

Anti-biogram in Acute Pharyngitis: A Study of 137 Children Cases

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In the year 2001 from January to July 137 consecutive children cases with symptoms of acute pharyngitis were studied in private clinics. Socio-demographic character of the study had shown 36(26.3%) infants, 70 (50.1%) under 5 years of age group, 31 (22.6%) 5-12 years and above age group cases, with 1.6:1 male to female ratio. Out of 87 (68.5%) urban cases, 55 cases had pathogens in comparison to slum and rural area (P<01). Gas users as fuel were related to pathogenic bacterial pharyngitis (P = 0.0009). Important presenting features were fever 101 (73.7%) and cough 103(75.2%). Tonsils were enlarged significantly in pyogenic cases (P = 0.000). Types of pathogens were staphylococcus aureus 67(48.9%), group A Streptococcus β -haemolyticus 9(6.6%), E-coli 4 (2.9%), Klebsiella 1(0.7%) and nonpathogenic bacteria Streptococcus viridans 56 (40.9%). Antibiotic sensitivity to isolated bacterial pathogens had shown that staphylococcus aureus and group A Streptococcus β -haemolyticus were sensitive to Cloxacilin 59(88.1%), and Penicillin 7(77.7%) respectively.

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Key words: Sore throat, tonsillopharyngitis, nasopharyngitis, and pharyngeal inflammation.

Introduction

Pharyngitis is an inflammation of the pharynx involving lymphoid tissues of the posterior pharynx and lateral pharyngeal bands.¹ Acute pharyngitis is common in children. Most cases are viral in origin. Among bacterial pathogens streptococcus pyogens (group A beta hemolytic streptococcus – GABHS) is a worrying agent.² Bacterial pathogens are unknown below 2 year of age and peak occurs at 3 – 7 year of age but continue till 15 year of age. Appropriate drug treatment should be given to prevent its dissemination and complications like acute rheumatic fever, glomerulonephritis, sepsis, otitis media etc.

There are overlapping of symptoms and signs of viral and bacterial pharyngitis. Bacterial infections cannot be distinguished solely on the basis of clinical presentation.³ So, only to confirm bacterial pattern is by rapid antigen detection test and throat culture by swabbing.

The rapid test is highly sensitive but lack specificity.⁴

Emergences of resistant bacterial pathogens have been reported. Furthermore drugs sensitivity varies from place to place. This study aims at identifying the causative agents, sensitivity pattern and socio-demographic and environmental factors in locality.

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Methods

A total of 137 children were studied in private clinics in prospective manner in Chittagong. The samples were collected consecutively with the symptoms and signs of acute pharyngitis. The study was performed from January to July 2001. Age, sex, religion, nutrition, immunization status of the patients were noted. Among environmental factors, geographical location, parents smoking, fuel used in the house, contact history, feeding pattern of the child, precipitating factors were looked for. Each patient was examined thoroughly particularly about fauces and cervical gland. Each patient was investigated for swabbing from throat culture and finally result was analyzed. Information was collected from the patients and their attendants. Data were collected in a preformed semi-structured questionnaire and analyzed manually.

Results

A total 137 children cases with symptoms of acute pharyngitis were studied. Socio-demographic characteristics of the patients are shown in the table 1. Majority of children were in under-5 year's age group (51.1%). Numbers of male patients were more than female (62% vs 38%). Majority of the children were from muslim family (63.5%). Most of the patients have normal body weight (93.4%). Normal height was found in 98.5% of the patients. Immunization appropriate for age was 91.2%. Environmental factors are shown in the table II. Majority of the patients were from urban area. Parents were non-smoker in 60.6% cases. Most family used gas as fuel (68.4%). Most of the patients have no contact history (98.5%). Majority took family food (44.5%) and have no precipitating factor (43.8%) but cold water (21.2%) was the top in predicating factors. Clinical manifestations of the patients are shown in the table III. Fever, cough and enlarge fauces were predominating clinical features whereas sore throat, rhinorrhoea and enlarged cervical

lymph node were not so common manifestation.

Table I: Socio-demographic characteristic(n= 137)

Characters	Groups	No	%
Age	Infancy	36	26.3
	< 5 yr	70	51.1
	5 – 12 yrs and above	31	22.6
Sex	Male	85	62
	Female	52	38
Religion	Muslim	87	63.5
	Hindu	39	28.5
	Buddhist	9	6.6
	Christian	2	0.8
Nutrition	Normal weight	128	93.4
	Mild PEM	7	5.1
	Moderate PEM	2	1.5
	Normal height	135	98.5
	Stunted	2	1.5
Immunization	Appropriate for age	125	91.2
	Partial	2	1.5

Table II: Environmental factors (n = 37)

Characters	Type	No	%
Geographical location	Urban	87	68.5
	Urban slam	9	6.6
	Rural	41	29.9
Parents smoking	Yes	54	39.4
	No	83	60.6
Fuel used	Gas	94	68.4
	Electricity	4	2.9
	Stove	1	0.7
	Fire wood	33	24.1
	Electricity and fire wood	5	3.1
Contact history	Yes	9	6.6
	No	135	98.5
Feeding pattern	Exclusive breast Feeding	5	3.6
	Breast feeding + bottle feeding	26	19.0
	Breast feeding + supplementation	38	27.7
	Family food	61	44.5
Precipitating factors	Nil	60	43.8
	Cold drinks	8	5.8
	Cold water	29	21.2
	Cold draught	25	18.2
	Both Cold drinks and Cold water	1	0.7

