



Perspective

Rheumatic heart disease in the heart of Himalayas

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ABSTRACT

Rheumatic heart disease results from the damage to heart valves caused by one or more episodes of rheumatic fever leading to a variety of cardiac complications. Although less common in developed parts of the world, it is one of the most common acquired heart diseases in low- and middle-income countries including Nepal, affecting children and young people. Primary prevention with prompt treatment of streptococcal throat infections and long-term secondary antibiotic prophylaxis with benzathine penicillin G are the key intervention strategies. Echocardiography based screening in schoolchildren has become an effective measure for early identification of the cases. More coordinated policies and effective interventions are needed to successfully decrease the burden of the rheumatic heart disease in resource limited settings like Nepal.

1. Introduction

Rheumatic heart disease (RHD) is the result of valvular damage of heart caused by one or more episodes of rheumatic fever, an autoimmune inflammatory reaction to beta hemolytic group A streptococcal infection, mainly of throat, usually during childhood [1]. The name rheumatic fever may seem to emphasize the involvement of the joints, but it is the involvement of the heart that makes it important. RHD is the most common acquired heart disease in children and young people under age 25 in low- and middle-income countries that can lead to serious cardiac complications, disability and death. The World Health Organization (WHO) and World Heart Federation have called for a 25% reduction in mortality due to cardiovascular causes, including rheumatic heart disease, by the year 2025 [2].

2. Discussion

A study on global burden of RHD estimated 319,400 deaths due to rheumatic heart disease in 2015. Although the health-related burden of rheumatic heart disease declined worldwide from 1990 to 2015, high rates of disease persist in some of the poorest regions in the world. The highest mortality and prevalence were observed in Oceania, South Asia, and central sub-Saharan Africa where endemic patterns of disease prevail. The study estimated 33.4 million cases and 10.5 million disability-adjusted life-years in 2015 due to rheumatic heart disease globally [3]. The prevalence of RHD was found to have progressively increased between the ages of 5 years and 16 years, with a stable incidence rate, and the clinically silent disease was seven to eight times higher than clinically manifest disease. The differences in estimated prevalence represented economic disparities and associated with social inequality [4]. RHD has thus been viewed as a disease of poverty associated with overcrowding, poor sanitation, and other social determinants of poor health.

Nepal, a country of Himalayas in South Asia, has an endemic pattern of RHD in high burden with studies showing the prevalence among

school children between 0.9 and 1.35 per thousand [5]. A large epidemiological survey among school children in the capital Kathmandu valley reported the prevalence to be 0.90 per thousand (in the age group 5–16 years) which was significantly lower than the prevalence in a remote western district Jajarkot having the prevalence of 7.32 per thousand schoolchildren. This showed the alarming prevalence in underprivileged children living in resource constrained environment and poor access to health care on the one hand and underlined the success of primary and secondary prevention programs in the capital on the other [6,7]. Other studies reported the prevalence of definite RHD as 1.66% in schoolchildren in central Nepal and 1 in 100 schoolchildren in Eastern Nepal [8,9]. The overall prevalence from a hospital-based study from western Nepal showed to be 4.84% [10]. Some of the common findings from all those studies were the higher prevalence in girls and in people with lower socioeconomic status while mitral and aortic valves were the most common to get affected. The major abnormalities identified were mitral regurgitation, mitral stenosis or combined lesions and common complications encountered as heart failure and arrhythmias. They also identified that echocardiographic screening was important in early diagnosis and management.

Effective implementation of prevention policies and institutionalized programs are vital for the control of rheumatic heart disease in endemic countries. In 2018, the World Health Assembly adopted resolution WHA 71.14 calling for WHO to launch a coordinated global response to rheumatic heart disease and rheumatic fever with effective interventions to prevent the disease and to care people living with it. Ensuring a steady and quality supply of benzathine penicillin is also a key priority in the 13th WHO General Programme of Work [2]. Government of Nepal had launched a national program for prevention and control of rheumatic fever/RHD in Nepal back in 2006 with Nepal Heart Foundation as the main authorized organization for implementation of the program. This program has been well accepted by the public & health professionals and needs to be expanded in integration with the primary health care system [11].

Primary prevention strategies include interventions to prevent the

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development of acute rheumatic fever (ARF). Prompt treatment of streptococcal throat infections with effective antibiotics can prevent the development of almost all cases of RF while the development of streptococcal vaccine has the potential to become a game-changer. Community health awareness campaigns are also important to increase the disease awareness and seeking proper care. Secondary prevention strategies focus on antibiotic prophylaxis in children with a history of acute rheumatic fever or documented RHD to slow or prevent the progression from mild valvular changes to advanced heart diseases. The antibiotic benzathine penicillin G (BPG), also referred to as benzathine benzyl penicillin, is commonly used for primary and secondary prophylaxis as intramuscular injection. The effectiveness of secondary prophylaxis is, however, limited by the subclinical course of rheumatic fever, resulting in a substantial burden of latent RHD. Echocardiographic screening has been advocated as an effective screening measure for the early detection of latent RHD for which a standard WHF criteria for echocardiographic diagnosis of rheumatic heart disease was developed in 2012 [12]. School-based echocardiographic screening in combination with secondary antibiotic prophylaxis in children with evidence of latent rheumatic heart disease was found to be an effective strategy to reduce the prevalence of definite or borderline rheumatic heart disease in endemic regions [13]. For advanced cases, appropriate cardiac care services for medical and surgical management are required which are not easily accessible in all areas like Nepal. So, the expansion of cardiac treatment facilities should also be considered as a priority area to work on.

3. Conclusion

Even though the burden of rheumatic heart disease has drastically decreased in developed countries, it is still a major burden in low- and middle-income countries like Nepal, especially among the children and young people. Effective programs on prevention and accessible cardiac treatment should be the priority to address the burden of RHD. The coordinated effort from government, non-governmental sector and international support including WHO and other related organizations will certainly help to tackle this burden and prevent a lot of disadvantaged people from the disease in our global goal to achieve health for all.

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SL, NRS, MP, BP, MB were involved in conceptualization, design, preparation and finalization of manuscript.

Consent

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Registration of research studies

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Guarantor

Dr. Saral Lamichhane.

Declaration of competing interest

None.

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