Carrier Rate of B-haemolytic Streptococcal Throat Infection : Understanding Potential For Prevention

Dear Editor,

Rheumatic heart disease is one of the commonest cardiovascular diseases in India varying between 22-50% of all cardiac diseases. There is an increased risk of developing Rheumatic fever and transmitting the infection to others among streptococcal carriers particularly children between 5-15 years of age. Early recognition and treatment of B haemolytic streptococcal (BHS) pharyngitis is believed to shorten the duration of suppurative and non-suppurative complications and diminishes the probability of spread.

A number of studies have been carried out to determine the prevalence of BHS throat infection in the Indian population from time to time. In one study the point prevalence of BHS throat infection was 13.6% in a rural area of Varanasi [1]. In another study 13.5% of the sore throat was caused Group A B- Haemolytic streptococci (GAS) [2]. In yet another study by Navneeth B V et al 21.6% of asymptomatic children between 5-15 years of age were found positive for BHS throat infection [3]. In the present study carried out by the authors, among school children of schools located in a large military cantonment, revealed an overall prevalence of 10.5% in the age group of 3-13 years. Among service personnel's children studying in these schools it was found that the prevalence was highest among OR's children with a prevalence of 15.6%, followed by JCO's children who had a prevalence of 11.76%; the prevalence was least among officers children being 6.06% (Table 1). In the present study a prevalence of 19.5% was found in the age group of 4-6 years. In one study GAS pharyngitis was found to be slightly higher among 11 year olds [4].

Table 1
Distribution of children with pharyngitis

Category	Total No studied	No + for BHS throat culture	% prevalence
Officers	33	02	6.06
JCO	51	06	11.76
OR's	244	37	15.16
Civilians	185	09	4.86
Total	513	54	10.5

Early randomised controlled trials have demonstrated that penicillin treatment of streptococcal pharyngitis is effective in preventing Acute Rheumatic Fever (relative risk 0.28). This translates to Number Needed to Treat for benefit (NNTb) of approximately 63 to prevent one case of Acute Rheumatic Fever [5]. This number varies with the incidence of Rheumatic Fever in the community. The lower the incidence the higher is the NNTb.

In the present study antibiotic susceptibility tests carried out revealed that though penicillin remains the drug of choice; cephalexin and erythromycin are good alternatives as maximum number of BHS cultures (78.9%) were found susceptible to these two drugs (Table 2).

Health education lecture on BHS throat infection, its sequelae and prevention was given to the children, teachers and parents. Health cards were distributed among the school children who were found to be positive for BHS throat infection. Parents were advised

Table 2
Antibiotic sensitivity

Antibiotic	No of BHS throat Swab culture Sensitive		No of BHS throat Swab cultures Resistant	
	No	%	No	%
Penicillin	40	73.6	14	26.4
Ampicillin	40	73.6	14	26.4
Erythromycin	43	78.9	11	21.1
Cotrimoxazole	25	47.3	29	52.7
Tetracycline	40	73.6	14	26.4
Cephalexin	43	78.9	11	21.1

to take their children to a physician and get proper treatment in case they developed sore throat in the future. All children who were symptomatic with BHS throat infection were given a course of antibiotic.

Rheumatic heart disease causes high morbidity among the young in our country and its prevention needs to be given a serious thought. Further studies need to be taken up to understand the carrier rate of B-haemolytic streptococcal throat infection among healthy and sick children as well as in adults in order to implement prophylactic measures against the infection and its sequelae.

References

1. Sarkar et al. A study on sore throat and B-haemolytic streptococcal pharyngitis among rural school children in Varanasi with reference to age and season. *Indian journal of public health* 1998;32:191-8.
2. Shoban Nandi et al. Group A streptococcal sore throat in a peri-urban population of northern India : A one year prospective study. *Bulletin of World Health Organization* 2001;79(6):528-33.
3. Navneeth BV et al. Prevalence of B haemolytic streptococcal carrier rate among school children. *Indian Journal of Paediatrics* 2001;68(10):985-6.
4. Kaplan EL et al. Diagnosis of streptococcal pharyngitis: Differentiation of active infection from carrier state in symptomatic children. *Journal of Infectious Diseases* 1971;123:490-501.
5. Richelle J et al. Principles of appropriate antibiotic use for acute pharyngitis in adults: Background. *Annals of internal medicine* 2001;144(6):109-517.

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