بسم الله الرحمن الرحيم

CONGESTIVE HEART FAILURE AS A MANIFESTATION OF RHEUMATIC ACTIVITY IN YOUNG ADULTS WITH RHEUMATIC HEART DISEASE

THESIS

Submitted in partial fulfilment for the Degree of M.S. in General Medicine

By

Ahmed Gamal El-Din Mohamed

(M.B., B.Ch.)

Supervisors

Prof. Dr. Sohair Sheair.

Prof. Dr. Samir Mohamed Sadek.

Faculty of Medicine

Ain Shams University

١٩٨١/١٠/١٧ توقشت في

1981.

ACKNOWLEDGEMENT

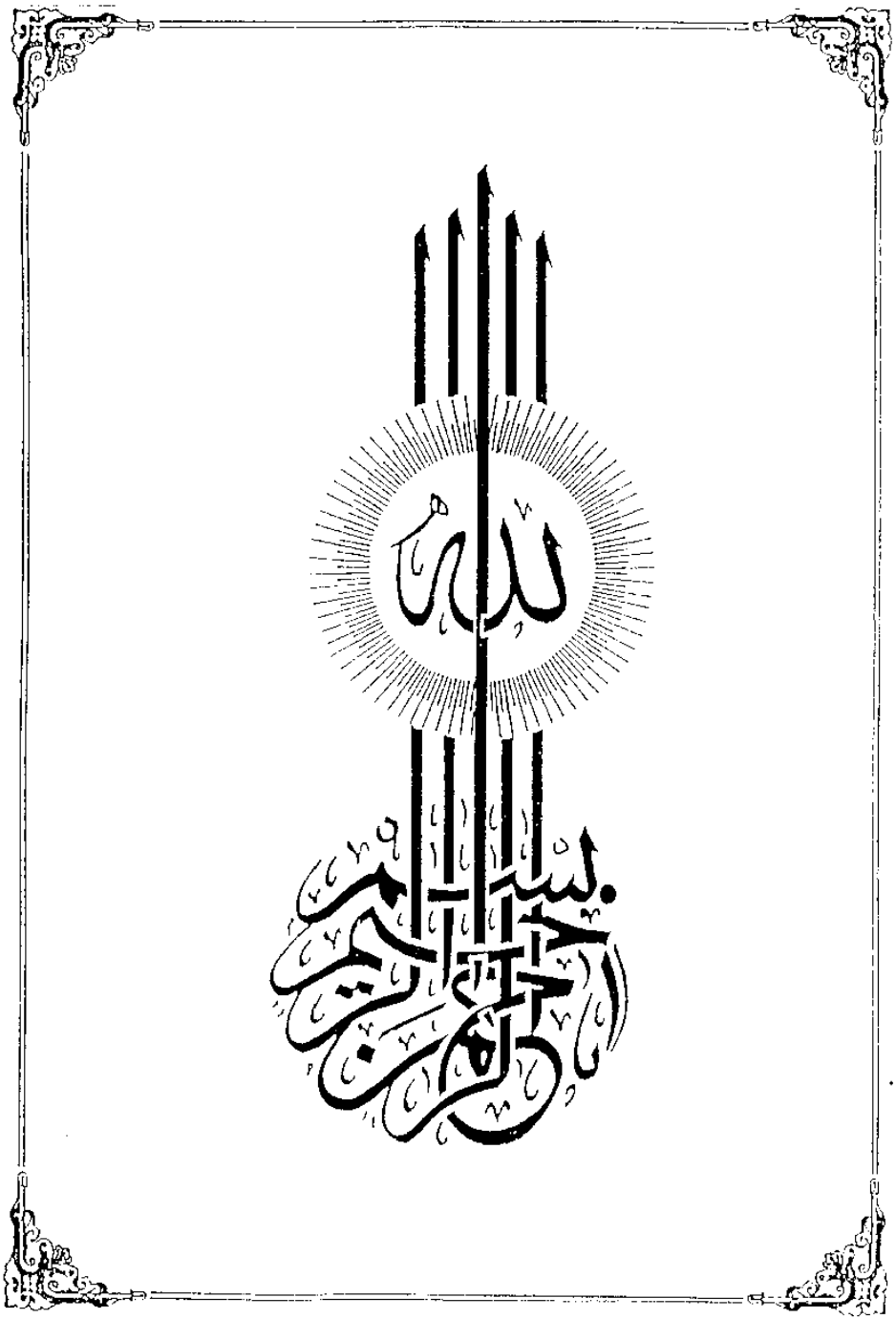
I wish to express my sincere gratitude and deep appreciation to Professor Dr. Sohair Sheair, Professor of General Medicine Faculty of Medicine, Ain Shams University for her continuous encouragement throughout the work. Really, no words can satisfy and explain my gratitude and thanks for her kind help.

