RELATION BETWEEN BILHARZIAL-TUBERCULOUS CHEST INFECTION CONCERNING INTRADERMAL TESTING BY SKIN TEST ANTIGEN ANG P. P. D REACTIVITY

THESIS

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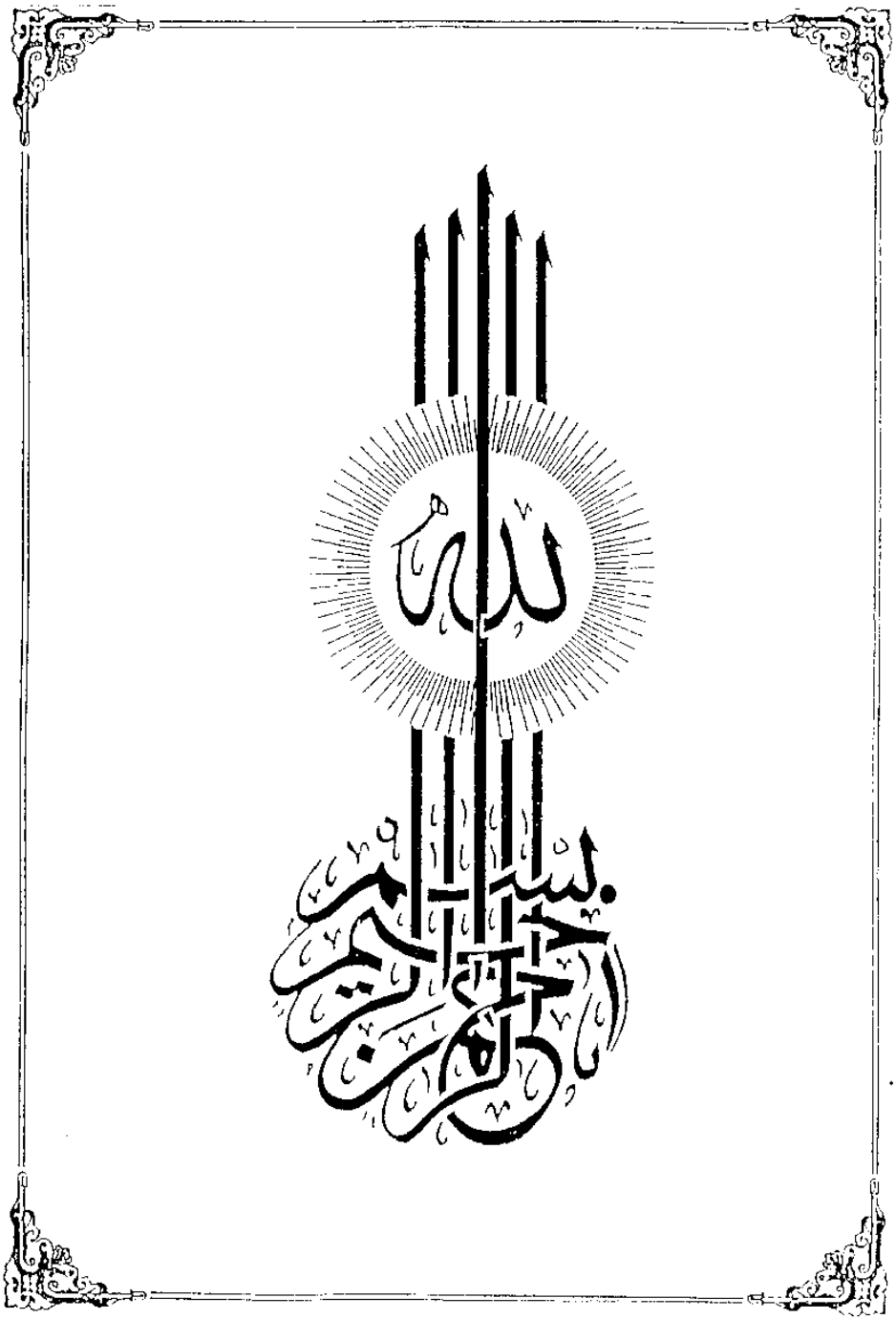

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INTRODUCTION

INTRODUCTION

Schistosomiasis is the most common endemic disease in Egypt since four thousand years, inflicting great morbidity and immence economic losses to inhabitants of the cultivated territories (Mousa et al.,1969). Direct evidence of Human infection in ancient Egypt was obtained by Ruffer 1910, also there are 350 million people in the world infected with schistosomiasis.

Also tuberculosis is a world wide disease causing a significant problem with high morbidity and mortality in developing countries (Aquins,1971 and Smith, 1975). An increasing number of cases have been seen in Egypt in the last few years.

Immunology has already and will continue to take more and more advantage of the study of Schistosomiasis (Capron, 1978) and it's association with other diseases as tuberculosis.

Thenceforward it is essential to keep a vigilant eye on the immuno-diagnosis of this historical disease in attempt to extend or modify the current control measures (Khalil et al., 1977).

REVIEW OF LITERATURE

IMMUNITY

Immunity is a term derived from the latin "Immunis" which originally implied exemption from military or public services (Barrett, 1970). It was introduced into medicine to refer to those people who did not have furthur attacks of small pox or plague once they had had the disease, it is now used to refer to any specific immunological response to foreign substance (antigen) regardless of there protective value for the host.

Immunity is divided into 2 types:

1. Non-specific or innate immunity which comprises species or genetic insusceptibility to certain pathogens, physical barriers as skin mucous membrane and biological barrier like lysozymes, acidity of the stomach and complement system (Weir, 1977 and Roitt, 1977).

