The Pathogenesis of Skin Infections in Diabetes Mellitus

THESIS

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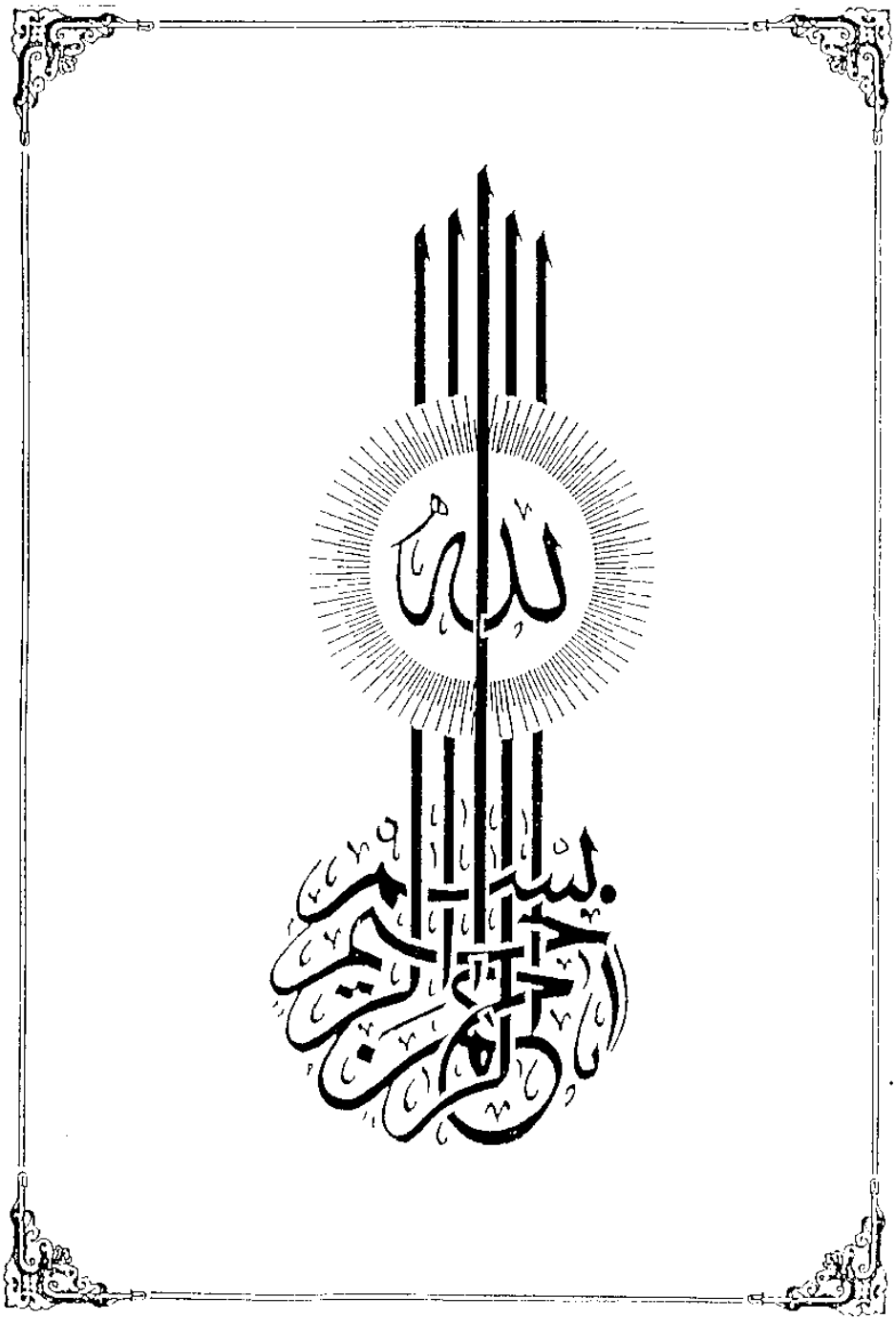

بسم الله الرحمن الرحيم

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(1917 - 1968)

In memory of my father

O.B. MOAWAD

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INTRODUCTION

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AIM OF THE WORK

1 Introduction and Aim of the Work

Diabetes mellitus is worthy study by practicing dermatologists because of the numerous and varied skin manifestations of this common disease (Gilgor & Lazarus, 1981).

The relationship of diabetes mellitus and skin infection has been of intense interest for many years. Clinicians have long been suspected that diabetics are inherently more susceptible to infection than non diabetics (Greenwood, 1927; Eisert, 1965; Williams, 1974; Foster, 1980 and Murphy, Tan and File, 1981).

Bacterial skin infections notably impetigo, furuncles, carbuncles, cellulitis and erysiplas are the presenting signs in up to 20% of diabetic patients and often display a more fulminant course than non diabetics (Millins, Fenske and Mc Cune, 1981). In addition, the increased prevalence of mycotic infections in diabetes mellitus is generally accepted (Joslin et al., 1959; Abdallah & El Mazny, 1976 and Foster, 1980), including both superficial and deep fungal skin infections (Millins, Fenske and Mc Cune, 1981).

In fact, although certain infections appear to occur more frequently in diabetic patients such as rhinocerebral mucormycosis, malignant external otitis, cutaneous candidiasis and synergistic bacterial gangrene, all but candidiasis are unusual infections that occur in the presence of ketoacidosis or poorly controlled disease (Cooper & Platt, 1982). It seems that the susceptibility of diabetic patients to infection is applied in general to uncontrolled cases. The response of well controlled diabetics to infection approaches that of the normal (Marble, 1952). In addition, epidemiological studies of various types of infection in patients with diabetes mellitus have produced conflicting results, it may be the physicians awareness of the hazards of infection in these patients that has given to an impression of higher infection rates (Kass, 1960).

Finally, although the question is whether diabetic patients tolerate infection less well than non diabetics do remain unresolved (Cooper & Platt, 1982), there is a general agreement, especially when immunological studies in diabetes mellitus are taken into consideration, that once infection is established, it tends to be prolonged, severe and difficult to control (Edwards et al., 1979).

Studies of the different aspects of the immune response showed no abnormalities in the humoral response nor in the production of complement components (Saiki et al., 1980).

The mononuclear phagocytes and polymorphnuclears are an integral part of the immune response. Alteration in their number, phagocytic activity and response to lymphokines [migration inhibition factor (MIF) and migration activation factor (MAF)], are some of the factors which may influence or affect the resistance to infection. However, discrepant results were obtained by different authors as regards the phagocytic activity of polymorphnuclear leucocytes and cell mediated immunity and their possible role in the pathogenesis of skin infection in diabetic patients.

The aim of this work is to investigate the possible role of the phagocytic activity of polymorphnuclear leucocytes and the cell mediated immunity in the pathogenesis of skin infection in diabetic patients, hoping to clarify the apparent discrepant results obtained by previous workers.