Table III: Clinical manifestations (n= 137)

Characters	Findings	No	%
Fever	Yes	101	73.7
	No	36	26.3
Cough	Yes	103	75.5
	No	34	24.8
Sore throat	Yes	10	7.3
	No	123	89.8
Rhinorrhoea	Yes	56	40.9
	No	81	59.1
Fauces	Enlarged	73	53.3
	Not enlarged	63	46
Cervical gland	Enlarged	2	1.5
	Not enlarged	135	98.5

Table IV: Type of pathogens (n = 137)

Organisms	No	%
Staphylococcus aureus	67	48.9
Group A Streptococcus β -haemolyticus	9	6.6
Esch coli	4	2.9
Klebsiella	1	0.7
Streptococcus viridans	56	40.9

Types of pathogenic organism causing pharyngitis are shown in the table IV. Staphylococcus aureas (48.9%) was the most common organism isolated followed by Streptococcus viridan (40.9%). Antibiotic sensitivity patterns of the isolated organism are shown in the table V. Staphylococcus aureas was found to be more sensitive to cloxacillin, ciprofloxacin and ceftriaxon. Group A beta streptococcus hemolyticus was found to be sensitive to ceftriaxon, gentamycin, amoxicillin, penicillin and erythromycin. Esch. coli were sensitive to ciprofloxacin and ceftriaxon.

Table V: Sensitivity pattern (n = 136)

Name of Pathogens	Name of drugs	S	M	R
Staphylococcus(67)	Cloxacillin	59	4	4
	Ciprofloxacin	57	4	6
	Ceftriaxone	52	1	14
	Cephalexin	5	37	25
	Cephadrine	2	35	30
	Gentamicin	0	27	40
	Ampicillin	1	24	42
	Amoxycillin	0	0	67
	Penicillin	0	0	67
	Erythromycin	0	0	67
	Group A β - haemolytic Streptococcus(9)	Cloxacillin	0	0
Ciprofloxacin		0	4	5
Ceftriaxone		4	1	4
Cephalexin		0	0	9
Cephadrine		0	4	5
Gentamicin		4	0	5
Ampicillin		1	6	2
Amoxycillin		5	2	2
Penicillin		7	1	1
Erythromycin		4	1	4
Esch. coli (4)		Cloxacillin	0	0
	Ciprofloxacin	2	1	1
	Ceftriaxone	2	0	2
	Cephalexin	0	2	2
	Cephadrine	0	0	4
	Gentamicin	0	0	4
	Ampicillin	0	1	2
	Amoxycillin	1	2	1
	Penicillin	0	2	2
	Erythromycin	0	0	4
	Klebsiella(1)	Cloxacillin	0	0
Ciprofloxacin		1	0	0
Ceftriaxone		1	0	0
Cephalexin		0	0	1
Cephadrine		0	0	1
Gentamicin		0	0	1
Ampicillin		0	1	0
Amoxycillin		1	0	0
Penicillin		0	0	1
Erythromycin		0	0	1

S = Sensitive, M = Moderate sensitive, R = Resistant

Discussion

Acute pharyngitis is a leading cause of pediatric ambulatory care visits. Various studies showed that acute pharyngitis is uncommon in infancy and its incidence increases among the children and declines in late adolescence and adulthood.^{4,5} Cohen R et. al studied on 307 patients and found that mean age of children with acute pharyngitis was 6.1 years.³ Our study shows that male children are more affected than female children with male to female ratio of 1.6:1. Simon et al in their study at Emory University School of Medicine, USA, found that incidence is equal in all races and sexes.⁵

Tonsils were enlarged significantly in pyogenic cases (P=0 .000). Various study shows the same clinical presentations.^{1, 3-10}

Various studies show that though Group A streptococcus beta hemolyticus are predominant pathogens, but the incidence of staphylococcus aureus and enterobacteriaceae are gradually increasing in children with acute pharyngitis.^{6,7}

Antibiotic sensitivity to isolated bacterial pathogens of our study had shown that staphylococcus aureus were sensitive to cloxacilin 59(43.06%), Group A streptococcus β -haemolyticus sensitive to penicillin, Esch coli was equally sensitive to ceftriaxone, ciprofloxacin, and Klebsiella was sensitive to ceftriaxone, ciprofloxacin, and amoxicillin. Various studies also shows that Group -A streptococcus β -haemolyticus is very much sensitive to Penicillin.¹⁻⁷

Conclusion

Acute group A β -haemolytic streptococcal pharyngitis is more common in children and a leading cause of acute glomerulonephritis, and rheumatic fever. So, early diagnosis should be done. In our study we found that bacterial pharyngitis is more common in urban area and gas users. Staphylococcus

aureus is the predominant and emerging pathogens. A large-scale study is recommended to establish the causative bacterial pathogens and their sensitivity to antibiotic in our community.

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