BACTERIOLOGY AND ANTIBACTERIAL SUSCEPTIBILITY OF TONSILLOPHARYNGITIS AND CHRONIC SUPPURATIVE OTITIS MEDIA CROSS SECTIONAL STUDY IN AL.HABOBI HOSPITAL-THI-QAR

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ABSTRACT:

Antibacterial resistance is a great problem on proper management of tonsillopharyngitis and chronic otitis media.To determine the antibacterial susceptibility of the common causative bacteria throat and ear swabs were sent for culture and antibiotic sensitivity testing from out patients attending AL.Habobi hospital over aperiod from September 2009 to September 2010. Of 102 patients with tonsillopharyngitis , Beta haemolytic streptococcus type A ,was the commonest cause accounting for 59.8% of all isolated bacteria, followed by 29.4% was staphylococcus.On other hand pseudomonas represent the top of the list of bacterial causes of chronic suppurative otitis media(46%) ,followed by staphylococcus aureus (27.6%).
Amikacin has the greater chance of action among most isolated bacteria in this study.Sensitivity to commonly used antibacterial agent like amoxicillin, cephalosporin, pencillin, erythromycin and co-trimazole were less.

Keywords: tonsillopharyngitis,chronic suppurative otitis media,and antibacterial susceptibility

INTRODUCTION:

Chronic otitis media is an inflammation of the middle ear cleft that persists or keeps coming back, and causes a long-term or permanent damage to the ear(1). It has been an important cause of middle ear disease since prehistoric times (2). Its incidence appears to be depending for some extent on race and socioeconomic factors for example; it is significantly more common in cold and damp areas like Inuit(Eskimos) and American Indians.(3) Poor hygiene and nutrition has been suggested as abases for the wide spread prevalence of chronic otitis media in developing countries (4).Ear infections are common in children because their Eustachian tubes are shorter, narrower and more horizontal than in adults.(5)Most common presentation of the disease is discharging ear associated with hearing difficulty and sometime earache when superadded by acute attack.(6) A wide range of microorganisms were isolated in the cultures of the ear discharge, vary from study to other but pseudomonas aeruginosa and proteus species are most frequently isolated. (7) Chronic ear infection is not life threatening , but they can be uncomfortable and may result in serious complications like mastoiditis, labyrinthitis, facial nerve palsy and intracranial complications like extradural ,subdural and brain abscess (8). Acute oropharyngitis is an inflammation of the pharynx and tonsils, it is the most common cause of the sore throat ,its either acute or chronic ,most acute cases are caused by viral infection (60-80%) with remainder caused by bacterial infction,fungal infection or irritants such as pollutions or chemical substances .(9) Many different viruses can give rise to upper respiratory tract infection like rhinovirus, adhenovirus, influenza virus and coronavirus,while bacterial infection caused by hemolytic streptococcus, H.influenzae which are more common among children ,and staphylococcus aeureus .significant of anaerobes remains uncertain.(9) There has been suggestion that removal of the tonsils may predisposed to acute pharyngitis, but there seem to be no conclusive evidence to support this.(10) History of antibiotics Many treatments for infection prior to the

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beginning of the twentieth century were based on medicinal folklore .Ancient Chinese medicine using plant with antimicrobial properties were described over 2500years ago.(11)Ancient Egyptians and Greeks used mold and plants to treat infections.(12)(13)The discovery of the natural antibiotics produced by microorganisms stemmed from earlier work on the observation of the antibiosis between microorganisms by Louis Pasteur(1877)who observed that "If we could intervenes in the antagonism observed between some bacteria ,it would offer perhaps the greatest hopes of the therapeutics".(14) Synthetic antibiotics chemotherapy as a science and the story of the development began in Germany with Paul Ehrlich, a German medical scientist in late 1880s which marked the birth of the antibiotic`s revolution.(15)Amikacin and gentamicin are aminoglycosides ,generally bacteriostatic ,but may be bacteriocidal in high concentration,mostly effective against gram negative organisms with ototoxic and nephrotoxic drawbacks.(16) safety isn't established for treatment exceeding 14 days.(17)Ceftiaxone is a cephalosporin belonging to the third generation, it is a broad spectrum ,good stability against beta-lctamase,long half-life and good capacity of diffusion into the tissues(18).results of the clinical trials and world wide experiences seem to be in favour of ceftriaxone as antimicrobial of choice for treatment of severe infections as well as in prophylaxis.(19)Ciprofloxacin is a quinolone derivative, active against grame negative and positive organisms but it relatively poor coverage of streptococcus and can`t be used below 18years .(20)Azithromycin and erythromycin are bacteriostatic antibiotics belong to macrolides group,useful for upper respiratory tract infections(21).

