

# Spectrum of Rheumatic Valvular Heart Disease in Pakistan: A Review

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I am sure we all are aware of the fact that Rheumatic fever and Rheumatic Valvular heart disease continues to be a major health problem in Pakistan, like many other under-developed countries. Incidence of Rheumatic fever and Rheumatic valvular heart disease in Pakistan is not exactly known. Out of the various surveys in Pakistan, the best designed and most reliable series is that of Syed et. al.<sup>2</sup> According to this series, the most common cardiovascular problem in Pakistan, is hypertension with overall prevalence of 17.6% in adult population, with IHD 2nd with overall prevalence of 2.3% and 3rd as Rheumatic valvular heart disease with prevalence of 0.6%. That figures being over 15 years old and impression is that the present prevalence is definitely higher than this. However, if we even accept these figures, then would be about 25,000 (quarter of a million) people suffering from rheumatic heart disease.

## SURVEY IN CHILDREN AND ADOLESCENT'S

Survey in children and adolescent's in the school children of Pakistan (Table-1) although may not very reliable but data does suggest that hypertension is the most common problem, followed by Rheumatic heart disease. The prevalence of Rh.H.D. varies from 0.9 - 1.1% in the rural and poor communities to a low of 0.15 - 0.18% in the urban population.<sup>1,3,4</sup>

Hospital prevalence data (Table-2) although may not have relevance to the disease prevalence in general population again shows significant personage of patients with Rheumatic heart disease admitted in various cardiology dept.<sup>5,6,7,8,9.</sup>

**Rheumatic Heart Disease:** From this discussion, we conclude that Rheumatic heart disease remains Pakistan's main cardiac problem in the younger population. The incidence of Rheumatic Heart Disease is much less in the more affluent and urban areas with 1.3-1.8/1000 and 9-11/1000 in the less developed areas possibly due to variable socio-economic conditions and environmental factors.<sup>(3,4)</sup> About 1.05-3.5% of all medical and pediatric admissions are with Acute Rheumatic Fever. The mean age at 1st documented attack is about 10 years with a range of 5-22 years. (Table-3.).

## Presentation of Acute Rheumatic Fever

There is definite H/O sore throat is 30-40% throat cultures is positive of beta-haemolytic streptococci in 31% whereas in general pediatric population is 8.3-19.7%.<sup>11</sup> Jones criteria are less useful in our population. Acute Carditis is present in 65-73% and other major criteria are less common.<sup>10</sup> (Table 4, 5).

## Chronic Valvular Heart Disease

Average age at presentation in various series is  $25.1 \pm 9.2$  years which is less than the West, which may be due to poor socio-economic conditions, malnutrition, recurrent rheumatic activity and poor compliance with penicillin prophylaxis.

Mitral valve is most frequently involved with 94-97% of cases. Female predominate in patients with mitral valve disease and males with aortic valvular disease. Moderate to severe pulmonary hypertension is present in 50% of cases at surgery. The disease has a more fulminant course than in the West and 30% of the patients with mitral

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ANNEXURE-1

TABLE 1

PREVALENCE FIGURES PER THOUSAND FOR CARDIOVASCULAR DISORDERS IN SCHOOL CHILDREN AND ADOLESCENTS

Place and year	No. in sample	Age of sample (years)	Sex	HBP	RHD	CHD
Karachi, 1964-65 (urban) 14	2,591	5-14	Male	58	N.A.	N.A.
	1,070	5-14	Female	82	N.A.	N.A.
Karachi, 1966 (urban) 15	4,002	8-14	Both	N.A.	1.8	1.8
Karachi, 1981 (urban) 22	464	2-1/2-17	Both	13	N.N.	N.A.
Punjab, 1970 (urban & rural) 17	5,202+	Under 20	Both	15	N.A.	N.A.
Peshawar, 1973-1976 (urban) 18	17,662	5-15	Both	N.A.	9.0	N.A.
Chitral, 1973-1976 (rural) 18	2,678	5-15	Both	N.A.	11.0	N.A.
Peshawar, 1976-1977 (urban) 20	1,656	5-20	Male	16	N.A.	N.A.
	1,681	5-20	Female	13	N.A.	N.A.
Islamabad, 1978-1979 (urban) 21	15,100	5-15	Both	N.A.	1.52	3.25

Abbreviations: N.A. = not assessed; HBP = hypertensive disease; RHD = rheumatic heart disease; CHD = congenital heart disease.