2. Specific immunity:

   a) Passive immunity:
   Antibodies are deliberately introduced into the body or antibody passing through the

placenta from the mother to foetus.

b) Active immunity:

Has three essential characters: recognition, specificity memory.

The immune system is comprised of two major components: cellular (cell-mediated) and humoral.The lymphocyte is the central cell in immunology, studies of various markers of the lymphocyte membrane and their function have now permitted identification of two major subpopulations which are T-lymphocyte (thymus-derived lymphocyte) and B-lymphocyte (Bursa or bone marrow derived lymphocyte), and there are ccoperation between T-lymphocyte, and B-lymphocyte (Katz and Benacerraf, 1972 & Feldmann, 1972).

Denpending on the nature of the stimulus, whether thymus independent antigen (Feldmann and Basten, 1972 and Moller, 1973), mitogens (Coutinto et al., 1974) or thymus-dependent antigen (Dutton and Eady, 1964), B lymphocyte may respond independently to lead to antibody formation, the same antigen and mitogens lead for induction of cell-mediated immunity by T-cells, the T-cells arise from stem cells in the bone marrow (Sell, 1975).

after maturational differentiation are responsible for various functions of cellular immunity, delayed skin reactivity (Kochon et al., 1966; Waksman and Mackaness, 1969, and Manifin and Eline, 1970). T-cells acts as helper cells to B-cells to produce antibodies (Lachmann, 1971, Turk, 1973 and Allison et al., 1971). T-cells posses receptors on their surface for antigen and sheep red blood corpuscles (Froland, 1972; Jodal et al., 1972, Williams et al., 1973).

Upon contact of T-dependent antigen with the sensitized T-lymphocytes a number of factors collectively called lymphokines or mediators (Dumonde et al., 1969) are released, these are migration-inhibitory factors (David et al., 1964); skin-reactive factor (Dennett and Bloom, 1968) which helps to inhibit the migration of macrophages, hold macrophages at site of antigen respectively; leukocyte inhibitory factors (Rocklin, 1974a); transfer factor (Lawrence and Valentine, 1970) which induces a state of delayed sensitivity upon injection into a normal recipient; lymphotoxin or cytotoxic factor (Granger, 1974; Lewis et al., 1976) which causes destruction of target

cells; macrophage-specific chemotactic factors (Ward et al.,1969), three types all inducing macrophages to migrate against a gradient containing these factors; lymphocyte stimulating factors (Spitter and Lawrence, 1969) which causes normal lymphocytes to undergo blast transformation with mitosis; aggregation factor which produces adherence of lymphocytes to macrophages (Salvin and Nishio, 1969) or macrophages to macrophages (Gotoff et al., 1970); macrophage activation factor (Waksman,1969) which stimulates macrophages to assume a more active morphologic appearance, interferon (Green et al., 1969; Baron, 1969) inhibits the growth of virus; chemotactic factor for eosinophils (Cohen and Ward, 1971); chemotactic factor for basophils (Dvorak and Dvorak, 1973); eosinophil stimulation promotor (Colley, 1973); DNA stimulator. Many of cell-mediated reactions are dependent on the activity of one or more lymphokines.

B-cells arise in the bone marrow, differentiate in bursal equivalent in man (Greaves et al., 1973; Moller, 1973), may exist in several diffuse sites like gastrointestinal tract and fetal liver (cooper and Lawton, 1974), it bear several surface markers that

are not present on T-cells, these markers include surface immunoglobulin (Raff, 1970; Unanue et al., 1971, Rabellino et al., 1971), surface receptors for antigen antibody complexes (Bianco et al.,1970); receptors for IgG Fc (Dickler and Kunkel, 1972); surface receptors for complement (Bianco et al., 1970; Bianco et al., 1971; Ross et al., 1973); receptors for mouse red blood cells (Gupta et al., 1975; Gupta et al., 1977).

Five classes of immunoglobulins have been described in man (Bull who, 1964, Fahey, 1966; Cohen and Milstein, 1967): IgG , IgM, IgD, IgE. Following the formation of specific antibody in response to the eliciting antigen, a number of different reactions take place in order to functionally eliminate these antigens (Sell, 1975). The reaction between antigen and antibody to form immune antigen-antibody complexes depends upon the close physical approximation of oppositely charged ionic groups (Pressman and Crossburg, 1968), depending on the nature of antibody and antigen, the presence or absence of it and upon the conditions under which

the reaction takes place (Weir, 1963), the reaction may be precipitation (Sell, 1975), agglutination (Weir, 1963), Complement fixation reaction (Mayer, 1961, and neutralization , Tyrrell, 1974).

HYPERSENSITIVITY

The term hypersensitivity is used to describe a state in which the immune responses frequently take place in such a way that cell damage occurs and harmful pathological lesions may occur. (Roitt, 1977).

It is classified into immediate types (antibody mediated and delayed type (Cellular mediated).

Anaphylactic (Immediate hypersensitivity-Type I reactions):

In man only I.g.E (Reaginic) antibodies or so called tissue sensitizing antibodies are able to produce anaphylactic type I reaction as these antibodies adhere strongly to mast cells in the tissues via fc fragment (Ishizaka et al., 1967 . Anaphylactic phenomena are caused by antigen antibody reaction on the surface of the mast cell activating a series of enzymes leading to the release of vaso-active amines such as histamine and serotonin; slow reacting substance-A, a group of related agents known as the plasma kinis, which cause vasodilation, increase capillary permeability, contraction of plain muscles accumulation of eosinophils, migration of