AWARENESS OF RHEUMATIC HEART DISEASE IN PATIENTS SUFFERING FROM RHEUMATIC HEART DISEASE

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ABSTRACT:

OBJECTIVE: To determine the degree of awareness about the different aspects of rheumatic heart disease in patients coming to different departments of Faisalabad Institute of Cardiology, Faisalabad.

STUDY DESIGN AND DURATION: Questionnaire based survey study, 2 weeks.

PATIENTS AND METHODS: A total of 200 commutative patients of either sex between 12-80 years of age, suffering from Rheumatic Heart Disease coming to Faisalabad Institute of Cardiology were included in the study.

RESULTS: Out of 200 patients included in the survey, 130 (65%) patients were females and 70 (35%) were male. Majority of the patients (78%) belonged to villages whereas 22% patients belonged to cities. 48.5% of the patients aged between 12-30 years of age, 31.5% aged between 31-45 years and 20% of patients aged 45 years and above. Only 5% of the patients were aware that sore throat is a precipitating factor for Rheumatic Heart Disease. 23% of the patients were aware of prolonged antibiotic prophylaxis. After diagnosis of the disease, 77% of the patients were aware of different treatment options available like valvuloplasty or valve replacement surgery. 58% of the patients were aware of prolonged oral anticoagulation and antibiotic prophylaxis after undergoing surgery.

CONCLUSIONS: The patient population is lacking awareness about Rheumatic Heart Disease and treatment options available which has a profound effect on the incidence, morbidity and mortality of the disease. The study will help us to plan awareness strategies and their implementation by health department and the other measures of mass communication.

KEY WORDS: Rheumatic Heart Disease, Streptococcal infection, Rheumatic prophylaxis, Valvuloplasty

INTRODUCTION:

Rheumatic fever is an inflammatory disease that may develop after an infection with group A Streptococcus bacteria. The disease can affect the heart, joints, skin and brain. Complications of rheumatic fever are arrhythmias, damage to the heart valves, endocarditis, heart failure, pericarditis and Sydenham’s chorea. The most important way to prevent rheumatic fever is by getting quick treatment for Streptococcus throat and skin infection. 

The major part of the variation in rheumatic fever incidence between different populations is due to differences in streptococcal exposure due to poverty and treatment availability rather than to any difference in genetic susceptibility.
The incidence of rheumatic fever in economically deprived endemic parts of the developed world like Arboginal Australians varies from 2.7 – 5.7%.

The prevalence of Rheumatic Heart Disease (RHD) in rural areas of Pakistan was 5.7 in 1000 (95% CI 4.2–7.2). Less than 20% were aware of their diagnosis and only 8% were taking rheumatic prophylaxis. The prevalence has not declined over the last three decades. According to a large study conducted in urban and suburban schools of Lahore, the incidence of rheumatic heart disease in school children was 21.9 in 1000. Prevalence by clinical examination was 0.8 in 1000 school children but echocardiography diagnosed RHD in 20.4 in 1000 school children. It is estimated that RHD is directly responsible for 356000 to 524000 deaths each year in world. A 12 year old cohort study from India published in 2001 found a mortality rate among rheumatic heart disease patients of 3.3% per year. A study on the prevalence and outcome of subclinical rheumatic heart disease in India showed that clinical examination detected RHD 0.8/1000 children while echocardiography diagnosed RHD in 20.4/1000 school children (95% CI 16.9 to 23.9/1000 children). In a study in Cambodia it was suggested that universal echocardiographic screening will uncover 10 subclinical RHD cases for every one clinical case.

RHD accounts for up to 60% of all cardiovascular disease in young adults and children, robbing countries of their most useful citizens and undermining national productivity. Surgical treatment chews up the vast majority of the funds allocated to control this disease. Disease pattern has changed all over the world. Instead of infectious diseases which usually have short term treatments are now being replaced by diseases like Diabetes Mellitus (DM), Hyper Tension (HTN), Cancer and Ischemic Heart Diseases (IHD). These ailments not only require lifelong treatment but also require reasonable patients understanding about the disease and its treatment. For better outcome, good compliance and avoiding complications a regular and adequate treatment plan is necessary.