\*Hypertension defined as BP 130/90 mm Hg.

+Breakdown of numbers in various age groups not given.

stenosis in Pakistan are under the age of 20 years and 16.3% under 15 years. (Table-6).

Present Study

We analyzed 1600 patients retrospectively who were referred to us for Echocardiography with Doppler studies, for one reason or the other. Out of these 394 patients were found to have Rheumatic Heart Disease.

Age Distribution

Age range was 10-65 years and majority of our patients were between 20-45 years.

Analysis of patients with R.V.H.D.

Table-7 shows the spectrum of presentation in our patients. Mostly were with Mitral Valvular Disease 345 of 394 (about 87%) as compared to

## ANNEXURE-2

TABLE 2

## PREVALENCE OF CARDIOVASCULAR DISORDERS IN HOSPITAL PATIENTS

Place and year	Sex	IHD (%)	RHD (%)	HBP (%)	CHD (%)	Miscellaneous (%)
Lahore, 1944-1948	Both	1.7	N.A.	N.A.	N.A. q	-
		17.9	N.A.	N.A.	N.A.	-
Multan, 1961 <sup>29</sup>	Both	N.A.	40.8	N.A.	N.A.	-
Karachi, 1967 <sup>34</sup>	Both	41.8	22.2	9.6	2.4	24.0
Karachi, 1981 <sup>37</sup>	Male	75.8	7.4	5.5	5.6	5.6
	Female	51.8	22.7	6.8	9.8	8.0

Note: All figures are expressed as percentage of total admissions for cardiovascular problems. Abbreviations: IHD = ischemic heart disease; RHD = rheumatic heart disease; HBP = hypertensive disease; CHD = congenital heart disease; N.A. = not assessed.

## ANNEXURE-3

TABLE 3

## RHEUMATIC HEART DISEASE

## PAKISTAN'S MAIN CARDIAC PROBLEM IN YOUNGER POPULATION

## INCIDENCE

AFFLUENT URBAN	1.3-1.8/1000
LESS DEVELOPED	9-11/1000
HOSPITAL ADMISSION	1.05-3.5%
MAIN AGE IST ATTACK	10 Y
RANGE	5-22 Y

previous studies, which shows 94-97%. It is possibly due to the fact that our patients were highly selective and may not be representative of actual figures.

Aortic valvular disease was present in 77 patients (19.5%) (with 28 patients with both mitral and A.V. disease). Only one case with tricuspid stenosis was seen but there were quite

## ANNEXURE-4

TABLE 4

## AC RHEUMATIC FEVER

- Definite N/o sore throat	30-40%
- THROAT CULTURE +VE for beta haemolytic streptococci	31%
- Throat culture +VE in general paed. population	8.3-19.7%
- JONES CRITERIA	LESS USEFUL
- ACUTE CARDITIS	65-73%
- OTHER MAJOR CRITERIA	LESS COMMON
- ERYTHEMA MARGINATUM+ Rh NODULES.	1.8 - 3.4%

a few with Tricuspid Regurgitation which were difficult to assess - whether they were organic or functional.

