



## Profile of Rheumatic Heart Disease in a Tertiary Care Hospital with Tribal Based Population

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### Abstract

**Introduction:** India is still the capital of RHD though the health related burden of this disease declined Worldwide. Due to high burden Of modern cardiovascular disease and green field of intervention cardiology age old problem of ARF/RHD have been sidelined. India accounted for the highest number of death due to RHD in 2015 with more than 119000 people dying from the ailment.

**Materials:** Two years prospective follow up study was done with 138 Patients in our hospital. Cases of were recruited as per diagnostic criteria and ancillary investigation reports. Demographic profile of all patients were accounted. Results are analysed at the end of the study regarding morbidity and mortality of the desired treatment. It is an open label study.

**Analysis:** From this study we analyzed and conclude of the following:-

- 1) Not only the children, adult population also succceptable to ARF and subsequent RHD.
- 2) Socioeconomic status and literacy rate are important parameter for disease affection and progression.
- 3) School health program to detect the disease is a good measure to rescue the population for disease burden.
- 4) Primary and Tertiary level care should be equally responsible to overcome the disease burden.

**Keywords:** Acute rheumatic fever, Rheumatic heart disease, Prevalence of rheumatic heart disease, Prevention of rheumatic heart disease.

### Introduction

Rheumatic heart disease caused by group of a streptococcus infection is a leading cause of morbidity and mortality from cardiovascular cause both in children and adult age group. Global prevalence of Rheumatic heart disease approximately fifteen million causes with 282000 new cases and 233000 deaths in each year. In India approximately 6 lacs children less than 15

year age suffer from Rheumatic heart disease. Despite the tremendous progress made in cardiology the menace of morbidity and mortality due to ARF and its congeners remains very high in India. High incidence of RHD is attributed to GAS virulence factor, host genetic susceptibility, environmental factor and overburden immune response. Due to preoccupation of cardiology with adult cardiac disease like IHD.

The problem of ARF/RHD have been sidelined as studies as prevalence treatment and prevention receive only scant attention and only exotic palliative methods such as BMV valve repair/replacement have become centre stage in India. Though the health related burden of RHD has declined worldwide India is Still Buried Alive in the total RHD burden population.

A study published in NEJM 2015 conclude that India accounted for the highest number of death due to RHD in 2015 with more than 119000 people dying from the ailment. It was also one of the five countries with the highest number of cases of the heart ailment which account for an alarming seventy three percent of the global cases.

**Indian scenario:** Information regarding burden of disease actually came from hospital based survey and examining the school students. Hospital based data does not actually represent the burden of disease in that area as most seriously affected person seek for hospital admission. Screening in school students are most valuable stools for detection of RHD burden in children age group. With emergence of new epidemic of CAD and age old DCM, RHD perhaps the most neglected cardiovascular morbidity in children population specially in lower socioeconomic age group. Population based survey's for prevalence are very few and scattered. A recent Indian council of medical research study in ten different mostly urban location of the country found the prevalence from 0.2-1.1/1000 for RHD and 0.0007-0.2/1000 for RF. The data were based on registration of all cases in one million population by approaching hospitals, private practisioner and extensive advertising for establishing a registry of all known cases.

### Material and Methods

We have studied 138 patients over two year period from March 2016 to February 2018 in our hospital. Both admitted and OPD based patients were counted in the study.

Subjects were identified as ARF or RHD on the basis of Jones modified criteria, Physical

examination, lab test and echocardiography, 2D and Color doppler mode. Echocardiographic machine was Siemens Acuson CV 70. Consent were taken from parents and guardian. Questionary are coming from factors directly or indirectly related to RHD, their domiciliary status (Rural or Urban), Income status of family, overcrowding, hygienic condition, other family members with heart disease or not, educational status also assessed. Overcrowding was defined as more than two person in a room. Patient with primary educational level is considered as literate. Age and Sex distribution of disease in this population was also granted.

Patient with known RHD with penicillin prophylaxis defaulter also counted. Distribution of valve, double or multiple valve involvement was counted percentage wise. Number of patient undergone surgical or percutaneous intervention also considered.