RHD is a major health challenge in developing countries of Southeast Asia. Control and treatment of this fatal disease require thorough understanding by general public and patient population. Unfortunately in Pakistan no attention is being paid on mass level for the awareness of general public and patients for this disease. To know the degree of awareness of the patients this survey was conducted in the Faisalabad Institute of Cardiology.

**PATIENTS AND METHODOLOGY:**

200 patients coming to different departments of FIC were included. They were separately asked different questions regarding the etiology, treatment of compliance, complications and rehabilitation of the disease they were having. Among the 200 patients 100 were with ischemic heart disease and hundred were suffering from rheumatic heart disease.

Inclusion Criteria: Both male and female patients between 12 – 80 years of age with IHD or RHD were included in the study.

Exclusion Criteria: Patients with congenital heart disease and/or patients below the age of 12 or above the age of 80 were excluded from the study. Patients who did not consent to participate in the survey were also excluded.

A simple questionnaire based survey was conducted on a random sample of 100 patients in various departments of Faisalabad Institute of Cardiology. An interview based questionnaire was administered to each of the participants in a homogenous manner to limit interviewer biases. The whole of the survey was conducted in a period of two weeks to prevent dilution of the questions.

The questionnaire compromised of two parts: The first part was about the demographic profile of the participants and the second part was about the awareness regarding the disease and its treatment which was further divided into four parts; awareness about the risk factors, avoiding the risk factors after disease onset, different treatment options and the compliance about the disease and consequences of non-compliance.

The questions were simple 'yes' and 'no' questions starting with the phrase 'Are you aware that........' as the opening phrase. Verbal informal consent was taken from all the patients. The patients were briefly informed.
about the objective and benefits of participating in the study. The study was conducted in compliance with the principles of the declaration and in accordance with the Code of Standards and Ethics for Survey Research (CASRO), USA.

Table 1: Demographic characteristics of the patient population included in the survey

<table>
<thead>
<tr>
<th>Distribution according to gender</th>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean ± SD</th>
<th>(\chi^2) value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>70</td>
<td>35.0</td>
<td>1.35±0.48</td>
<td>18.000**</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>130</td>
<td>65.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution according to outdoor and indoor patients</th>
<th>Patients</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean ± SD</th>
<th>(\chi^2) value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outdoor</td>
<td>88</td>
<td>35.0</td>
<td>1.56±0.50</td>
<td>2.880NS</td>
</tr>
<tr>
<td></td>
<td>Indoor</td>
<td>112</td>
<td>65.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution according to village and city</th>
<th>Residence</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean ± SD</th>
<th>(\chi^2) value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Village</td>
<td>156</td>
<td>78.0</td>
<td>1.22±0.42</td>
<td>62.720**</td>
</tr>
<tr>
<td></td>
<td>City</td>
<td>44</td>
<td>22.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution according to age</th>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean ± SD</th>
<th>(\chi^2) value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12-30</td>
<td>97</td>
<td>48.5</td>
<td>1.71±0.78</td>
<td>24.670**</td>
</tr>
<tr>
<td></td>
<td>31-45</td>
<td>63</td>
<td>31.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>45 to above</td>
<td>40</td>
<td>20.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution according to qualification</th>
<th>Education</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Percentage below matric</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Illiterate</td>
<td>44</td>
<td>22.0</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Literate</td>
<td>44</td>
<td>22.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>12</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Matric</td>
<td>66</td>
<td>33.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FA</td>
<td>16</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BA</td>
<td>18</td>
<td>9.0</td>
<td></td>
</tr>
</tbody>
</table>

Frequency= No. of participants out to total number (200), percentage= out of 100%
SD = Standard Deviation, ** = Significant at \(P<0.01\), * = Significant at \(P<0.05\), NS = Non-significant
Table 2: Knowledge about different aspect of the rheumatic heart disease

