BLOOD CULTURE AND C-REACTIVE PROTEIN DETECTION IN INFECTIVE ENDOCARDITIS AFTER VALVE REPLACEMENT

THESIS

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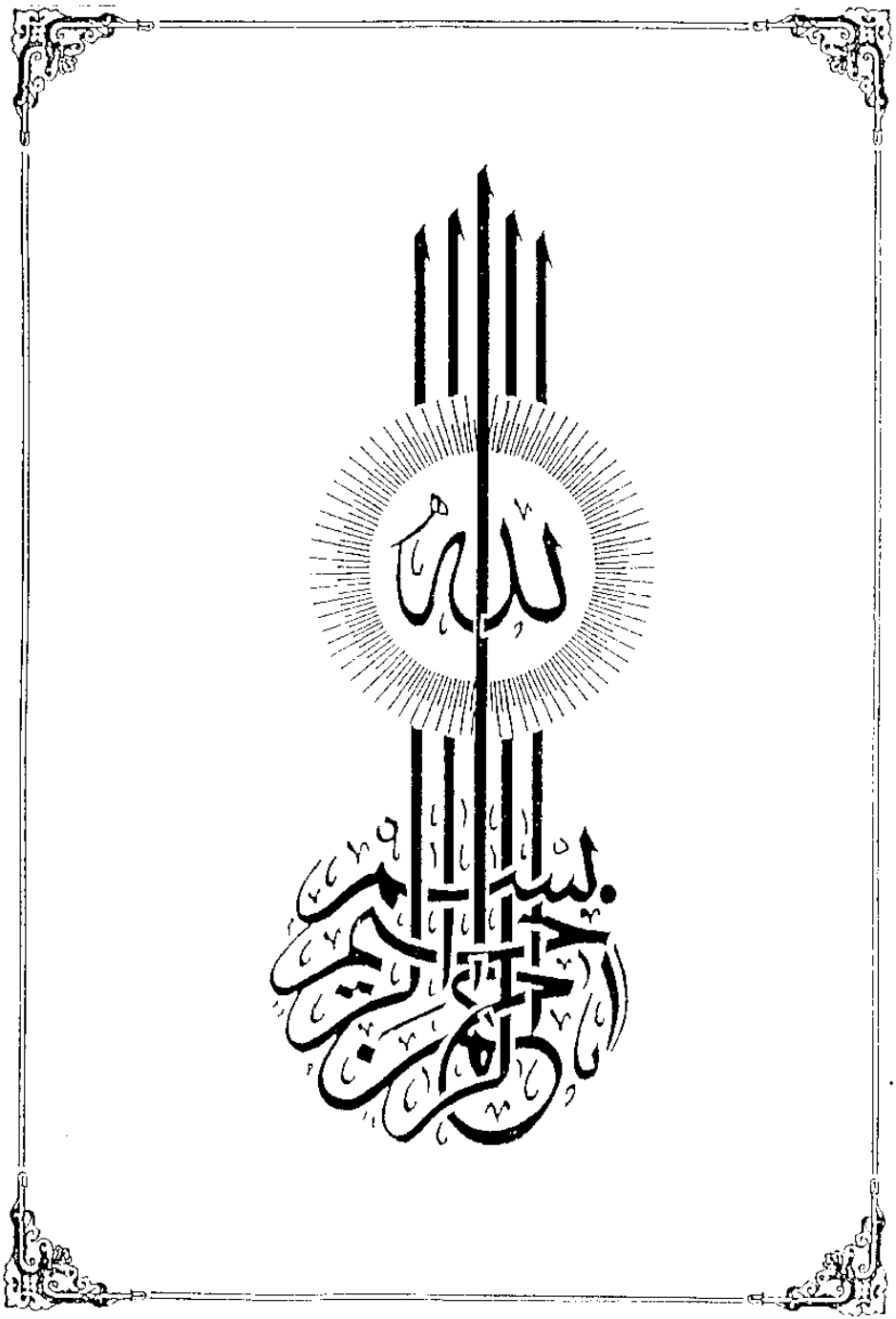