AIMS OF THE STUDY

Assess the demographic distribution of the throat infection and otitis media.

Demonstrate antibiotic susceptibility in throat infection and chronic otitis media.

As a base line study for conducting other researches.

METHOD & MATERIAL

Across sectional epidemiological study conducted at al-Habobi general hospital from (sept.2009-sept.2010) on the patients attended out patient. Patient include in this study were of acute throat infection and chronic otitis media of different age groups and gender and different address discrete. Throat and ear swabs were done for these patients and analyzed by standard microbiological study after cultured aerobically because anaerobic culture media is not available here .

RESULTS

Of 167patients undergo this study 102 were complaint of oropharyngitis and 65 with chronic otitis media. More of the studied population were male of age between 15-45year lived in al-nasserya center and employed ,as shown in table 1. Table 2 shows haemolytic streptococcus type A was the commonest cause of throat infection, while pseudomonas spp. represent the top list of causative bacteria of chronic suppurative otitis media. On other hand no one of chronic suppurative otitis media has been infected by streptococcus , and of throat infection caused by proteus. In table 3, Throat swab`s antibiotic susceptibility revealed that cefatoxime, ceftriaxone, and ciprofloxacin were more effective against streptococcus.On other hand amikacin has the greater chance of antibiotic activity among staphylococcus aureus and pseudomonas spp. In throat swab`s antibiotic susceptibility ,while the gentamycin is the best for klebsiella , E.coli and pseudomonas . Ciprofloxacin has good chance of efficacy on all isolated bacteria in this study. Antibiotic susceptibility of the chronic suppurative otitis media was shown in the table 4 which reveals efficacy of amikacin is greatly obvious on the all types of isolated bacteria in this study and mostly on pseudomonas which the commonest causative bacteria was isolated ,followed

by ciprofloxacin as the next most effective antibiotic.

DATA ANALYSIS:

Data analyzed by calculating the number of patients and percentage and the distribution of the cases according to their causative micro organism , and a statistical analysis was done by calculation chi-square and P value, P value (0.05) was considered statistically significant for all results.

DISCUSSION:

Streptococcal pyogen was the commonest cause of the tonsillopharyngeal infection (59.8%), followed by staphylococcus aureus (29.4%),these findings are tandem with the results of Ayaz Hussain Qureshi et al (1997)(22),and Fam Pract(1992)(23). Cefatoxime(14.4%),ceftriaxone(13.2%),ciprofloxacin(13.2%)and amikacin(12%) were the most effective antimicrobial agent shown in this study while Ayaz,et al(1997)shown 100% susceptibility of the streptococcus to pencillin and 96.2% to cephalexin.(22)On other hand staphylococcus aureus was 34% susceptible to amikacin followed by ciprofloxacin (22.5%) while Ayaz,et al(1997)shown susceptibility of this pathogen more to cloxacillin 90% and 72% to tetracycline followed by cotimazole.In 1950s and 1960s penicillin was clearly the best available agent for the treatment of group A streptococcus infection,the organism was as it is now exquisitely sensitive to pencillin(24.) Pseudomonas aeurginosa was the commonest causative organism of the chronic suppurative otitis media in our study(46%) followed by staphylococcus aureus (27%)coincide with the pattern of chronic suppurative otitis media infection in Singapore which studied by AHCLoy ,et al (2002)(25) and with the pattern of the infection in the tropical region .(26)(27). Amikacin was the drug of choice among whole patients with chronic suppurative otitis media in our study followed by ciprofloxacin tandem with AHCLoy,et al(2002)(25). Efficacy of amikacin against gram negative organisms was seen clearly in other studies done by Fayed DF,etal(1996)(28),Karachalios GN,etal(1998)(29),Maller R,etal(1993)(30). Less efficacy of other antimicrobial agents like amoxil,pencillin azithromycin ,erythromycin ,trimethprim-cotrimazole and cephalosporin appear in this study may be due to miss self medication of some patients or frequent uses of these drug as empirical treatment by general practitioners which may play major role in the development of resistant strains mainly by gram negative pathogens.

CONCLUSION:

Commonly encountered micro organisms causing tonsillopharyngitis in this study were streptococcus pyogen and staphylococcus aureus which are highly sensitive to third generation cephalosporin ,ciprofloxacin and amikacin and to lesser extent to azithromycin and gentamycin while low sensitivity to amoxicillin,pencillin,erythromycin ,tetracycline and trimethprim-cotrimazole which are commonly prescribed pointing to that antibacterial misuse in the leading cause for their resistance . On other hand pseudomonas aeuroginosa and staphylococcus aureus were commonly encountered in this study as the commonest causative organism for chronic suppurative otitis media which are highly sensitive to amikacin and ciprofloxacin and to lesser extent to gentamycin and low sensitivity to other drugs used in this study ,also misuse of antibiotic is plamed.

