differentiate between *Staphylococcus aureus* and *Staphylococcus epidermidis*, then confirmation test was done by VITEK 2 automated microbiology system from Biomeriux where a GP card was uploaded. For Candida detection a wet mount was directly examined from suspected colonies from Sabouraud agar and also confirmation test was done by VITEK 2 automated microbiology system from Biomeriux where an YST card was uploaded.

For sensitivity testing a AST-233 card for gram negative, AST-580 card for gram positive, AST-567 card for streptococcus pneumonia, AST-Y07 cards for yeast were uploaded on VITEK 2 automated microbiology system from Biomeriux.

Results:
Out of 353 ear swab samples a number of 116 give No Growth, 37 samples were mixed growth, 5 samples were possible skin contamination by *staph*. *epidermidis*. The other 195 samples were identified as follow; 62 sample (32%) *Pseudomonas* spp., 51 samples (28%) *Staphylococci* were 26 identified Staph. aureus and 25 MRSA, 27 sample (14%) *Candida* spp., 19 sample (10%) *Aspergillus* spp., 10 samples (5%) *Proteus* spp., 6 samples (3%) *Klebsiella* spp., 5 samples (3%) *Enterobacter* spp., 4 samples(2%) of each *Acinetobacter*, E.*coli* and *Streptococcus pneumonia,* 2 samples of each *Pencillium* and *Serratia,* 1 sample of each; *Morganilla morganii*, H.*influenza*, *streptococcus* group A, *Enterococcus* group D and *citrobacter* spp.

Microorganism name	Number of samples	Percentage
Pseudomonas spp	62	32%
	Staph. aureus 26	

Staphylococci	MRSA 25	26%
Candida	27	14%
Aspergillus spp	19	10%
Proteus spp	10	5%
Klebsiella spp	6	3%
Enterobacter spp	5	3%
Acinetobacter	4	2%
E.*coli*	4	2%
Streptococcus pneumonia	4	2%
Pencillium	2	1%
Serratia	2	1%
Morganilla morganii	1	0.5%
H.*influenza*	1	0.5%
streptococcus group A	1	0.5%
Enterococcus group D	1	0.5%
citrobacter spp	1	0.5%

Conclusion:

"Some studies such as L Appiah-Korang, et al.[1] found that *Pseudomonas* cause more than 46% followed by *Staphylococci* 12.5% then *Candida* was the commonest isolated fungi 69.2%"

In our study also *Pseudomonas* was the most causative with 32% followed by *Staphylococci* with 28% and *Candida* 14%.

For the treatment of otitis media caused by *Pseudomonas spp* the drug of choice is Ceftazidime and if the bacteria developed resistance the prefered drug maybe Carbapenem family. For *Staphylococci* if it not developed to MRSA a varity of Cefoxitim, Vancomycin and Teicoplanin maybe drugs of choice. In *Candida* infection the antifungal drugs such as Voriconasole, Amphotericin B and Caspofungin all are drugs of choice for fungal infection. Keep in mind the route of administration and dose of drugs must be determined according to doctor choice and patient physical and health status.

Key words: Otits media, ear swab, Ceftazidime.

References:

1- **Aetiological Agents of Ear Discharge: A Two Year Review in a Teaching Hospital in Ghana**

L Appiah-Korang,[1] S Asare-Gyasi,[1] A E Yawson,[2] and K Searyoh[3]