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The Study of Anti Streptolysine O Titre In Normal and Rheumatic Child

Thesis

Submitted for partial fulfillment of Master Degree in Pediatrics

BY

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CONTENTS

List of Abbreviation

- ASOT: Anti streptolysin O titer.
- B hemolytic: Beta Hemolytic.
- GABHS: Group A Beta Hemolytic Streptococci.
- SOF: Serum Opacity Factor.
- ESR: Erythrocyte Sedimentation Rate.
- DNase: Desoxy Ribonuclease .
- SD: Standard Deviation.
- P: Propability.
- Rh: Rheumatic.
- MR: Mitral Regurge.
- DML: Double Mitral Lesion.
- AR: Aortic Regurgitation.
- PH : Pulmonary Hypertention.
- DAL: Double Aortic Lesion.
- ARF: Acute Rheumatic Fever.

INTRODUCTION

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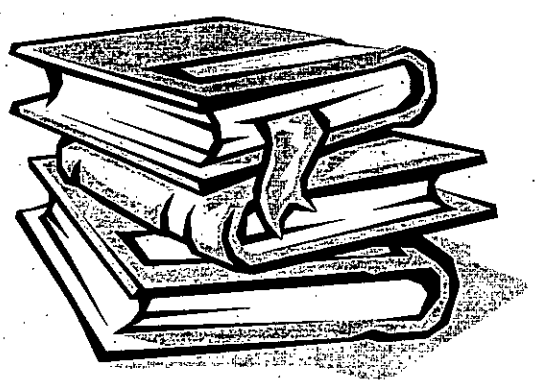

Rheumatic fever

Definition:

Acute rheumatic fever is a non -suppurative complication of group A streptococcal upper respiratory infection, and it is a systemic disease involving more frequently the joint and the heart and less frequently the central nervous system, skin & subcutaneous tissues (Markowitz, 1987).

Rheumatic fever is associated with high morbidity and mortality of children, particularly when it affects the heart (Gostman, 1985).

While the decline in rheumatic fever and rheumatic heart disease is a phenomenon of the developed world, in Africa & Asia the disease is still an important cause of mortality & morbidity (Disciascio & Taranta, 1980).

In Egypt, rheumatic heart disease is still the predominant form of heart disease in children of the school age (Abdin, 1960) (Shoheib, 1985).

Incidence:

Acute rheumatic fever has a world- wide distribution and continues to be a major cause of heart disease in young children and adolescents in many countries. The disease and its sequel are believed to have substantial geographic variability, with a higher incidence of severe cardiac involvement in some countries (Bisno, 1992).

The exact incidence of rheumatic fever is difficult to be determined, for a variety of reasons: acute rheumatic fever is not reported in many localities, cases of asymptomatic carditis do not come to medical attention during the

acute phase and instances of polyarthritis or cardiac disease of other etiologies are frequently confused with rheumatic fever (Taranta, 1970).

Age & Gender:

Although rheumatic fever may occur at any age, it is extremely rare in infancy, it appear most commonly between the age of 5 and 15 years when streptococcal infection is most frequent and intense.

Similarly the geographic distribution, incidence and severity of rheumatic fever are in general a reflection of the frequency and severity of streptococcal pharyngitis (Stollerman 1987).However, rheumatic fever was diagnosed below 5 years of age (Hedley, 1940) (Rosenthal et al., 1968).

Moreover, shoheib (1995) outlined a prevalence of rheumatic fever presentation at 3 and 4 years of age to be 1% and 2.8% respectively. In Egypt Keith (1978) pointed out that there was no striking sex difference in the overall incidence of rheumatic fever except with chorea which is more common in female.

However there is a higher incidence of rheumatic fever among female and this may be attributed to the fact that females in low income classes spend more time indoors under bad housing condition with greater liability to repeated streptococcal infection (Abdin and Eissa 1965) (Shoheib 1995).

Taranta & Markowitz (1981) stated that mitral disease were common in females while aortic valvular disease were more in males.

Race: no race is immune against rheumatic fever (Wannamaker,1977) however Chinese are said to have a lower incidence (Keith, 1978).

Climate & Geography:

In warm climate there is a reported disparity between the high frequency of acute rheumatic carditis and the apparently low frequency of other manifestation of acute rheumatic fever (Stollerman, 1984).

However, the high prevalence of rheumatic heart disease in some tropical areas like Egypt and India suggest a clinical modification of the condition in these area where light mitral stenosis is predominant in adolescents and young adults, possibly due to frequent repetition of rheumatic fever activity (Taranta and Disciascio, 1980) .

Season:

The seasonal fluctuation in onset of acute rheumatic fever coincides with seasonal variation in streptococcal sore throat and scarlet fever (Wannamaker, 1977) .

In the united state, rheumatic fever is seen in late winter and early spring (Land & Bisno, 1983).

In Cairo according to Abdin (1960), the new and active cases appeared throughout the whole year with increased incidence during spring and decreased during summer.

On the other hand studies done in Tanta region showed that the highest presentation of rheumatic children was in summer month (Ghanem, 1971).

Aetiology of rheumatic fever

The association between group (A) beta hemolytic streptococci, upper respiratory tract infection and the subsequent development of acute rheumatic fever is well established .However most investigators are impressed with the role of social environmental and host factors, together with the beta hemolytic streptococci (Taranta & Markowitz , 1989).

There must be other factors which determine the occurrance of rheumatic fever in a given patient as:

(1)Age, the peak incidence of both attacks and recurrence is between 5 and 15 years of age however in developing countries the onset at 3 years of age in not unusual (Taranta & Makowitz, 1981).

(2) Patient who have already one attack tend to have recurrence.

(3) The immunological status of the host including both humeral & cell mediated immunity is an important factor in susceptibility to rheumatic fever (WHO, 1988).

(4) Rheumatic fever runs in families that is blood relatives of patients with rheumatic fever are more likely to develop it than the general population, with possible inherited susceptibility (Markowitz and kuttner, 1965).

(5) Environment: Rheumatic fever has long been known as the disease of the poor. A number of observation suggested that among the manifestation of poverty crowding is most intimately associated with rheumatic fever (Taranta and Markowitz, 1981).

Bacteriology of streptococci

Streptococci are among the most common causes of bacterial infection in infancy and childhood. These are facultative anaerobic gram positive cocci (Fegin and Kliegman, 1992).

Classification:

According to the type of haemolysis they produce on sheep blood agar plates streptococci are classified into:

Non hemolytic streptococci: there are strains that don't produce obvious changes around colonies on blood agar plate. They include enterococci.

Alpha hemolytic streptococci:

They produce partial hemolysis which appear green as streptococcus viridans.

Beta hemolytic streptococci:

These produce soluble hemolysin (O & S) producing complete hemolysis, the area around the colony appear clear and large compared to colony size.

According to the difference in the group specific carbohydrate competent(C-carbohydrate in the cell wall), B hemolytic streptococci were classified by lancefield into 20 serological groups with sequential letters A through H and K through V.

Group A beta hemolytic streptococci :(GABHS) are the most common cause of bacterial tonsillopharyngitis in addition they are responsible for a variety of other suppurative infection and non suppurative sequele. GABHS are usually bacitracin sensitive.