ANNEXURE-5

TABLE 5

ACUTE RHEUMATIC FEVER: FREQUENCY (PER CENT) OF JONES MAJOR AND MINOR CRITERIA IN VARIOUS SERIES

MANIFESTATION	ROBINSON ET AL. <sup>127</sup>	RAHIMTOOLA <sup>128</sup> ET AL.	ILYAS <sup>138</sup> ET AL.
Carditis	73%	64.5%	68%
Arthritis	59%	58.1%	39%
Chorea	6.8%	13.6%	-
Erythema marginatum	3.4%	2.7%	-
Subcutaneous nodules	3.4%	1.8%	4%
Arthralgia	14%	--	--
Fever	78%	87.2%	-
History of sore throat	40%	59%	-
Leukocytosis	30%	-	-
Raised ESR	95%	70.9%	-
Positive throat culture	31%	43.6%	-
Raised ASOT (Todd units)	90%	56.3%	-
	(< 250)	(> 333)	

ANNEXURE-6

TABLE 6

CHRONIC VALVULAR HEART DISEASE

AVERAGE AGE AT PRESENTATION	25.1 ± 9.2 YRS.
MITRAL VALVE INVOLVEMENT	94-97%
FEMALE MORE WITH M.V. DISEASE	
MALE MORE WITH A.V. DISEASE	
PULMONARY HYPERTENSION +ve	50%
J.M.S.	
LESS THAN 20 YRS.	30%
LESS THAN 15 YRS.	16.3%
OPERATIVE BEFORE 20 YRS.	23-40%

ANNEXURE-7

TABLE 7

ANALYSIS OF PATIENTS WITH R.V.H.D.

TOTAL NO. OF PATIENTS	394
MITRAL STENOSIS	161
MITRAL REGURGITATION	60
MIXED MITRAL LESIONS	96
AORLIC STENOSIS	11
DORLIC REGURGITATION	8
MIXED AORLIC LESION	30
BOTH MITRAL & AORLIC LESIONS	28
	394

Mitral Stenosis

Out of 161 patients, with Mitral Stenosis, 36 patients were below the age of 20 years

with almost equal incidence in male and female (M-19, F-17). Out of these 36 patients, 8 were under the age of 10 years again with equal number of male and female. (Table-8).

## ANNEXURE-8

TABLE 8

## MITRAL STENOSIS

TOTAL NO. OF PATIENTS	161
J.M.S.	36 (19 M) (17 F)
(Age below 20)	
(Above 20 years)	125 (46 M) (79 F)
Age 10 or below	8 patients

Out of 125 remaining patients, who were above the age of 20 years, females were predominant (79 F, 46 M).

## ANNEXURE-9

TABLE 9

## MITRAL STENOSIS

TOTAL NO. OF PATIENTS	=161
M.V. OPENING AREA 1 SQ. CM OR LESS.	= 33
M.V. OPENING AREA BETWEEN 1 SQ. CM - 1.5 SQ. CM	= 58
MORE THAN 1.5 SQ. CM	= 70

Out of the 161 patients with Mitral Stenosis majority were tight and severe lesions. 33 patients had mitral val. opening area of 1.sq. c.m. or less and 58 patients had opening area between 1-1.5 sq. c.m. 70 patients had opening area of more than 1.5 sq. c.m. (Table-9).

Out of 394 patients, 133 (approximately 1/3rd) had evidence of mild-moderate pulmonary hypertension and 63 had evidence of Rt. Vent. Hypotrophy. (Table-10).

## ANNEXURE-10

TABLE 10

## R.V.H.D.

TOTAL NO. OF PATIENTS	394
EVIDENCE OF PULMONARY HYPERTENSION	
PRESENT	=133 (APPROX. 1/3 RD)
EVIDENCE OF R.V.H.	= 63

Dear colleagues, at the end, I would like to draw your attention toward this preventable disease. We have an example in front of us, that the incidence has gone down tremendously in the West by adopting preventive measures. It is the duty of the profession to make people more aware of this problem. Similarly, our family physicians and general practitioners should be more vigilant so that they do not misdiagnose Rheumatic Fever as some other illness. There is also need for stressing on the strict compliance on the penicillin long term treatment to prevent relapses. This all is necessary because we all know that large financial impact of repairing and replacing the heart valves.

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