RECOMMENDATIONS:

1- The results of this study emphasize the necessity of re evaluation of the relative roles of each micro organism in the community and antibacterial susceptibility pattern which are variable among countries.

2- Empirical antibiotic therapy should be based on the local knowledge of the most likely infecting micro organisms and their sensitivities.

Table(1):Demographic distribution of the susceptibility of the antibiotics for tonsillopharyngitis & chronic suppuative otitis media

	Tonsillopharyngitis		Chronic Suppurative Otitis Media	
Gender	No.	%	No.	%
Females	37	36.3	22	33.8
Males	65	63.7	43	66.2
	102		65	
Age				
<15y	7	6.8	20	30.7
15-45y	72	70.5	42	64.6
>45y	23	22.5	3	4.6
	102		65	
Address discrete				
Al-nasyria	47	46	26	40
Suk alshiokh	30	29.4	19	29
Alshtra	20	19.6	17	21.5
alrfaee	5	4.9	3	4.6
	102		65	
employment				
employed	70	68	46	70.7
Non employed	32	32	19	29.3

Table(2): distribution of cases according to bacterial isolation

Bacteria	Tonsillopharyngitis		Chronic suppurative otitis media	
	No.	%	No.	%
Staphylococcus	30	29.4	18	27.6
Streptococcus	61	59.8	-	-
Pseudomonas	6	5.8	30	46
klebsiella	1	0.9	10	15.3
E. coli	3	2.9	3	4.6
Proteus	-	-	4	6
Total of the positive results	102		65	

Table (3)antibiotic susceptibility of the throat swabs

	amikacin		ciprofloxacin		ceftriaxone		cetatoxime		azithromycin		gentamycin		p.value
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	
staph.	21	34	14	22.5	5	8	3	4.8	1	1.6	6	9.6	<0.05
strpto.	10	12	11	13.2	11	12	13	14.4	9	10.8	7	8.4	N.S
pseudomonas	5	29.4	3	17.6	1	5.8	1	5.8	2	11.7	4	23.5	<0.05
klebsiella	1	33.3	1	33.3							3	33.3	N.S
E.coli	2	50	1	25					1	25	4		N.S
proteus.													-

Table(4)antibiotic susceptibility of chronic suppurative otitis media

	amikacin		ciprofloxacin		ceftriaxone		cetatoxime		azithromycin		gentamycin		p. value
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	
Pseudomonas	22	49	13	29	1	2.2	1	2.2	1	2.2	5	11	<0.05
Staphylococcus	12	43	7	25			3	10.7	2	7			<0.05
Klebsiella	8	40	6	24.6	1	4	3	12	5	20			<0.05
E.coli	2	33.3	2	33.3					1	16.6	1	16.6	<0.05
Proteus	3	33.3	1	11	1	11	2	22	1	11	1	11	<0.05
streptococcus													

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دراسة مقطعية حول البكتريا المسببة لالتهاب اللوزتين و البلعوم والتهاب الاذن الوسطى المزمن في مستشفى الحبوبي-ذي قار

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الخلاصة:

من اجل تحديد حساسية البكتريا المسببة لعدوى اللوزتين والبلعوم والتهاب الأذن الوسطى المزمن للمرض المراجعين للعيادة الاستشارية في مستشفى الحبوبي العام للفترة من ايلول ٢٠٠٩ ولغاية ايلول ٢٠١٠. من بين ١٠٢ عينة لمرضى التهاب اللوزتين والبلعوم أظهرت النتائج ان ٥٩,٨% كانت بسبب العدوى بالبكتريا العنقودية المتكورة نوعِ (أ)،تليها بكتريا الستافيلوكوكس ٢٩,٤% .على الجهة الأخرى كانت بكتريا السودومونس هي الأكثر تسببا" لمرض التهاب الأذن الوسطى (٤٦%)،تليها الستافيلوكوكس(٢٧,٦%).

كما أظهرت النتائج ان الاميكاسين هو الأكثر حساسية لمعالجة أغلب البكتريا المسببة لألتهاب الأذن الوسطى وكان ثالثا" لمعالجة التهاب اللوزتين والبلعوم(١٢%) بعد السيتافكسيم والسيبروفلوكساسين(١٣%) ،في حين كانت حساسية المضادات الأكثر شيوعا" في المجتمع مثل الأموكسيسيلين ،البنسيلين ،السلفا، الكفلكس،والأرثرومايسين هي الأقل في هذه الدراسة للحالتين المرضيتين يوعز ذلك الى سوء الأستعمال الشخصي للادوية .

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