During follow up study we routinely gave decongestive measures, penicillin prophylaxis along with heart rate controlling agents. anticoagulation for atrial fibrillation if any.prior history of stroke was also strongly considered. We routinely admit NYHA class 3 and 4 patients for stabilization.

### Result

out of 138 patients 57 present was female and 43 present was male .Mean age of detection was 32 years .We studied the population between 8 to 72 years.

Maximum number of patient were between 20 to 50years of age. Among the population 32 percent in urban and 68 present in rural group respectively. In urban area there was over-crowding in 84 percent, in rural area it was 61 percent. In urban area literacy rate was 48 percent, in rural area it was 32 percent. Average income of family was Rs 4000/- in rural area and Rs 6500/- in urban area.

Regarding involvement of valve 32 percent population has single valve involvement of which 92 percent was Mitral valve. Only 8 present had

involvement in aortic valve. 68 percent of patients had double or Multivalve involvement, mainly affect the aortic or mitral valve. Single patient had Tricuspid valve involvement in the form of Tricuspid stenosis. No one had affected Pulmonary Valve. In our study sixteen patient undergone surgical intervention in the form of either percutaneous or open surgical procedure. During the follow up study we routinely give penicillin prophylaxis to all patient population of which 20 percent was shown to be defaulter (Missed two or more dose of penicillin injection).

In two years follow up we lost twenty two patient from our study of which eighteen were died and two patients could not be traced and hence left from follow up. Among eighteen patient thirteen patient had died due to progressive heart failure, Three patient from stroke and two patient from non cardiological cause. Out of sixteen patient who undergone surgical correction, four patient had died, three from worsening of HF and one from stroke.

**Table 1** Demographic profile of RHD in population group

TOATL POPULATION → 138
FEMALE → 57%(n=78)
MALE → 43%(n=60)
MEAN AGE OF POPULATION → 32 YRS.
RANGE OF AGE IN POPULATION GROUP → 8 -72 YRS.

**Table 2** Difference between rural and urban population

URBAN POPULATION → 32%(n=44)
RURAL POPULATION → 68%(n=94)
OVER CROWDING IN RURAL POPULATION → 84%(n=115)
OVER CROWDING IN URBAN POPULATION → 61%(n=84)

**Table 3** Difference between rural and urban population

LITERACY RATE:-
RURAL AREA-32% (N=44)
URBAN AREA-48% (N=66)
AVERAGE INCOME:-
RURAL AREA- RS.4000/MONTH
URBAN AREA-RS.6500/MONTH

**Table 4** Valve Involvement in Population Group

SINGLE VALVE INVOLVEMENT → 32% OF POPULATION.(n=44)
MULTIPLE VALVE INVOLVEMENT → 68% OF POPULATION.(n=94)
MITRAL VALVE INVOLVEMENT → 93% OF POPULATION.(n=128)
AORTIC VALVE INVOLVEMENT → 87 % OF POPULATION(n=120).
PATIENT UNDERGONE SURGICAL CORRECTION (N=16.)

**Table 5** Total deaths in study population

TOTAL DEATH(n= 18)
DEATH DUE TO Hf (n= 13)
DEATH DUE TO STROKE(N= 3)
DEATH DUE TO ACS(N= 2)

## Discussion

Rheumatic fever and RHD is endemic in India. It cause premature death and disability. Poor Socio economic status, lack of hygiene. Overcrowding, low literary are important factor prevalence and progression of RHD. Improvement in socioeconomic status, literacy and proper counselling regarding the fate and school health monitoring are key way to prevent this buried alive disease in Indian population. Free supply of prophylaxis and accessory medication are important to prevent disease progression in a population group. kaccha house is important for RHD progression.

In our study we encourage patients for purposeful home activity and strict adherence to prescribed medication. We discuss with the patient about the worsening symptoms and advice them to attend hospital if situation arise. With this protocol most of the patient able to maintain NYHA class 2 state but many of them precipitate atrial fibrillation and attend hospital with worsening symptoms.

## Conclusions

Burden of RHD in India is very high. Improving socioeconomic status, literacy rate, school health program to screen the pediatric RHD. Proper diagnosis at primary care centre and management at Tertiary level are the way to relief from this disease burden.

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