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CLINICAL APPLICATION OF A MICROBIOLOGICAL STUDY ON THROAT SWABS IN TONSILLITIS PATIENTS ATTENDING OPD

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ABSTRACT Tonsillitis is a very common clinical condition in E.N.T practice. The aim of this study is to find out the age distribution, the causative pathogenic organisms and their antibiotic sensitivity, in cases of Acute tonsillitis attending our OPD.

KEYWORDS : Tonsillitis, Throat swabs, Microbiology, Culture.

INTRODUCTION:

Tonsillitis is the inflammation of tonsils, a common clinical condition in E.N.T practice. The condition is caused by either bacteria or virus . It affects significant percentage of population, more so children. Acute tonsillitis is characterized by visible white streaks of pus on the tonsils and their surface may become bright red in colour. The bacterial tonsillitis is caused mainly by β- haemolytic Streptococcus, and to lesser extent by Staphylococcus aureus and several other bacteria. The most common presenting symptoms of tonsillitis are sore throat, pain when swallowing, fever, cough, headache, tiredness, chills, swollen lymph nodes in the neck and pain in the ears or neck. The complications of tonsillitis includes middle ear infections, peritonsillar abscess (quincy), sleep apnoea, glomerulonephritis and rheumatic fever. The treatment includes appropriate antibiotic therapy and surgery in recurrent cases.

The present study was conducted to identify the prevalent bacterial pathogens and their antibiotics sensitivity by throat swab that would indicate the optimum line of treatment and prevent the complications of acute tonsillitis and avoids unnecessary surgical treatment.

MATERIALS AND METHODS:

In this study, 100 patients with tonsillitis who attended E.N.T O.P.D with sore throat with fever and congestion over tonsils were selected for the study. A thorough history and clinical examination were carried out.

INCLUSION CRITERIA:

1. Patients between 4 years to 30 years of both sexes were included.
2. Patients with first attack of tonsillitis, not using any medication were included.
3. Patients with Chronic tonsillitis, with acute exacerbation, who have not started any medication were included.

EXCLUSION CRITERIA:

1. Patients with Acute tonsillitis, who started antibiotic treatment.
2. Patients with Chronic tonsillitis.

PROCEDURE:

The tip of the throat swab was directed towards the tonsil area.

Care is taken not to touch the swab tip to any other area of the mouth, including the tongue.

Throat swab samples were collected by standard clinical methods.

The collected specimen was sent immediately for microbiological study.

OBSERVATION:

A prospective clinical study with 100 patients with tonsillitis was done.

Table 1: Age distribution of patients

Sl. No.	Age Group	No. of cases	Percentage
1	0-5 years	10	10
2	6-12 years	61	61
3	13-18 years	20	20
4	19-30 years	09	09

Table 2: Socioeconomic status of patients

Sl. No.	Sex	No. of cases	Percentage
1	Low income group	61	61
2	Middle income group	35	35
3	High income group	04	04

Table 3: Symptoms of patients

Sl. No.	Symptoms	Percentage
1	Sore throat	100
2	Fever	70
3	Odynophagia	31
4	Constitutional symptoms	43

Table 4: Organisms isolated from patients

Sl. No.	Organisms isolated	No. of cases	Percentage
1	Pathogens	72	72
2	Commensals	10	10
3	No growth	18	18
1	Gram positive bacteria	61	84.7
2	Gram negative bacteria	11	15.3

Table 5: Details of bacteria isolated from tonsillitis infected persons

Sl. No.	Bacteria isolated	No. of cases	Percentage
1	β-hemolytic Streptococci	37	51.4
2	Coagulase+ve Staphylococci	9	12.5
3	Pnemococci	7	9.7
4	Haemophilus influenza	2	2.8
5	Coagulase+ve Staphylococci, Pneumococci Pnemococci	6	8.3
6	Klebsiella & Streptococcus pyogens	5	6.9
7	Pseudomonas, Klebsiella	2	2.9
8	Pnemococci, alpha Haemolytic Streptococci α-haemolytic Streptococci	3	4.2
9	Corynebacterium diphtheria	1	1.3

