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Incident of Sore Throat History among Patients with Rheumatic Fever

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Abstract

Introduction: The incidence of rheumatic fever is decreasing day by day in Bangladesh. Recent advances in the diagnosis and management of Rheumatic fever are demanding a review of the cause of Rheumatic fever. The illness may present itself in several ways, such as carditis, arthritis, chorea, subcutaneous nodules, and the recognizable erythema marginatum rash [2]. ***Aim of the Study:*** The aim of the study was to observe the rate of sore throat in patients with rheumatic fever. ***Methods:*** This retrospective study was carried out at the National Centre for control of Rheumatic fever and heart disease, Sher-c-Bangla Nagar, Dhaka. The study period was 11 months, starting from January 2019 to November 2019. The study was performed on recorded data of 300 patients with Rheumatic fever. ***Result:*** The present study showed that 30 (10%) patients out of 300 came with an acute sore throat, 216 (72%) patients with a history of sore throat, and 54 (18%) patients with no history of sore throat either acute or past. Rheumatic fever is undoubtedly a morbid one but can be prevented at its beginning by primary prophylactic measures. ***Conclusion:*** Rheumatic fever is a disease, which usually follows streptococcal infection of the throat. The study's underlying presumptions appear to overstate rather than understate the dangers of non-antibiotic sore throat treatment. Low socio-economic status, poverty, illiteracy; overcrowding, low levels of nutrition and non-immunization status were the predisposing factors in the causation of rheumatic fever.

Keywords: Rheumatic, fever, Sore-throat.

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INTRODUCTION

Rheumatic Fever is caused by a preceding Group A streptococcal (strep) infection. Acute RF (ARF) primarily affects the heart, joints, and central nervous system [1]. The illness may present itself in several ways, such as carditis, arthritis, chorea, subcutaneous nodules, and the recognizable erythema marginatum rash [2]. Acute rheumatic fever most frequently affects children between the ages of 5 and 15 [3-5], while it can also strike teenagers. Serious cardiac damage by RF, such as rheumatic heart disease, is possible (RHD). RHD is a significant cause of death and disability. Early in the nineteenth century, a connection between ARF and strep infections was discovered. Researchers did not, however, start to comprehend how strep infections could result in ARF until the early 1900s. It is now known that ARF occurs when the body mounts an immune response to a strep infection. In some people, this response is over-active and damages healthy tissue, particularly in the heart. The most recent data on the prevalence of rheumatic heart disease over 15 million people around the world suffer from RHD, which kills hundreds of thousands of people a year, and is the most common acquired heart disease in children and young people in developing countries. Bangladesh has been experiencing an epidemiological transition from communicable disease to non-communicable disease [6]. The most common symptoms of RHD in Bangladesh are chest pain and shortness of breath. RHD is a major cause of disability and death in Bangladesh. In 2010, the estimated number of deaths due to RHD in Bangladesh was 22,000. RHD poses a huge burden on the health system in resource-limited countries; the problems of RF and RHD will have to compete for limited resources with other more immediate and urgent health concerns, such as malnutrition, diarrheal diseases, and tuberculosis [7]. According to World Health Organization, penicillin or amoxicillin is the first choice of antibiotic [8]. In our country monthly treatment is not easy for the poor population who struggle to meet the costs and constraints required to seek treatment. RF/RHD are the

primary causes of heart disease in studies conducted in Ethiopia [9]. In a study, insufficient clinical evaluations and poor monthly follow-up treatment attendance, are problems that are made worse in rural areas [10]. Some risk factors influence Rheumatic fever and preventive measures are to be taken rather than treatment. This study is not a complete study of Rheumatic fever but rather a source of current information regarding the attending patients at the National Centre for Rheumatic Fever and Heart Diseases (NCCRF/HD). This center deals with Rheumatic fever with carditis and valvular heart discases etc. It may be mentioned that extensive publicity to the mass media among the lower-class people including people residing in slum areas has created much awareness about the prevalence and incidence of Rheumatic fever and Rheumatic heart disease. This awareness has inspired them to take proper adequate treatment of the disease despite their poverty, which has declined the incidence of Rheumatic fever and Rheumatic heart disease.

