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Case Report

Do Statins Therapy Included as Rationale Treatment and Management for Rheumatic Heart Disease: A Case Report

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Abstract

Rheumatic Heart Disease (RHD) is an autoimmune response to group A-streptococcus infections of the upper respiratory tract which may result in carditis or inflammation of the mitral and aortic valves if left untreated. Rheumatic Heart Disease causes an acute generalized inflammatory response and an illness that affects certainly parts of the body mainly Heart, Joints, Brain and skin, Patients with Rheumatic Heart Disease are often severally unwell and they are in great pain and require Hospitalisation. Despite of that it has been postulated streptococcal infection seems to play an important role for clinical presentation shows a streptococcal pharyngitis but streptococcal cellulitis has never been implicated, common feature is a painful migratory arthritis which is present in approximately 80% of patients. There is a link with class-I human leukocyte antigens (HLAs) which has been found. However, evidence which exists suggests that elevated immune complex levels in blood samples from patients with RHD are associated with HLA-B5. Recently it has been estimated that 33.4 million people worldwide have rheumatic heart disease and that 300,000 - 500,000 new cases of rheumatic fever occur annually, with 230,000 deaths resulting from its complications at the same Time at the same time, The World Heart Federation non-communicable disease action plan, developed for the World Health Assembly in 2013, called for a 25% reduction in premature mortality from RHD by the year 2025. This case report discusses about management and prevention of further complications due to rheumatic heart disease.

Keywords: Rheumatic Heart Disease (RHD); Human Leukocyte Antigens (HLAs); Statins Therapy

Introduction

Rheumatic Heart Disease (RHD) is an autoimmune response to group A-streptococcus infections of the upper respiratory tract which may result in carditis or inflammation of the mitral and aortic valves if left untreated [1]. RHD causes an acute generalized inflammatory response and an illness that affects certainly parts of the body mainly Heart, Joints, Brain and skin, Patients with RHD are often severally unwell and they are in great pain and require Hospitalisation [2]. However dramatic nature of the acute episodes ARF leaves no lasting damage to the brain, joints and the skin. Although damaged to the Heart is more specifically to the mitral and aortic valves in which may remain as an acute condition

despite of that the mechanism by which the streptococcal organism cause the disease is not entirely understood and susceptibility factors remain unclear, Despite of that it has been postulated streptococcal infection seems to play an important role for clinical presentation shows a streptococcal pharyngitis but streptococcal cellulitis has never been implicated, common feature is a painful migratory arthritis which is present in approximately 80% of patients [4]. Large joints such as knees, ankles, elbows, or shoulders are typically affected. Sydenham chorea was once a common late onset clinical manifestation but is now rare. Carditis with progressive congestive heart failure a new murmur and pericarditis may be presenting sign of unrecognized past episodes and is the most lethal manifestation [5]. Human major histocompatibility complex (MHC) comprises genes for human leukocyte antigen (HLA) these cell surface proteins are responsible for regulations of the immune system in humans. The HLA class I complex consist of three genes HLA-A, HLA-B, HLA-C, despite that HLA class II complex consist of the HLA-DR, HLA-DP and HLA-DQ genes [6]. HLA molecules encoded by the HLA genes play a crucial role in immune system despite of that genetics can contribute as evidenced by an increase in family incidence [7]. There is a link with class-I human leukocyte antigens (HLAs) which has been found. However, evidence which exists suggests that elevated immune complex levels in blood samples from patients with RHD are associated with HLA-B5. In India it incidence of the school children between 5 to 15 years of age, which is still unacceptably high RHD is encountered in 1 to 5.4 per 1,000 in large samples of population and Rheumatic Heart Disease in 0.3 to 0.5 per 1,000 Population [8]. Internationally in developing countries, the magnitude of ARF is enormous. Recently it has been estimated that 33.4 million people worldwide have rheumatic heart disease and that 300,000-500,000 new cases of rheumatic fever occur annually, with 230,000 deaths resulting from its complications at the same Time At the same time, the World Heart Federation (WHF) non-communicable disease action plan, developed for the World Health Assembly in 2013, called for a 25% reduction in premature mortality from RHD by the year 2025 [9].

Hence forth Rheumatic Heart Disease steadily worsens in patients who have multiple episodes of acute rheumatic fever and eventually may cause cardiac valvular damage. and risk of patient to contract stroke and sudden death. This case report discusses about management and prevention of further complications due to rheumatic heart disease.

