

**PAEDIATRICS  
AND  
CHILD HEALTH**  
IN A TROPICAL REGION

3<sup>rd</sup> Edition

**AZUBUIKE  
&  
NKANGINIEME**

## PART FOURTEEN: CHAPTER 84.

### ACUTE RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE

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#### DEFINITIONS

**Acute rheumatic fever** or more simply, Rheumatic Fever (RhF) is an inflammatory disease which results from an abnormal immunologic response to pharyngitis caused by certain strains of group A  $\beta$ -haemolytic streptococci (GAS). It causes only a fleeting arthritis, but may cause severe and permanent cardiac damage, and has a tendency to recur, hence its importance to clinicians. It is true to say that "RhF licks the joints but bites the heart".

**Rheumatic Heart Disease** (RHD) is the cardiac sequel to RhF and is the commonest acquired heart disease in children in the tropics and developing countries.

#### RHEUMATIC FEVER

##### Aetiology

RhF is usually related to Lancefield group A Streptococcal pharyngitis. Unlike acute glomerulonephritis, it is not associated with Lancefield Group A skin infection (impetigo), neither is it associated with infections due to streptococci of groups B,C,G, or F, or the carrier state (simple colonisation of the throat).

##### Pathogenesis

a. Organism: Over 130 serological types of group A streptococci exist (depending on the M protein present in their cell wall). Of these, 10 (1, 3, 5, 6, 14, 18, 19, and 24, ) are frequently associated with RhF. (12 and 49 are associated with the acute glomerulonephritis). The M protein enables the organism to resist phagocytosis. Besides this property, streptococci liberate enzymes e.g streptolysin O, streptolysin S and DNase, which damage host cells or tissues.

b. Host factors: Man is the only known host susceptible to streptococcal infection. However, not all patients with streptococci in the throat necessarily develop pharyngitis, and not all patients with pharyngitis develop RhF. It is slightly more common amongst females than males and occurs usually between the ages of 5 and 15 years. (It is rare below the age of 5 years, and first attacks are unusual after the age of 15 years). It thus appears that repeated exposure to the organism may play a role in its development. Patients with RhF have been shown to have higher levels of antibody to group A streptococci than patients with uncomplicated pharyngitis, thus prompting the postulation that an abnormal immunologic response may be responsible for the disease. There is an increased concordance rate amongst monozygotic