<table>
<thead>
<tr>
<th>Knowledge about the sore throat as a risk factor for RHD</th>
<th>Knowledge about the RHD prophylaxis</th>
<th>Knowledge about the RHD treatment options</th>
<th>Knowledge about the RHD treatment compliance</th>
<th>Knowledge about the RHD complications after treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>SD</td>
<td>Frequency</td>
<td>SD</td>
<td>Frequency</td>
</tr>
<tr>
<td>Yes</td>
<td>10 (5.0%)</td>
<td>46 (23.0%)</td>
<td>154 (77.0%)</td>
<td>116 (58.0%)</td>
</tr>
<tr>
<td>No</td>
<td>190 (95.0%)</td>
<td>154 (77.0%)</td>
<td>46 (230%)</td>
<td>84 (42.0%)</td>
</tr>
<tr>
<td>SD</td>
<td>1.95±0.22</td>
<td>1.77±0.42</td>
<td>1.23±0.42</td>
<td>1.42±0.50</td>
</tr>
<tr>
<td>*χ²</td>
<td>162.000**</td>
<td>58.320**</td>
<td>58.320**</td>
<td>5.120*</td>
</tr>
</tbody>
</table>

Frequency = No. of participants out to total number (200), percentage = out of 100%

SD = Standard Deviation, ** = Significant at P<0.01, * = Significant at P<0.05, NS = Non-significant

The data was analyzed using Statistical Package for the Social Sciences (SPSS) version 16. Pearson chi-square test was applied at 95% confidence interval and a p value less than 0.05 was considered significant.

RESULTS:

A total of 200 patients suffering from either IHD or RHD were included in the study. The demographic characteristics of 200 patients are listed in table 1. The mean age of male and female patients is 24.67 (SD= 1.71±0.78). Woman patients were 130 (65%) and male patients were 70 (35%) with a mean standard deviation (SD) of 1.35±048. Most of the patients were from villages 156 (78%) and only 44 (22%) patients were from the city (SD= 1.22±0.42). The patients were divided into three groups according to age. Highest number of patients fall in the category of 12-30 years, which was 97 (48.5%) out of 200 patients (SD=1.71±0.78). Majority of the patients were matric or below matric in qualification 166/200 (83%). The overall knowledge about different aspect of the rheumatic heart disease is given in table 2. Only 10 (5%) patients were aware of the sore throat as the precipitating factor for RHD (SD=1.95±0.22). 46 (23%) of the patients were aware of the prolonged antibiotic prophylaxis (SD=1.77±0.42). After undergoing the process of diagnosis most of the patients 154 (77%) knew about different treatment options like valvuloplasty or valve replacement surgery (SD=1.23±0.42). 116 (58%) patients who had undergone these procedures were aware of the prolonged oral anticoagulation and antibiotic prophylaxis but they were unaware of the most dreadful complications like prosthetic valve thrombosis or gradual deterioration of the other heart valves due to ongoing rheumatic activity (SD=1.76±0.43).

DISCUSSION:

Acute rheumatic fever and rheumatic heart
disease are diseases of socioeconomic disadvantage. These diseases are common in developing countries and in indigenous populations in industrialized countries. Inexpensive medicines, such as aspirin are the mainstay of symptomatic treatment of rheumatic fever. The current focus of global efforts at prevention of rheumatic heart disease is on secondary prevention in the form of regular administration of penicillin to prevent recurrent rheumatic fever. However in developing countries, valvular damage due to earlier unrecognized episodes of rheumatic fever has already occurred by the time secondary prophylaxis is instituted. Secondary prophylaxis cannot reduce the incidence of new cases of rheumatic fever. But all the measures are not successful without the general public awareness. Unfortunately there is no policy existing for public awareness at any level. Rheumatic heart disease is prevalent in poor communities where untreated streptococcal pharyngitis is common and it also depends upon the genetic predisposition of the individuals. Because of this reason it has never been a focus of any public awareness campaign. Even patients coming to tertiary care cardiac centers like FIC are not aware of the sore throat as perpetuating factor for their illness.