Case Description

A 46 -Year- Old Male was admitted to Genera Medical Ward at the Government Hospital with the complaints of fever for the past four days, Cough and History of breathlessness. His past medication history was tablet digoxin 0.125 mg, tablet enalapril 2.5 mg, tablet penicillin V 250 mg, tablet furosemide 20 mg. He revealed for not having any history of Hypertension nor Diabetes. On clinical examination his vital signs were unremarkable and Laboratory investigations findings were found normal (Table 1). According to signs and symptoms patient was diagnosed with rheumatic heart disease ICD code Number A. 105 -109. The Chadvasc score revealed < 2 on assessment of criteria for stroke and atrial fibrillation. On clinical examination patient was assessed and revealed vitals objectively as his Blood Pressure (Bp) was 130/70 mmhg, Pulse rate PR 82/bm Respiratory Rate was 22 breath/min, Temperature was 98.4f, on Cardiovascular findings CVS s1s2 + following up his prognosis. On the day of admission was improving and echo findings revealed Reduced LV and RV Systolic Function. The patient was prescribed with Tablet digoxin 0.125 daily include treatment chart review. The tablet digoxin has ionotropic effect and used for the management of the left ventricular dysfunction of the patient and reducing the heart work load. Tablet enalapril 2.5 mg was administered for the modulation of the heart as ACE angiotensin converting enzyme inhibitor have shown the reduction rate risk of heart attack following its administration and prevention of the further complication of the Rheumatic Heart Disease. Tablet furosemide 40 mg was administered as to reduce the fluids from the body and as the patient was having Cardiomegaly as shown in figure 1 and eventually developing significance risk of pulmonary edema. Tablet ranitidine 150 mg the patient diagnosed with the rheumatic Heart Disease developed erythema marginatum and this was obviously seen to our patient. His condition was improved following the interventions done to rationale his management and the whole treatment pharmaceutical care plan to reduce morbidity and mortality and the prolongation of the Hospital Stay. However, patient was discharged on the recommendation to use pen v as the prophylaxis dosage regimen to prevent the further recurrent of the acute rheumatic heart disease.

Discussion

Complete Blood Count (CBC)				
Red blood cells (RBC's)	Male		4.3 - 5.9 × 106/mm^3	4.3 - 5.9 × 1012 Cells/L
			3.5 - 5.0 × 106/mm^3	3.5 - 5.0 × 1012 Cells/L
Hematocrit (Hct)/Packed cell volume (PCV)	Male	46%	39 - 49%	0.39 - 0.49 I
	Female	- NA-	33 - 43%	0.33 - 0.43 I
Mean cell volume (MCV)		82.7FL	76 - 100 µm^3	76 - 100 fL
Mean cell hemoglobin (MCH)		29.0 pg/cell	27 - 33 pg/cell	27 - 33 pg/cell
Mean cell hemoglobin concentration (MCHC)		35.7 g/dL	33 - 37 g/dL	330 - 370 g/L
Heamoglobin		16 g/dL		

Table 1: Clinical investigations to our patient.

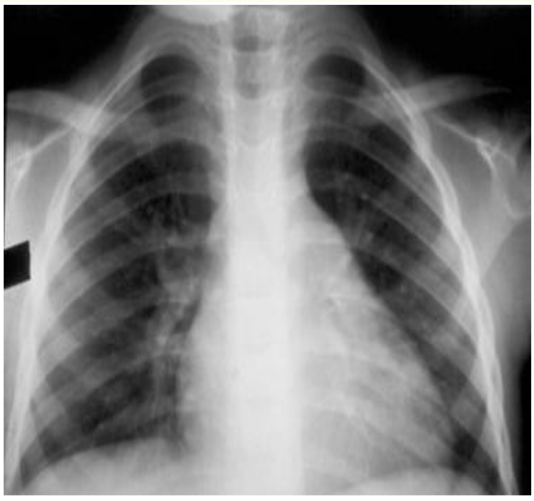

Figure 1: Cardiomegaly as seen to our patients from a chest radiograph/subjected to prescribed with loop diuretic as to improve the prognosis of the patient.

