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STUDY ON THE CONJUNCTIVITIS DISEASE IN THE KINGDOM OF SAUDI ARABIA

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Abstract:

Fifty samples of the patients with conjunctivitis were gotten from conjunctiva of guests to Ophthalmology Department in Riyadh Hospital, the research facility tests comes about demonstrated that 2 tests in percent of (4%) were negative to bacterial development and Samples in percent of (96%) were sure to bacterial development clinically analyzed to 26acute and 22 constant conjunctivitis. It was appear that Neisseria sp. was the most incessant in the level of 26.4% took after by Staphylococcus aureus and Haemophilus influenza 19.1% to them two. Neisseiae sp. what's more, H. influenza break out the most noteworthy percent of intense conjunctivitis 38.4% to them two while in interminable conjunctivitis Neisseria sp. recorded the most noteworthy percent 36.3%. There was 41.66% of cases had two pathogens. The affectability test comes about demonstrated that Neisseria sp. secluded from intense disease was most touchy to Ampicillin (90%) and most impervious to Amoxicillin and Erythromycin (75%), while in incessant contamination was most delicate to Ampicillin (75%) and most impervious to Clindamycin (100%). H. influenza disengaged from intense contaminations was most delicate to Ampicillin (100%) and most impervious to Erythromycin (100%). The proportion of affectability and protection of other disengaged microorganisms was diverse in intense and endless disease.

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INTRODUCTION:

Conjunctivitis is characterized by irritation, itching and a feeling of a foreign body in the eye with tears and excretions. Inflammation of conjunctivitis is caused by a bacterial or viral infection, or by allergies. Bacterial conjunctivitis usually occurs in one eye, unlike a viral infection that often starts with one eye and is transmitted to the other eye

Conjunctivitis is also known as pink eye. Bacterial conjunctivitis is characterized by the presence of white-yellow mucous membranes, which are often found on the cheek. The inflammation is accompanied by a small swelling with a soft surface at its center, fibrous cavities in the area of the conjunctiva, Iris.

There are two types of bacterial conjunctivitis, both acute and chronic. Acute type is characterized by congestion of veins, the presence of secretions of the purulent, the feeling of the presence of foreign body in the eye, itching and adhesion of the eyelids together. The chronic type is harmless at the beginning and lasts for a long time, and extends the infection to the eyelids and get an inflammatory reaction in the tear system or may be a simple inflammation. Staphylococcus pneumoniae Staphylococcus pneumoniae (Corynebacterium diphtheriae) is one of the most common types of bacteria involved in the infection. Staphylococcus aureus Neisseria gonorrhea, Streptococcus pneumoniae. Moraxella lacunata Haemophilus influenza Infectious bacteria settle the mucous membrane of the conjunctiva and thus become unprotected by the enzyme lysoszyme and antibodies in tears

The study aims to investigate the most common bacterial types of conjunctivitis and to identify the most frequent bacteria in acute and chronic infections and to identify the most effective antibiotic in the treatment of acute and chronic infection.

MATERIALS AND METHODS:

Fifty samples of conjunctivitis were collected for patients with conjunctivitis in the Department of Ophthalmology at Riyadh Hospital, ranging in age from less than one year to more than 50 years, diagnosed by specialist physicians. The samples were placed in the center of Stuart carrier Stewart'S Transport Media until they are transferred to the laboratory for transplantation and diagnosis. Samples were planted on the blood agar medium and the Cocar Agar, Mac Conkey's Agar and incubated for 24-48 hours. After the incubation, the following tests were performed:

1. Microscopy: I attended membranes from developing colonies and were dyed with chromium and examined microscopically.
2. Biochemical tests, including: catalase, oxidase, mannitol fermentation, blood decomposition, indole production, H2S production, movement test, need for X & V factors, sensitivity examination of the substance of the optogen. Based on (Koneman et al 1997)
3. Antibiotic susceptibility testing by Kerby-Bauer et al. (1966) and modified by Vandepitte et al. (1991). The following antibiotics are used by OXiod and are their concentrations: Chloramphenicol 30 µg / disc Amoxycillin 10 ug / disc. Cephalexin 30 µg / disc Erythromycin 15 µg / disc Ampicillin 10 ug / disc Clindamycin 2 µg / disc Trimethoprim 5 µg / disc When the Muller-Hinton medium was vaccinated with cell suspension using a sterile cotton scanner, leave the dishes 5 minutes to dry, Was sterile and incubated at 37 ° C for 24-48 hours. The sensitivity of the germs was demonstrated by the emergence of a distinct aura of inhibition of growth and compared with the standard tables in (Vandepitte et al 1991).

