ABSTRACT

Haemophilus influenzae type b (Hib) infection occurs worldwide and is considered a major childhood killer, causing severe forms of infection including meningitis, septicaemia and pneumonia.

With the wide use of second generation conjugate Hib vaccines, the countries which introduced the vaccine in the western hemisphere have almost eradicated the Hib diseases. The availability of safe and effective vaccines highlights the need for accurate Hib incidence data for making decisions on vaccine policy. The present study was planned with the intention of accurately estimating Hib disease incidence in the district of Colombo, Sri Lanka. The study consisted of a prospective, population based study of Hib infections in the District of Colombo and a case control study to examine the association of Hib infection with selected factors. All five hospitals in the district of Colombo with a consultant paediatrician participated in the study. With the objective of describing the epidemiology of Hib infections in the age group 0-5 years in the district of Colombo, the present study was carried out during the year 2004.

Routine laboratory services were strengthened and latex agglutination test for detection of Hib antigens in CSF was used, aimed at increasing the Hib infection detection. The latex test increased the Hib meningitis detection by four fold.

The study documented for the first time a community based microbiological analysis of meningitis in infants and preschool children. All Hib infections detected were that of type b and accounted for 50% of the aetiologically confirmed meningitis. The next two common micro organisms were Group B Streptococcus (23%) and Streptococcus pneumoniae (13%).

The present study established Hib meningitis incidence of 20.1 per 100,000 under 5 years population in the Colombo district, and estimates all Hib disease incidence to be 124.5 cases per 100,000 under 5 years. This rate is the highest incidence reported in the south Asian region.

Hib meningitis constituted 84% of the Hib diseases. Almost 80% of the Hib meningitis cases occurred in the age group below 24 months and 59% of all meningitis cases were below 12 months of age. The highest incidence of Hib disease was in the 3-5 months age group. A biphasic seasonality pattern of Hib disease incidence was demonstrated by the present study.

Of all socio economic and behavioural characteristics examined as risk factors, low levels of education of the father and mother, father who was a labourer and low declared monthly family income were the factors associated with Hib infection. Continued breast feeding seen to offer protection from Hib infection.

Sixty percent isolates showed resistance to commonly used first line antibiotics against meningitis, thus highlighting the need for alternate measures of prevention of Hib disease. High resistant levels to Penicillin (80%), Cotrimoxazole (61%), Ampicillin (54%) and Chloramphenicol (42%) was demonstrated as well as a low level of resistance to 3rd generation cephalosporins (cefuroxime -15%, cefotaxime 4%).

Sri Lanka has an extensive primary health care network and a well performing EPI programme. Current DPT+HepB schedule of 2,4, 6 months further enhances the opportunity to introduce the Hib vaccine as the disease is seen more in early infancy as demonstrated by the present study.