There are examples of successful public awareness campaigns in neighboring countries like India with beneficial results and decreased incidence of rheumatic heart disease. The results of this study show that our patient population is lacking knowledge about all aspects of rheumatic heart disease and its treatment. It has profound effect on the incidence, morbidity and mortality of heart disease. Patients are given some information about the treatment options but after undergoing the percutaneous or surgical procedures. They were not fully aware about the oral anticoagulation or secondary prophylaxis. This results in many cases of acute prosthesis valve thrombosis which is a life threatening situation or deterioration of a previously less affected native valve due to ongoing rheumatic activity. These complications usually require repeated surgical procedures which definitely have increased morbidity and mortality.

Another very important issue is cost of percutaneous or surgical treatments which may range from 150000 to 400000 rupees per patient depending on the private or public sector. As compared to this the cost of primary or secondary prevention of RHD is negligible. In addition to costs, patients remain vulnerable to many complications like prosthetic valve thrombosis or infective endocarditis after therapeutic procedures.

Organized approaches are needed to increase the effectiveness of secondary prevention of ARF and management of RHD.

RHD control program aims to:

- Improve uptake and adherence to secondary prophylaxis.
- Improve clinical care and follow up.
- Identify and register new cases of ARF and RHD.
- Provide education and training for health care providers.
- Provide education and health promotion for individuals, families and the community.
- Promote primary prevention aimed at preventing initial episode of ARF.
- Use data to monitor patient outcomes and improve program strategies.
- Making ARF and RHD notifiable diseases.
- A dedicated centrally based coordinator for each control program.
- A stable supply of benzathine penicillin.
- Appoint dedicated staff members responsible for delivery of secondary prevention and coordination of routine care.
- Minimize staff turnover in remote and rural primary health care centers and regional hospitals.
- Both active and passive surveillance measures to identify new cases of ARF and RHD and to update information about existing cases.

For starting an effective public awareness campaign we need to follow an old proverb, “GOD helps those who help themselves.” Following measures are quite cost effective and can result in early beneficial outcome:

1. Sending regular messages to general public and patients through mobile phones by the IT department of hospital and the
help of mobile service providers.

2. Regular messages read in the school assemblies and after religious sermons like Friday and Eid prayers.

3. One group of cardiologists in South Africa has estimated that only 60 children per year need to be treated to prevent one episode of rheumatic fever at a cost of $ 46 per episode prevented. ASAP stands for awareness, surveillance, advocacy and prevention. This is one of the preventive programs for rheumatic fever in Africa. A similar program needs to be started in Pakistan as all the four aspects of this program are required for proper control of rheumatic fever.

4. Educating people to seek early treatment for sore throat and skin infection especially if they are living in overcrowded houses as these infections are easily spread to other family members and if left untreated can cause rheumatic fever in children.

5. Throat swabbing of 5-15 years old children in high risk areas for rheumatic heart disease recognizes children with positive cultures for streptococcal infection and their potential for developing rheumatic fever. These children definitely need antibiotic treatment for eradicating streptococcal infection.

6. The nursing staff can educate the admitted patients while providing routine nursing care.

7. As people from agriculture department go to villages regularly, they can be given education and literature regarding RHD to deliver the knowledge directly to the affected community. If we are successful in giving a good awareness program about RHD only then we can expect a healthy childhood for our new generation and decreased burden of RHD on our health care system.

CONCLUSIONS:

Unfortunately the awareness about rheumatic heart disease even in patients coming to tertiary care hospitals is totally lacking. The objective of this study was to determine the degree of awareness in patients coming to Faisalabad Institute of Cardiology (FIC). Awareness about all aspects of this disease is the single most important factor for getting rid of this disabling and fatal disease. This study will help us to plan awareness strategies and their implementation by health department and the other measures of mass communication like newspapers, mobile phone service providers, school assemblies and religious gatherings like Friday and Eid prayer Sermons. All these measures are fruitless without the involvement of general population.

REFERENCES


When Imam Ali was asked about Faith in Religion, he replied that the structure of faith is supported by four pillars: endurance, conviction, justice and jihad.

_Hazrat Ali (Karmulha Wajhay)_