METHODS

This retrospective study was carried out at the National Centre for control of Rheumatic fever and heart disease, Sher-c-Bangla Nagar, Dhaka. The study period was 11 months, starting from January 2019 to November 2019. The study was performed on data collected from the hospital records of 300 patients with Rheumatic fever. Ethical approval for the study was collected from the ethical review committee of the study hospital. All diagnosed cases of Rheumatic fever of both males and females were the study population. All relevant information was recorded systematically in a predesigned data sheet from existing hospital records. Descriptive and statistical methods were used in analyzing the data. After data analysis, results were then calculated from the tabulated column. The results were explained according to the findings.

Inclusion Criteria

- Record of clinically suspected cases of Rheumatic fever patients who had previously visited the study place.

Exclusion Criteria

- Patients with other chronic diseases.

RESULTS

Table 1: Shows the distribution of the study population based on rheumatic disease history (n=300)

Age (years)	Number of cases	Percentage
17-18	204	68.00%
20 and over	96	32.00%
Previous rheumatic fever	13	4.33%
Follow up obtained	255	85.00%

Among these participants, there were 204 patients aged 17 to 18 (68.00%), with others aged 20 or older 96(32.00%). A minority of patients had a previous rheumatic fever, which was 4.33% and follow-up obtained patients almost 85%.

Table 2: Distribution of study population according to a sore throat (n=300)

Sore throat	Number of cases	Percentage
Acute sore throat	30	10.00%
History of past sore throat	216	72.00%
No history of sore throat	54	18.00%
Total	**300**	**100.00%**

Among these participants, 30(10%) patients out of 300 came with an acute sore throat, 216(72%) patients with a history of sore throat, and 54(18%) with no history of sore throat either acute or past.

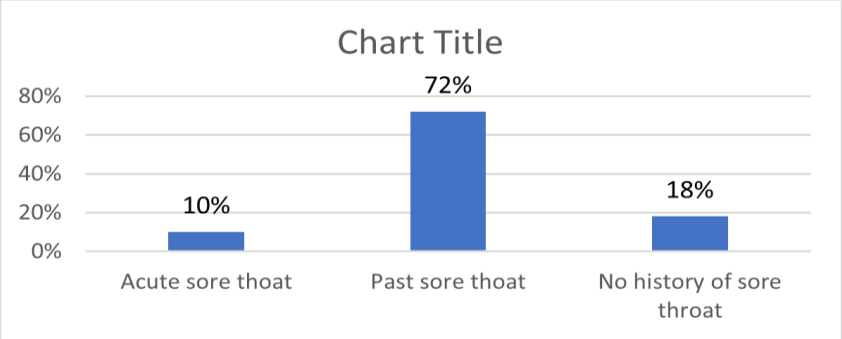

Figure 1: The bar diagram shows Treated and Untreated Groups

Among the cases, the majority of these rheumatic fever patients almost 85% had a previous sore throat, while the minority 10% had an acute sore throat and 18% of patients had no history of sore throat.

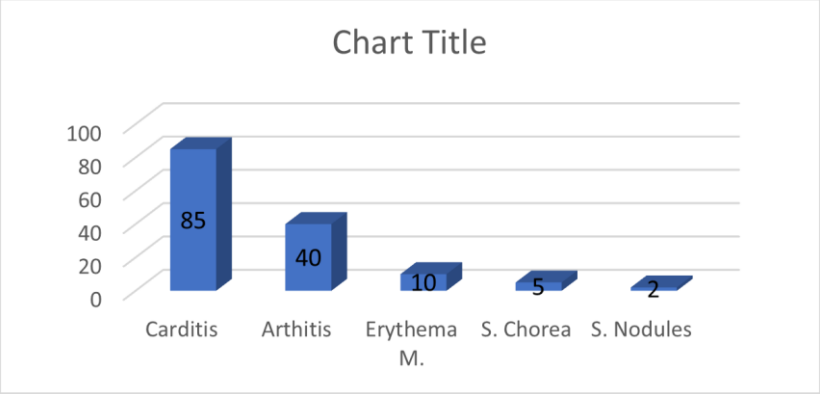

Figure 2: The bar diagram shows the frequency of major manifestations in our studied patients

Among the cases, 90% of the patients with Carditis had S. Nodules, compared to 8% of the cases overall. Additionally, 10% of patients had S. Chorea, 13% had Erythema M and 48% of patients had Arthritis.