RESULTS:

Table (1): The isolated microorganisms

The isolated microorganisms		
The isolated Bactria	Isolations No.	Percent
Niesseria sp	18	26.4
Staphylococcus aureus	13	19.1
Haemophilus influenzae	13	19.1
Klebsiella pnneumoniae	8	11.7
Moraxilla catarrhalis	4	5.8
Escherichia coli	4	5.8
Pseudomonas aeruginosa	3	4.4
Streptococcus pnneumoniae	1	1.4
Streptococcus pyogenes	1	1.4
Streptococcus agalactia	1	1.4
Proteus vulgaris	1	1.4
Bacillius subtilis	1	1.4
Total	48	99.3

Of the total 50 samples, 48 (96%) showed positive growth for microbial growth and 2 (4%) negative examination of bacterial growth. Positive samples were analyzed in 26 (54.1% cases of acute injury and 22 (45.8%) cases of chronic infection. Table 1 shows the percentages of isolated microorganisms. Neisseria Sp isolates were highest by 26.4% followed by Staphylococcus aureuS and Haemophilus Influenzae by 19.1% Of which were the lowest recorded by the types of bacteria Streptococcus Spp, Bacillus subtilis and Proteus vulgaris by 1.4%.

The incidence of each bacterial type by acute and chronic infection is shown in Table 2. Neisseria Sp and H. influenzae were found to be the most common causes of acute infections (38.4%). Chronic infections showed the highest 36.3% of Neisseria Sp followed by s. aureus and K. Pneumonide by 27.2% each.
Of the 48 cases, 20 (41.66%) were cases of mixed infections. Table 3 shows the percentage of co-existence of the dominant bacteria in mixed infections. The highest co-occurrence rate was 20% for Neisseria sp with H. influenzae and Neisseria sp with s. aureus.

Table (2): The percentage of Isolated Microorganisms according to the Injury degree

Isolated Bacteria	**Chronic Injuries**		**acute Injuries**	
	Isolation No.	**%**	**Isolation No.**	**%**
Neisseria sp	8	36.3	10	38.4
s. aureus	6	27.2	7	26.9
H. Influenzae	3	13.6	10	38.4
K. pneumoniae	6	27.2	2	7.6
M. catarrhalis	3	13.6	1	3.8
E. coli	-	-	4	15.3
P. aeruginosa	2	9.09	1	3.8
S. pneumoniae	-	-	1	3.8
S. pyogenes	1	4.5	-	-
S. agalactia	1	4.5	-	-
Pr. vulgaris	-	-	1	3.8
B. subtilis	1	4.5	-	-
Total of Injuries	**22**	**45.8**	**26**	**54.1**

Table (3): Percentages of the common presence of germs in mixed infections and other germs

M. catarrhalis	P. aeruginosa	E. coli	K. pneumoniae	H. influenza	Neisseria sp	S. agalactia	S. pyogenes	S. pneumoniae	s. aureus	Percentages of the common presence of germs in mixed infections and other germs
5	-	10	10	-	20	-	-	-	-	**s. aureus**
-	-	-	15	20	-	-	-	-	20	**Neisseria sp**
-	10	-	-	-	15	-	-	-	10	**K. pneumoniae**
-	-	-	-	-	-	-	-	5	10	**E. coli**
5	-	-	-	-	20	-	-	-	-	**H. influenzae**

The antibiotic susceptibility test results shown in Table 4 and 5 show that bacterial resistance to antibiotics increases in chronic infections as bacteria have emerged. Neisseria sp was sensitive to the antibody Ampicillin 75% and Cephalexin 70%. Resistance to Clindamycin, Erythromycin, Amoxycillin and Trimethoprim showed 100%, 90%, 80% and 70% respectively. aureus and K. pneumoniae from chronic infections have been shown to be highly sensitive to Ampicillim 100% while s. Aureus with high resistance to Clindamycin, Erythromycin and Trimethoprim at 100%, 86% and 71% respectively. K pneumoniae showed resistance to Cephalexin, Erythromycin, Amoxycillin and Trimethoprim by 100% Neisseria sp isolates from acute infections were more sensitive to Ampicillin 90% followed by Trimethoprim with 85% Clindamycin and Cephalexin by 75% and more than 75% by Amoxycillin and Erythromycin. H. Influenzae infections were more sensitive to Amplicillin, Cephalexin and Trimethprim 100%, 67% 60% Respectively and more resistant to Erythromycin 100% followed by Clindamycin at 67%.

