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Secondary prevention with antibiotics in rheumatic heart disease: A case report and review following valve replacement

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Abstract

This report addresses the indication for long-term antibiotics in an adult with rheumatic heart disease requiring valve surgery based on several factors including age, duration since last rheumatic episode, and history of receiving antibiotics. Patients who suffered from rheumatic fever as a child often experience the sequalae of rheumatic heart disease years later, and the need for antibiotics in this setting is not always clearly defined, especially in patients requiring valve replacement. This patient with rheumatic mitral stenosis requiring valve replacement exemplifies a scenario where the indication for antibiotics is based on clinical presentation as well as additional factors to be discussed in addition to review of the literature.

Keywords

Rheumatic heart disease; rheumatic valve replacement; antibiotics in rheumatic fever; rheumatic mitral stenosis.

Abbreviations

AHA: American heart association; WHO: World health organization.

Introduction

Rheumatic heart disease and antecedent rheumatic fever has largely been abated in developed nations due to better access to health care in this era of preventive medicine. Primary prevention is practiced readily in pediatrician offices, but secondary prevention of recurrent rheumatic attacks with antibiotics among adult patients remains a nebulous entity given the resounding lack of recollection many patients have about experiencing acute rheumatic fever and subsequent events. Whether patients received antibiotics as a child or adolescent is often unknown, and how to approach secondary prevention in the setting of valvular disease requiring surgery is an additional clinical dilemma that is not always strictly defined. Given

that many patients require valve surgery as adults, the need for antibiotics moving forward is dependent on history and clinical features.

Case Report

A 49-year-old Caucasian female with a known history of rheumatic mitral valve stenosis status post replacement with bioprosthetic valve 10 years ago presented with a one-month history of progressive shortness of breath. She was diagnosed with acute rheumatic fever as a child but denies taking long-term antibiotics. She was diagnosed with the sequela of rheumatic heart disease when she required bioprosthetic valve replacement 10 years ago due to severe mitral stenosis and denies receiving antibiotics at that time. After evaluation with echocardiogram, she was noted to have restenosis of her bioprosthetic valve requiring expedient replacement. She successfully underwent surgery with mechanical valve but need for antibiotics moving forward was not clearly established. Ultimately, she was deemed to not require antibiotics and she was discharged with serial assessment with echocardiography to monitor for the development of rheumatic heart disease sequela.

Discussion

Rheumatic heart disease involves the immune-mediated destruction of cardiac valves following an initial episode of acute rheumatic fever, often as a child, due to Streptococcus pyogenes infection. Subsequent secondary prevention with intramuscular benzathine penicillin G proves paramount in preventing rheumatic heart disease sequelae including irreversible valve damage. Many adult patients do not recall the often subtle manifestations of acute rheumatic fever including joint pain, carditis, subcutaneous nodules, Sydenham chorea, and erythema marginatum constituting the Jones Criteria [1]. This can lead to patients presenting with valvular disease requiring surgery later in life. The need for antibiotics in this setting should be carefully addressed in order to prevent further rheumatic attacks.

Upon referencing data from the American Heart Association (AHA), the World Health Organization (WHO), and the Australian Rheumatic Heart Disease guidelines, secondary prevention recommendations are better established in patients who have not undergone valve surgery. The AHA guidelines in patients who have not undergone valve surgery is based on duration since last rheumatic attack, defined as an episode meeting the Revised Jones Criteria with alternative diagnoses being excluded, and the degree of cardiac dysfunction [1]. If persistent valvular disease is present, patients should receive antibiotics for 10 years from last rheumatic attack or until age 40, whichever is longer and if no valvular disease is present, they should receive antibiotics for 10 years after the last rheumatic attack or until age 21, again whichever is longer [1-3]. These guidelines have not been validated in patients who have undergone valve surgery, and are therefore difficult to comprehensively apply to these patients. Clinical judgment may be utilized in interpreting these guidelines, as an acute cardiac event requiring valve surgery may be interpreted as a rheumatic attack in the appropriate context if rheumatic valvular disease can be clearly defined as the mediator. The 2001 WHO guidelines recommend lifelong prophylaxis after valve surgery, with no reference to the most recent rheumatic attack, and otherwise no strong evidence to support this recommendation [3,4].

This patient presented with insidious symptoms and was found to have restenosis of her bioprosthetic valve. Given the chronic development of this issue with additional risk factors for calcific cardiac disease including obesity and hyperlipidemia, this was not interpreted as an acute rheumatic event and she therefore did not qualify for antibiotics given the guidelines available. This places an emphasis on applying the clinical context to patients when deciding to commit to antibiotics in patients with rheumatic heart disease, as the guidelines do not always strictly portray unique clinical scenarios.

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