Rheumatic fever is common in areas of poor living conditions of high poverty and poor nutrition, over crowded areas and unsanitary living conditions as well especially during the rainy seasons in tropics and sub- tropics which promote transmission of streptococcal infections leading to development of rheumatic fever [10]. Rheumatic Heart Disease is a major cause of acquired heart disease globally with the disease occurring frequently in underdeveloped countries where access to medical care is limited and population who live in poverty and unsanitary crowded conditions [11]. The mainstay management for Rheumatic Heart Disease are categorized based on the strategies to managed the acute attack, management of current infection Prevention of reinfection and recurrence attacks. The primary goal for treating an attack is for eradication of streptococcal microorganism and bacterial antigens from the pharyngeal region. Although Penicillin is the drug of choice in patient who are not at risk of allergic reaction as recommended from the treatment guidelines used in rheumatic heart disease a single parenteral injection of benzathine benzyl penicillin G ensures compliance to majority of Patients. The patients with prior attack of rheumatic fever are more likely to develop recurrence during future episodes of throat infections emphasizing importance of recurrence in disease progression. Hence once rheumatic heart disease is diagnosed future streptococcal infection should be prevented in order to decrease the chance of the disease progression.

Recommended approach may be divided into primary and secondary prevention. Primary prevention involves eradication of Streptococcus from the pharynx, which generally entails administering a single intramuscular injection of benzathine benzylpenicillin, The American Heart Association (AHA) Committee on Acute Rheumatic Fever recommends a regimen consisting of benzathine benzylpenicillin at 1.2 million units intramuscularly every 4 weeks [12]. However, in high-risk situations, administration every 3 weeks is justified and advised. High risk situations include patients with heart disease who are at risk of repetitive exposure. Oral prophylaxis, which is less reliable, consists of phenoxymethylpenicillin can be used in compliant patients. When there is existence of

penicillin allergic which is suspected, orally cephalosporins should be used. The management medication with the patient with the rheumatic fever with carditis prednisolone at the dose of 1 mg/kg should be used for prevention of the carditis [13].

Our patient had diagnosed with the rheumatic heart disease through echocardiogram report revealed left ventricular Hypertrophy with mild Regurgitation. Discussed earlier the mainstay treatment is for the prophylaxis use of the penicillin V as to prevent the inversion of the streptococcus strains. Patient was administered with the enalapril and furosemide his prognosis was improved and advised to continue taking penicillin V tablet once daily in the morning. However, no consensus on required duration of antibacterial prophylaxis has been reached, as per America Heart Association recommends that prophylaxis to be continued for at least Ten years after the last episode of rheumatic fever. Leverage advantages on the use of statins will eventually help in minimization of the progression of disease.

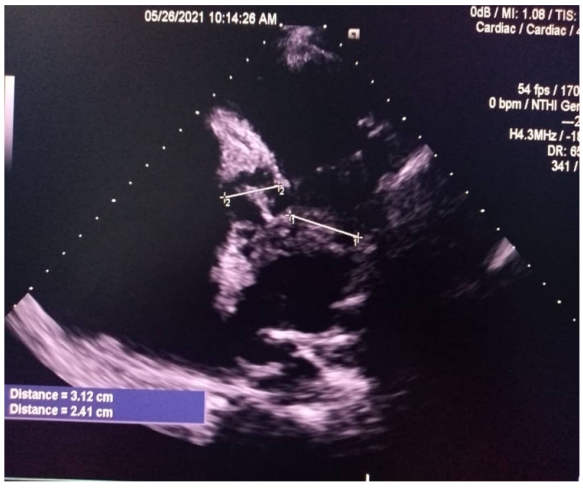

Figure 2: Echocardiography findings showing mild regurgitation with both left atrial and left ventricular hypertrophy to our patient.

Conclusion

Rheumatic Valvular Heart Disease is a major public health problem world-wide and medications that delay the progression of valvular damage is needed Management and prevention of rheumatic heart disease plays a major role as a multidisciplinary care in which might include for further investigations to be conducted as a part of the comorbidities to the patients such as infectious diseases, cardiology and neurology and for that reasons, Complications can arise due to damaged valves which can result due to the progression of untreated Rheumatic Valvular Heart Disease.Treatment of rheumatic valvular disease will eventually be managed by the recommended guidelines as to ensure the proper optimization of the Pharmacotherapy towards the management and hence forth reduce both morbidity and Mortality. Eventually minimization of Occurrences of Disease at Large especially to sub-Saharan Africa and East Africa in general.

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