Table (4): Percentages of antibiotic effect on microorganisms isolated from acute infection

Antibiotics														Isolated Microorganisms
sxt		c		a		e		da		ax		cl		
r	S	r	S	r	s	r	S	r	S	r	S	r	s	
15	85	50	50	10	90	75	25	25	75	75	25	25	75	Neisseria sp
50	50	-	100	-	100	75	25	33	67	67	33	67	33	s. aureus
40	60	50	50	-	100	100	-	67	33	33	67	33	67	H. influenzae
80	20	40	60	-	100	50	50	60	40	60	40	40	60	K. pneumoniae
67	33	-	100	-	100	67	33	100	-	33	67	-	100	M. catarrhalis
-	100	50	50	-	100	75	25	25	75	50	50	25	75	E. coli
-	100	50	50	50	50	100	-	100	-	50	50	50	50	P. aeruginosa
-	100	-	100	-	100	100	-	-	100	50	50	100	-	S. pneumoniae
-	100	50	50	-	100	100	-	100	-	100	-	-	100	Pr. vulgaris

Table (5) : Percentages of antibiotic effect on microorganisms isolated from chronic infections.

Antibiotics														Isolated Microorganisms
sxt		c		a		e		da		ax		cl		
r	S	R	S	r	s	r	S	r	S	r	S	r	s	
70	30	60	40	25	75	90	10	100	-	80	20	30	70	Neisseria sp
71	39	14	86	-	100	86	14	100	-	67	33	67	33	s. aureus
67	33	50	50	-	100	100	-	100	-	70	30	40	60	H. influenzae
100	-	50	50	-	100	100	-	100	-	100	-	100	-	K. pneumoniae
100	-	-	100	-	100	100	-	100	-	100	-	-	100	M. catarrhalis
100	-	100	-	-	100	100	-	100	-	100	-	100	-	E. coli
100	-	-	100	-	100	100	-	100	-	100	-	100	-	P. aeruginosa
100	-	-	100	-	100	100	-	100	-	100	-	100	-	S. pneumoniae
-	100	50	50	-	100	100	-	100	-	100	-	-	100	Pr. vulgaris

CL= Cephalexin , ax= Amplicillin , da= Clindamycin , E= Erythromycin A= Ampecillin, C= Chloramphenicol , SXT- Trimethoprim

DISCUSSION:

Based on the clinical diagnosis, the results showed that the acute infection rate was 54.1%, while the chronic infection was 45.8%. The prevalence of acute infection is due to the invasion of different types of bacteria and the alteration of the natural fluidity of the conjunctiva, which can be caused by external pollution by spreading from adjacent areas or by A total of 50 samples of conjunctivitis were collected. The percentage of positive samples was 96%. The presence of this high percentage was due to the fact that the infection is a contagious disease that is transmitted easily. The infection arises directly from contact with the contaminated hand or exposure to polluted air, Or as a result of an outbreak The pathogenic pathogen with respiratory secretions thus causes infection. At times, conjunctivitis may colonize certain bacteria from the nasopharynx as a result of obstruction of the tear and nose canal, or infection may occur when exchanging tools with infected persons. Negative samples The bacterial examination was 4%. The cause of non-growth may be due to the fact that the pathogen is a viral infection