Table 3: Distribution of study population according to minimal symptoms (n=300)

Type	Number of cases	Percentage
Fever	222	74.00%
Arthralgia	189	63.00%
Elv. CRP	261	87.00%
Prolong PR	99	33.00%

The participants include 74.00% of our patients with rheumatic fever who had minimal symptoms. Arthralgia 63.00%, Elv. CRP 87.00% and Prolong PR 33.00%.

Table 4: Distribution of study population according to the residence (n=300)

Residence	Number of cases	Percentage
City	192	64.00%
Town	13	4.33%
Village	95	31.67%
Total	**300**	**100.00%**

Among the participants, 64.00% of the patients were city dwellers, 31.67% of the patients came from a village.

DISCUSSION

Rheumatic heart disease is one of the most common causes of cardiovascular morbidity and mortality in developing countries. Rheumatic fever incidence has been calculated to range from 20 to 100 cases per 100,000 populations [11, 12]. It is significant to mention socioeconomic and environmental factors, the impact of prescription antibiotics for respiratory illnesses, and modifications in the common Group A streptococci's capacity to cause rheumatoid arthritis [13]. According to this study's comprehensive evaluation, treating a sore throat with antibiotics when it is accompanied by symptoms that point to a group A streptococcal acute rheumatic fever attack by 85%. A similar study found that streptococcal (GAS) infection is effective in reducing the attack rate of acute rheumatic fever by 70%. Intramuscular penicillin appears to reduce the attack rate by as much as 80%. The observation concerning mean age supports the fact that children are at the highest risk for developing RF. This is because group A Streptococcal commonly affects younger school-going children and schools are often overcrowded and badly ventilated increasing the spread of Streptococcal infection [14, 15]. According to our study 204 patients aged 17 to 18 (68.00%) are on high-risk RF. Long- term prophylactic antibiotics are commonly used in children with RHD to stop the worsening of the heart disease with subsequent episodes [16, 17]. In our study 74% of patients experienced fever, and 63% experienced arthralgia. In 33% of the population under study, there were cardiac symptoms with prolong PR. These results suggest that fever and arthralgia are common symptoms of the condition in question, whereas cardiac symptoms with prolong PR are less frequent. It is important to continue to monitor patients for any signs of cardiac symptoms, as this

could be a sign that the condition is progressing. Arthritis and carditis were the two major symptoms of RF that was most frequently noted in clinical signs [18]. In this study Carditis was identified with others or in interaction with other symptoms in as many as 85% of the cases in this investigation, making it the dominating feature. These findings also point out the S. Chorea and Erythema M. because we know that recurrences of rheumatic fever cause further damage to the heart disease. In underdeveloped nations, rheumatic fever and rheumatic heart disease have a significant negative economic impact. The majority of patients require frequent hospital admissions. Primary and secondary penicillin prophylaxis has become standard medical practice, and it is thought to be the reason why rheumatic fever incidence has dropped dramatically in these nations. The developing world, where access to treatment is frequently severely constrained by cost, bears the majority of the burden of RF [19]. In certain underdeveloped nations, school-based healthcare is well-established [20]. It would be wonderful if there was an RF vaccination and several of them are now being developed. Within one or two decades, it's anticipated that a safe and efficient vaccination will be accessible. Until that time, each developing country should have a plan in place for implementing secondary prophylaxis. For the sake of reducing the burden of RHD, RF calls for prevention in underdeveloped areas of the world [1].

CONCLUSION

Rheumatic fever is a disease, which usually follows streptococcal infection of the throat. The study's underlying presumptions appear to overstate rather than understate the dangers of non-antibiotic sore throat treatment. Low socio- economic status, poverty, illiteracy; overcrowding, low levels of nutrition and non-immunization status were the predisposing factors in the causation of rheumatic fever.

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Conflict of Interest: None declared.

Ethical Approval: The study was approved by the Institutional Ethics Committee.

RECOMMENDATION

Rheumatic fever and rheumatic heart disease have a significant negative economic impact. Rheumatic Fever should be prevented through the implementation of public health measures such as water and sanitation infrastructure, improved housing conditions, and vaccination programs. Rheumatic heart disease can be treated with antibiotics and surgery, but prevention is the best strategy.