I am deeply indebted to Professor Dr. Samir Mohamed Sadek, Professor of General Medicine Ain Shams University for his help and excellent supervision.

I would also like to thank Dr. Ahmed Kenawi Consultant Physician, Kobri El Kobbah Military Hospital for his advice and cooperation.

Ahmed Gamal El-Din

1981.



CONTENTS

INTRODUCTION AND AIM OF STUDY

INTRODUCTION

In Egypt there is the highest reported mortality rate in the world for rheumatic heart disease (27.5/100,000) and one of the highest for acute rheumatic fever (10/100,000) (Disciascio and Taranta, 1980). In our country 80% of patients with rheumatic fever develop carditis (Abdin and Eissa, 1965). Heart failure is the most frequent cause of death.

The onset of congestive heart failure in young adults with rheumatic heart which is not associated with any other manifestations of rheumatic activity is usually attributed to mechanical causes rather than to active rheumatic carditis and subsequently managed by adjustment of physical activities and cardiotonic medication but if congestive heart failure in these patients is proved to be due to rheumatic carditis it will require treatment with antistreptococcal and anti-inflamatory drugs.

The Aim of This Work; is to investigate this problem and to find whether rheumatic carditis may be responsible for the occurrence of congestive heart failure in these patients or not.

REVIEW OF LITERATURE

HISTORY OF RHEUMATIC DISEASE

In the works of Hippocrates rheumatic fever is briefly described under the generic name arthritis. He evidently separated it as a clinical varient and possibly as a separate entity from gout which was the arthritis prototype with which the Greeks were most familiar. Ballonius (1538-1616) was the first modern medical writer to differentiate between gout and rheumatism in his post humous work Liber de Rheumatism, which was published in 1642 by his nephew. He was the first to use the term Rheumatism in the sense of an acute polyarthritis which has no connection with gout and he is therefore reffered to as the "Father of Rheumatism". In 1676 Thomas Sydenham the greatest clinical physician of his century gave the first full description of acute rheumatism. Sydenham was the first to describe chorea and his name is still frequently attached to it although he did not connect it with the rheumatic field. Heberden (1802) was one of the first to point out that acute rheumatism is largely a disease of childhood. David Pitcarin in 1788 was the first to associate rheumatism with disease of the heart, a fact recorded by Matthew Baillie a nephew of John Hunter in his great work on morbid anatomy. This new knowledge resulted from the increasing practice of postmorten examination.

The following year Edward Jenner gave an address entitled "Remarks on a disease of the heart following acute rheumatism illustrated by dissection" although his manuscript was unfortunately lost. W.C. Wells (1812) was the first to notice the nodules of acute rheumatism. Further reports were published by Thomes Hillier in 1868 and Meynet in 1874. Yet they were only brought into general notice of Sir Thomas Barlow in 1881, who emphasized their prognostic importance. It was the great French physician Bouillaud who first described endocarditis as distinct from pericarditis. In 1836 he enuciated the view that heart disease in an intrinsic aspect of acute rheumatism and not as had previously been thought as occasional complication. In France acute rheumatism is still known as Bauillaud's disease. In 1889 Dr. Cheadle placed the wider view of this disease on firm basis saying that 'In the rheumatism of early life arthritis is at its minimum, endocarditis, pericarditis, chorea, and subcutaneous nodules are at their maximum'. It was his pupil F.J. Poynton who investigated the modern approach to the problem of aetiology through the medium of bacteriology and immunology although he failed to gain recognition for the diplococcus which he believed to be the cause of the disease. Aschoff about this time also described

the specific miliary nodule of the myocardium which occurs in this disease and bears his name. The first epidemiological survey of rheumatic fever formed the subject of Sir Arthur News holme's in 1895, then Glover's 1927 (Scott 1977).

As regards treatment Maclagan in 1876 popularized the use of salicylates for treatment of rheumatic fever. Years latter Lees (1903) suggested large doses of salicylates as a specific anti rheumatic agent. In 1943 Coburn reemphasized the importance of massive doses. Hench and his coworkers (1949) were the first to treat acute rheumatic fever with cortisone. Although the clinical response of fever and arthritis was excellent, it was the impression of these investigators that the symptoms were merely suppressed and that the course of the disease was not shortened (Barnes et al.,(1951).