Table 1 shows the percentages of isolated microorganisms, with the highest incidence of Neisseria sp followed by s. aureus and H. Influenzae The lowest percentage of Streptococcus spp and P. vulgaris and B. subtilis showed that the high incidence of Neisseria bacteria may be attributed to multiple ways of infection with these bacteria. During pregnancy, exposure to the genital tract of the mother or sometimes of the respiratory secretions may occur. Inside droplets in the air. Neisseria was isolated from conjunctivitis of two newborn infants by Poulos et al. (2002) and attributed the source of infection to the genital pathway of the mother. H. influenzae (Block et al., 2000) was the most common type of infection Conjunctivitis and high levels of 42% where the conjunctiva and gill covers the mucous membrane continuous bacteria may move from gills to conjunctivitis such as haemophilus influenzae as well as Neisseria bacteria. Both have indicated the isolation of species of Streptococcus bacteria from conjunctivitis cases by 22% and 43.4% Our study had a low isolation rate, and the reason for this may be due to the injury Staphylococcus aureus may self-heal to form antibodies early in the infection as well as the spores are sensitive to many antibiotics.

For the distribution of microorganisms isolated by acute and chronic infection, acute infection was recorded in bacteria. Neisseria Sp and H. Influenzae was highest in chronic infection, while Neisseria Sp and S. aureus and K. Pneumonide highest ratio. Many researchers have pointed to the prevalence of isolating the types of Neisserial and H. Influenzae infections. Acute infections of conjunctivitis may be due to the high virility of these species. They can cause infection and invade the area in a short period of time. This is due to the different pathogens that it possesses, . Neisseria Sp can be attached to host cells and cause infection (Koneman et al., 1997; Tortora et al., 1998). The high incidence of Neisseria Sp, S. aureus and K. Pneumoniae in chronic infections is due to frequent use of antibiotics Which is likely to lead to the development of antibacterial resistance to the antagonist and thus the recurrence of chronic infections as well as the transmission of antibiotic resistant bacteria from one person to another. This is confirmed by the results of sensitivity tests where we observed increased resistance of bacteria to antibiotics in chronic infections In acute injuries, Poulos et al. (2002) stressed that unnecessary protective doses develop resistance and affect the non-virulent meningococci bacteria such as N lactamica, which have been shown to be important for their role in neonates and children in stimulating natural immunity to invasive invasive disease. Invasive meningococcal diseases This is also confirmed by Sosa et al (2000) when Neisseria Sp strains were isolated from conjunctivitis resistant to penicillin due to the excessive use of antibiotics. Odjimogho and Idu S. S. aureus and K. Pneumonia were the most common causes of conjunctivitis and 34% and 12%, respectively.

The results showed that the proportion of non-mixed injuries was 58.33% and the mixed cases with germination were 41.66%. Block et al. 2000 indicated that some cases with germinated infections were 4% and the isolated bacteria were H. Influenzae and S. Pneumoniae was also observed to be associated with other infections such as acute otitis media and therefore the prevalence of cases with mixed injuries. In this study, we observed the association of conjunctivitis with influenza and the highest common presence of Neisseria Sp with H. influenzae and Neisseria Sp with S. aureus These bacteria may colonize the conjunctiva when the tear duct and nose are blocked in case of flu and cause conjunctivitis.

Note the antibiotic susceptibility and antibiotic susceptibility ratios in Tables 4 and 5 that the optimal antibiotic for the treatment of Nisseria Sp. Influenzae is Ampicillin and CephaleXin because it is sensitive to acute and chronic infections. These antibodies are

wide-spectrum and have a good effect on the elimination of germs, especially germs that are resistant to other antibiotic-producing b-lactamase, such as Neisseria sp, H. influenzae, S. aureus, and K. pneumoniae (Quinn and Royan 2004). Both types were sensitive to acute infections while resistant to chronic infections, as was Clindamycin. Neisseria sp was sensitive to acute infections while resistance to chronic infections was also increased. Influenzae for this antibody in chronic infections, and increased resistance of these bacteria to the anti-Erythromycin and Amoxycillin chronic infections. Quinn and Royan (2004) reported that although Trimethoprim is a broad spectrum and can be effective against Neisseria sp, H. influenzae and S. aureus, it is clear that the bacteria develop their resistance to antimicrobials with repeated use of drugs. That many germs can develop their resistance against it. The chromosomal mutations also make many strains, including resistance to antagonists (Brooks et al. 1998) as well as the role of resistance plasmids, especially when pooling resistance genes in a single plasmid that plays a large role in resistance such as the R100 plasmid in Neisseria sp carrying genes resistant to many antigens.

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