REFERENCES

1. Hajar, R. (2016). Rheumatic Fever and Rheumatic Heart Disease a Historical Perspective. *Heart Views*, 17(3), 120-126. doi: 10.4103/1995-705X.192572. Erratum in: Heart Views. 2017 Jan-Mar;18(1):39. PMID: 27867464; PMCID: PMC5105226.
2. Burke, R. J., & Chang, C. (2014). Diagnostic criteria of acute rheumatic fever. *Autoimmunity reviews*, 13(4-5), 503-7.
3. Webb, R. H., Grant, C., & Harnden, A. (2015). Acute rheumatic fever. *Bmj*, *351*.
4. Jaine, R., Baker, M., & Venugopal, K. (2008). Epidemiology of acute rheumatic fever in New Zealand 1996–2005. *Journal of paediatrics and child health*, *44*(10), 564-571.
5. Lawrence, J. G., Carapetis, J. R., Griffiths, K., Edwards, K., & Condon, J. R. (2013). Acute rheumatic fever and rheumatic heart disease: incidence and progression in the Northern Territory of Australia, 1997 to 2010. *Circulation*, *128*(5), 492-501.
6. Islam, A. M., & Majumder, A. A. S. (2016). Rheumatic fever and rheumatic heart disease in Bangladesh: a review. *Indian heart journal*, *68*(1), 88-98.
7. Riaz, B. K., Selim, S., Karim, M. N., Chowdhury, K. N., Chowdhury, S. H., & Rahman, M. R. (2013). Risk Factors of Rheumatic Heart Disease in Bangladesh: A Case-Control Study. Journal of Health, Population, and Nutrition, 31(1), 70-77.
8. WHO. (2004). Rheumatic Fever and Rheumatic Heart Disease: report of the WHO expert consultation. *World Health Organization Technical Report Series*, 923, 1-122.
9. Maru, M. (19930. The changing pattern of cardiovascular diseases in Ethiopia. *The East African Medical Journal*, 70(12), 772-6.
10. Strauss, A., & Corbin, J. (1998). Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory; London. *Sage Publications Ltd.*
11. Ozer, S., Hallioğlu, O., Ozkutlu, S. Ü. H. E. Y. L. A., Çeliker, A., Alehan, D., & Karagöz, T. (2005). Childhood acute rheumatic fever in Ankara, Turkey. *Turk J Pediatr*, *47*(2), 120-124.
12. Kumar, R. (1995). Controlling rheumatic heart disease in developing countries. *World Health Forum*, 16, 47-51.
13. Howie, J. G. R., & Foggo, B. A. (1985). Antibiotics, sore throats and rheumatic fever. *The Journal of the Royal College of General Practitioners*, *35*(274), 223-224.
14. Joseph, N., Madi, D., Kumar, G. S., Nelliyanil, M., Saralaya, V., & Rai, S. (2013). Clinical spectrum of rheumatic fever and rheumatic heart disease: a 10 year experience in an urban area of South India. *North American journal of medical sciences*, *5*(11), 647.

15. Rayamajhi, A., Sharma, D., & Shakya, U. (2007). Clinical, laboratory and echocardiographic profile of acute rheumatic fever in Nepali children. *Annals of tropical paediatrics*, *27*(3), 169-177.
16. Kulik, E., Stuart, B., & Willcox, M. (2022). Predictors of rheumatic fever in sore throat patients: a systematic review and meta-analysis. *Transactions of The Royal Society of Tropical Medicine and Hygiene*, *116*(4), 286-297.
17. Al-Jazairi, A., Al-Jaser, R., Al-Halees, Z., Shahid, M., Al-Jufan, M., Al-Mayouf, S., ... & Al-Hajjar, S. (2017). Guidelines for the secondary prevention of rheumatic heart disease: endorsed by Saudi Pediatric Infectious Diseases Society (SPIDS). *International Journal of Pediatrics and Adolescent Medicine*, *4*(1), 47-50.
18. World Health Organization. (1981). COMMUNITY CONTROL OF RHEUMATIC HEART DISEASE IN DEVELOPING COUNTRIES. *Weekly Epidemiological Record= Relevé épidémiologique hebdomadaire*, 56(37), 290-3.
19. Karthikeyan, G., & Mayosi, B. M. (2009). Is primary prevention of rheumatic fever the missing link in the control of rheumatic heart disease in Africa?. *Circulation*, *120*(8), 709-713.
20. Nordet, P., Lopez, R., Duenas, A., & Sarmiento, L. (2008). Prevention and control of rheumatic fever and rheumatic heart disease: the Cuban experience (1986-1996-2002): cardiovascular topic. *Cardiovascular journal of Africa*, *19*(3), 135-140.