Waston et al., and Foster et al.,(1944) were the first to use penicillin in the treatment of young adults with acute rheumatic fever.

The prevention of recurrences by means of long term antibiotic prophylaxis was investigated by Burke (1947) Maliner and Amsterdam (1947) by the use of penicillin lozenges.

The use of parenteral penicillin was investigated

by Stollerman and Rusoff (1952). They found that a single intra-mascular injection of 1,200,000 units of benzathine penicillin G produces adequate therapeutic levels in the majority of children for as long as 4 weeks. These findings were confirmed by other investigators (Markowitz, and Hemphill, 1955).

RHEUMATIC FEVER

Etiology and Epidemiology

Rheumatic fever results from interaction of agent, host and environment.

(I) The Agent

1- Epidemiologic Studies :

Over more than one hundred years ago clinicians noted that endocarditis, arthritis and chorea often followed scarlet fever (Trousseau, 1865).

Collis (1931) and Coburn (1931) reported that in closed communities such as boarding schools, and convalescent homes for rheumatic children multiple cases or rheumatic fever occurred following scarlet fever or tonsilitis.

Lan Cefield (1940) differentiated steptococci into distinct groups and demonestrated that group A was the chief cause of streptococcal infection in man. Studies in military populations during and following World War II have shown a fairly constant attack rate of 3 percent following untreated epidemic stroptococcal infections which are usually due to group A

streptococci of one or two types rich in M protein which causes definite clinical signs and symptoms such as pharyngal exudate, fever and elevated white blood count (Rammel Kamp et al., 1952).

Siegel and his coworkers (1961) noticed that the attack rate was much lower following endemic streptococcal upper respiratory infections as seen in the outpatient department in Chicago Hospital 48% of strains isolated were deficient in Mantigen and could not be typed.

2- Immunological Studies :

Rheumatic fever does not occur without a streptococcal antibody response.

Group A streptococci produce a number of extra cellular antigens such as streptolysin O, streptokinase hyalurinidase, desoxy ribonuclease and nicotin amide adenine diucleotidase, each of these antigens evokes specific antibodies in human sera but not all patients respond uniformely to each antigen for example 15 - 20 percent of patients with acute rheumatic fever do not have elevated antistreptolysin O-titre but if their sera are examined for at least three streptococcal antibodies, evidence of recent streptococcal infection is obtained in 95 percent (Stollerman, 1956).

3- Studies of Prophylactic Treatment :

During an epidemic of streptococcal pharyngitis in a military training centre Rammelkamp and his co-workers (Denny et al., 1950) treated 798 patients with exudative tonsilitis with penicillin only two cases of rheumatic fever occurred where as in a similar group of 864 untreated recruits there were 17 cases of rheumatic fever.

(II) The Host

1) Genetic Factors :

Wilson (1943, 1954) concluded that rheumatic susceptibility is based on a single autosomal recessive gene.

This view has been confirmed by Mallen and Castillo (1952), but not by others.

Gray, (1952) Stevenson and Cheeseman (1953, 1956) found that although inheritance appeared to play an important role it did not follow a Mendelian pattern.

Taranta (1959) studied 56 rheumatic patients and their twins and found that less than one fifth of the monozygomatic twins were concordant for rheumatic fever, i.e. genetic factors where only partially responsible.

Spangnuolo and Taranta (1968) studied 67 sibling pairs who had had rheumatic fever and they found that the disease tended to have the same presenting manifestations that may reflect genetic factors.

Effort to find a marker for this postulated susceptibility have failed thus for, HL A types which correlate with the susceptibility to many diseases do not seem to correlate consistently with the susceptibility to rheumatic fever.

Nevertheless the intriguing observations of an association of immune responsiveness to streptococcal antigens and HLA type and decreased mixed lymphocyte reactions among rheumatic subjects suggest the potential fertility of immunogenetic approach (Disciascio and Taranta, 1980).

Yoshinoya and Pope (1980) found that circulating immune complexes are present in the majority of patients with acute rheumatic fever but the pathogenic importance of these complexes remains unsetteled. Nevertheless the association of HLA-B5 with a greater frequency of abnormalities supports the concept of linkeage disequilibrium between HLA-B5 and the immune response to streptococal antigens.