Prevalence of Rheumatic Fever and Rheumatic Heart Disease in Rural Population of Himachal- A Population Based Study


Abstract

**Purpose of study:** Rheumatic heart disease is still the commonest valvular heart disease in India. There is no population based study regarding the prevalence of rheumatic fever/ rheumatic heart disease (RF/RHD) from Himachal and hence the purpose of study.

**Methods and results:** A community based survey for prevalence of RF/RHD was done in four villages of different districts of Himachal. The subjects suspected to have RF/RHD on clinical ground were subjected to echocardiography to confirm the diagnosis. Total 1882 subjects were screened. 909 were male and 973 were female. 11 of these were found to have RF/RHD (5.8/1000). Mean age of these patients was 30.35±14.17 years. 10 of these were female and one was male. Mitral valve was the commonest to be involved. Seven were known to have RF/RHD and five were on penicillin prophylaxis.

**Conclusion:** RF/RHD is still common in rural population of Himachal. Mitral valve is commonest to be involved and prevalence is much more in female than in male.

> Rheumatic heart disease (RHD) is a major cause of valvular heart disease in the world, though in the developed countries, acute rheumatic fever (RF) and rheumatic heart disease (RHD) are considered to be decreasing in frequency. A study by Carpentis et al estimated that up to 15.6 million people are affected by RHD worldwide. Each year, there are approximately 470,000 new cases diagnosed and 233,000 deaths attributed to RHD. There is no community based study regarding the prevalence of RF/RHD from Himachal and so we undertook this study.

**Material and Methods**

This was a community based study, carried out in four villages of four different districts of Himachal- Kunihar in Solan District, Sahu in remote Chamba District, Haripur Dhar in Sirmur District and Ribba in Tribal Kinnaur district. A team of seven doctors- two consultants in cardiology, two senior residents of cardiology, two junior residents of internal medicine and one junior resident of pediatrics were involved in the study. The study was carried out on holidays, so that most of the subjects could be covered. The people were informed well in advance through local leaders and posters about the dates and time of the visit of the team. The study was carried out on three consecutive holidays in Kunihar, one Holiday each in Sahu, Haripur Dhar and Ribba. The detailed history about joint pain, breathlessness and palpitation was taken. The patients were then clinically examined for evidence of murmur suggesting RHD. In the subjects suspected to have RF/RHD, ECG was done and date was given for echocardiography in Indira Gandhi Medical College, Shimla.

**Diagnostic Criteria for RF/RHD**

1. Having a record of a hospital with echocardiographic diagnosis of RF/RHD.
2. Record of having undergone surgery or balloon valvotomy for RHD.
3. Patients having clinical evidence of RHD, later proved by echocardiography.

**Sampling Method**

There was no definite sampling method as we did door to door survey and tried to cover the whole of the population, who gave consent for the study. We could thus cover around 60-70% of the population.

**Results**

Table 1 shows the prevalence of RF/RHD in the population. Total 1882 subjects were examined, 1081 in Kunihar, 254 in Sahu, 99 in Haripur Dhar and 448 in Ribba. Out of these, 1773 were more than 5 years of age, the age in which RF/RHD occurs. 11 persons were found to have RF/RHD, one with no valvular lesion and 10 with valvular lesion. Surprisingly, 10 of these were female and only one was male. Youngest patient was of 13 years and oldest was of 45 years.

**Discussion**

RHD is a major cardiac problem in India and other developing countries. In previous studies of prevalence of RHD in India, diagnostic criteria have been based on clinical examination only. The prevalence rates have been found to be 1.3-4.5/1000 population among children in age group 5-15 years. Studies by Indian Council of Medical Research in school children in late 1980s reported RHD prevalence of 1.0/1000 in Delhi, 2.9/1000 in Vellore and 5.4/1000 in Varanasi. Parimal et al found the prevalence of RHD clinically as 16.7/1000 in school children, but echo prevalence was quite low(0.67/1000). In the largest study of prevalence of RHD in school children in India, Jose et al from Vellore, screened 229829 school children aged 6-18 years. Initial screening revealed 374 children with suspected RHD (1.63/1000). RHD was confirmed in 157 children (0.67/1000).

There are few population based studies of RHD. Rizui et al screened 9430 people in rural Pakistan and found 54 cases of RHD(5.7/1000). Females were significantly more likely to be
Table 1: Prevalence of RF/RHD and pattern of valve involvement in the community

<table>
<thead>
<tr>
<th>Population screened</th>
<th>RF/RHD</th>
<th>Mean age of RF/RHD patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>909</td>
<td>30.4/1000</td>
</tr>
<tr>
<td>Female</td>
<td>973</td>
<td>10(10.2/1000)</td>
</tr>
<tr>
<td>Total</td>
<td>1882</td>
<td>30.36±years</td>
</tr>
</tbody>
</table>

affected. Less than 20% of those found to have RHD were aware of their disease.

In our study, prevalence of RF/RHD in rural population was found to be 5.8/1000. The surprising part of the study was that prevalence in female was around ten times higher than males. The proportion of female patients with RHD in our study differs from conventional epidemiological picture of RF of equal prevalence among male and female. Some studies from south Asia, middle east, and north America show that female are more likely than male to have RHD. None of these have been able to identify an explanation for difference in sex specific prevalence. However Padmavati has suggested that high rate of RHD among female in India can be attributed to likelihood that women are home bound, thus more likely to be exposed to overcrowding. This may be more likely in rural population like ours with low socioeconomic status of tribal and remote villages of Himachal.

7 of the 11 patients in our study were aware of their disease and 5 were on penicillin prophylaxis.

Marjion et al in their study of school children have stressed that echocardiographic screening detected RHD in 79 of 3677 children in Cambodia and in 66 of 2170 children screened in Mozambique, corresponding to a prevalence of 21.5/1000 and 30.4/1000 respectively. They found that 90% of the cases of RHD were clinically silent in their study, without audible murmur. They suggested that echo screening would be desirable to optimize case identification and targeted (secondary) preventive measures.

Our study show high prevalence of RF/RHD in the population. The reason could be that most of the other surveys are in school children, but a large population of children, especially in rural areas may not be attending the school, particularly those symptomatic with the disease.

Limitation of the Study
The population covered was not large. But this was keeping in view the topography of remote areas of Himachal, where the population is scattered and terrain difficult.

References