TO MY HUSBAND

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

A.V.R.	Aortic Vavle Replacement
C.R.P.	C-reactive Protein
D.V.R.	Double Valve Replacement
E.S.R.	Erythrocyte Sedimentation Rate
M.V.R.	Mitral Valve Replacement
M.V.	Mitral Valvotomy.
Preop.	Preoperative
Post op.	Post Operative
P.V.E.	Prosthetic Valve Endocarditis
T.L.C.	Total Leukocytic Count

CONTENTS

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Introduction
&
AIM OF WORK

INTRODUCTION

In reheumatic heart patients subjected to cardiac operations one of the most serious complications in "Infective Endocarditis", however early infections may pass undetected. This is because of prophylactic use of antibiotics immediately before and a short time after operation, and because of the time needed for bacteria to multiply and invade the tissues (Ghoneim et al., 1982).

C-reactive protein (CRP) is one of the acute phase proteins which studies have shown that it rises more rapidly than the other proteins following inflamation and tissue damage, (Kushner et al., 1981). It can be used as a marker to diagnose hidden infections as deep wound sepsis, septicaemia and infective endocarditis in their early stages.

The levels of C-reactive protein can be measured accurately and its rapid rate of change was thought to make it a more sensitive immediate test than others as a marker of infection (Ghoneim et al., 1982).

A work done by Ghoneim et al, 1982, showed that patients without postoperative (Postop.) infective complications after cardiac operations, had a rapid increase in CRP levels, which reached a peak within 72 hours after the operation followed by a rapid decline to less than 20 mg/L. This may permit easier detection of secondary rise due to early infections.

AIM OF THE WORK

Our aim is :

1- To find out the normal curve of CRP response in uncomplicated rheumatic heart patients following open heart surgery to use it as a base line for further comparison later on.

2- to find out if there is any correlation between CRP levels and the incidence of early infective complications including PVE.

3- And to find the causative organisms causing postoperative infections after valve replacement.

Review of Literature

ACUTE PHASE PROTEINS

During the acute phae of many diseases, a characteristic group of changes occur in the plasma and blood cells. the condition associated with these changes, reflecting active inflammation and/or tissue necrosis, is called the acute phase. It occurs in many conditions, including infections, rheumatoid diseaes, neoplasia, following trauma such as operation, and myocrdial infarction.

The changes associated with the acute phase have been called the "acute phase response," and the substances undergoing characteristic alterations of serum levels in the acute phase are termed "acute phase reactants" (Gewurz et al., 1982).

The changes during the acute pahse, particularly the increase in concentration of certain proteins and alteration of certain physical characteristics of the blood, were of great interest earlier in this century, because they served as diagnostic indicators of the presence and extent of an inflammatory process or tissue necrosis. However, while they proved to

be selective for tissue injury and inflammation, these changes seemed non specific in that they occurred in multiple diverse diseases (Gewurz et al., 1982).

The best studied acute-phase proteins in man are the following: Ceruloplasmin, C_3, $\&_1$ acid glycoprotein, $\&_1$ antitrypsin, $\&_1$-antichymotrypsin, haptoglobin, Fibrinogen, C-reactive protein and serum amyloid A protein (Kushner et al., 1981). They differ markedly in the magnitude of their rise after stimulus; some proteins generally increase their plasma concentrations by only 25% or 50% as ceruloplasmin & C_3. Others show a twofold, threefold or even fourfold increase in concentration as: $\&_1$-antitrypsin, $\&_1$-acid glycoprotein, $\&_1$-antichymotrypsin, haptoglobin and fibrinogen. In contrast, other proteins like CRP and serum amyloid A increases as great as several hundredfold over normal levels, and on occasion as much as 1000 fold or more, may occur. (Kushner et al. 1981).

With respect to their response times, we defined two sets of acute phase proteins. The first set contains C-RP. this protein is detectable within 6 hours after surgical trauma and usually peaks at 48 hours. (Fischer

et al, 1976). The other acute phase proteins in the second set are detected 12-24 hours after tissue injury and reach maximum levels between 72 and 96 hours. (Fischer et al., 1976).