Table.6. Showing antibiotic sensitivity assay of bacterial isolates

Acute tonsillitis		Sensitivity to antibiotics										
Sl. No.	Bacteria isolates (72)	Penicillin	Erythromycin	Ampicillin	Gentamycin	Chloramphenicol	Ciprofloxacin	Cephalexin	Cefotaxime	Cefpodoxime	Amikacin	Drug resis..
1	β-hemolytic Streptococci (37)	35	30	35	6	30	15	30	35	35	30	-
2	Coagulase +ve Staphylococci (9)	6	4	6	5	6	4	6	6	6	4	3
3	Pnemococci (7)	7	6	7	2	7	4	6	7	7	3	-
4	Haemophilus influenza (2)	2	R	2	R	2	2	R	2	2	R	-

5	Coagulase+ve Staphylococci & Pnemococci (6)	4	4	4	3	4	3	5	5	5	3	-
6	Klebsiella & Streptococcus pyogens (5)	1	R	1	4	2	4	5	5	5	4	-
7	Pseudomonas & Klebsiella (2)	R	R	R	R	R	R	R	R	R	R	2
8	Pnemococci &α-haemolytic Streptococci (3)	3	3	3	2	3	3	3	3	3	3	-
9	Corynebacterium diphtheria (1)	1	1	0	1	1	1	0	1	1	0	-

DISCUSSION

Among the reported age groups, maximum tonsillitis cases were observed in the age group (6-12 years) 61%, followed by age groups (12-18 years) 20%, children (0-5 years) 10% and the least incidence of 9% in youth (19-30 years).

The incidence of tonsillitis was more in male patients (55%) compared to female patients (45%). As for as socioeconomic condition concerned, 61% of cases were in low income group, 35% in middle income group and 4% in high income group. The highest cases in low income group is perhaps due to their poverty, poor nourishment, unhygienic condition, illiteracy and improper medical care.

Sore throat was observed in all the patients, fever in 70%, odynophagia in 31% and constitutional symptoms in 43% of the patients. It was also observed that 59% of the patients exhibited acute parenchymatous tonsillitis, 40% acute follicular signs and only one per cent of the patients had acute membranous tonsillitis. The palpable tender digastric lymph node was observed in 70% of the cases.

The bacteriological study of the throat swabs showed that 72% of the cases had pathogens, 10% had commensals and no growth was observed in 18% of the samples even after 48 hours incubation on culture media. The reason for no growth is perhaps the patients would have administered the antibiotics prior to diagnosis or the tonsillitis was caused by virus which was not isolated in the study. Among the bacteria isolated, 84.7% belonged to Gram positive group and only 15.3% belonged to Gram negative group. As the gram positive bacteria normally colonise skin and oral cavity, their number is probably found more than gram negative bacteria.

The bacteriological studies predominantly showed β-hemolytic Streptococci (51.4%), followed by coagulase positive Staphylococci (12.5%), Pneumococci (9.7%) and only one case of Corynebacterium diphtheria .With respect to monobacterial and polybacterial infections, 76.4% of cases were caused by monobacterial infections as against 23.6% polybacterial infections. Both Coagulase positive Staphylococci and Pnemococci were observed in 8.3% cases, Klebsiella and Streptococus pyogens were observed in 6.9% cases and Pseudomonas and Klebsiella in two cases.

Sensitivity of isolated bacteria to different antibiotics and chemotherapeutic drugs indicated that Gram positive bacteria were more susceptible to antibiotics than Gram negative bacteria. Majority of the isolates were susceptible to antibiotics penicillin, erythromycin, amphicillin, gentamycin, chloramphenicol, ciprofloxacin, cephalexin, cefotaxime, cephotaxime and amikacin. Drug resistance was observed in 3 out of the 9 coagulase positive *Staphylococci cases*. The increasing incidence of drug resistance in many bacteria could be due to β-lactamase production by the bacteria that cleave the activity of antibiotics and resistance transfer factors that could have taken up by the susceptible strains during the recombination process.

Follow up of the patients treated for the tonsillitis showed that the disease recurred in 70.3% of the cases and did not recur in 27.6%. 2.1% of the patients developed peritonsillar abscess and they were treated with incision and drainage 1 antibiotics.

CONCLUSION

The present study conducted to identify the prevalent bacterial pathogens and their antibiotic sensitivity, on patients with acute tonsillitis, indicated that the bacterial infection is more prevalent in the age group of 6-12 years and more so in the poorer sections of the society. β- hemolytic Streptococci were the predominant bacteria followed by Coagulase positive Staphylococci and Pnemococci. Penicillin was found to be the most effective drug to cure acute tonsillitis besides other antibiotics like ampicillin, cephalexin and cephotaxime, However, acute tonsillitis was found to recur 70.3% of the treated patients.

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