INTRODUCTION AND AIM OF THE WORK

REVIEW OF LITERATURE

Atopic dermatitis:

A genetically determined disorder that may occur in association with asthma and hay fever in the same patient or family. It shows erythematous scaling and lichenified areas, which when active, also shows oozing and crusting **(Lever and Lever, 1990).**

The prevalence of all atopic manifestations in the population is variously assessed as between 2 and 20% **(Carr et al.,1960).** Both sexes are involved, in adult more females while in children more males **(Rajka, 1989).**

Aetiopathogenesis:

The fundamental defects remain largely unknown, the production of clinical manifestations of the disease depends on the interplay of numerous constitutional and precipitating factors, from the therapeutic point of views it is useful to consider that the individual has an inherently irritable skin, that itching and scratching are responsible for many but not all of the objective changes and may be modified by psychological, climatic and in some cases by immunological factors **(Champion and Parish, 1992).**

It is widely accepted that both intrinsic and extrinsic factors are involved in the aetiopathogenesis of atopic dermatitis. Extrinsic factors secure to be related to food allergens and common environmental allergens (i.e house-dust mite, pollens and animal dander). Intrinsic factors include both immunological and immunopharmacological abnormalities **(Bruynzeel-Kooman, 1986).**

Beyond doubt, multiple factors including genetic and immunologic contribute to the clinical state of any affected patient and manipulation of even one of these may ameliorate the disease. The role of allergy remains unclear, the enthusiasts claiming that atopic dermatitis is largely an allergic disease, the majority less impressed. House dust and the house dust mite (HDM) are at the center of this controversy. Most dermatologists are aware of at least the occasional patient in whom exposure to dust causes exacerbations of the disease and is sometimes a dominant factor. Patients with atopic dermatitis have more house dust mites in their houses **(Beck and Korsgaard, 1989).**

Patients with atopic dermatitis characteristically demonstrate positive-skin-prick tests to multiple inhalant allergens including particularly the ubiquitous HDM antigen,

which elicit reactions in 90% of patients **(Mosso et al., 1960 and Rajka, 1961).** Evidence favouring a role for this antigen includes the report that serum concentrations of HDM. specific IgE mirror the disease severity **(Barnetson et al., 1987)** and the demonstration of percutaneous entry of HDM antigen **(Gondo et al., 1986).**

Furthermore, uncontrolled studies have suggested improvement in atopic dermatitis following careful HDM avoidance regimens **(Tuft, 1949; August, 1984 and Roberts, 1984).**

IgE in atopic allergy:

The concentration of IgE in normal serum and in serum from most patients with allergy is so low that only extremely sensitive methods such as radio immunoassay (RIA) or enzyme linked immunosorbent assay (ELISA) or few others can be used to measure it accurately **(Johansson, 1967).**

Generally speaking the discovery of IgE and its relation to immediate hypersensitivity in the mid of 1960 led to intensive research on the immunological mechanisms of allergy. Thousands of articles have been published to date on various aspects of IgE in humans and experimental animals **(Johansson, 1967).**

The IgE is a minor immunoglobulin class in that it comprised less than 0.001% of the total circulating immunoglobulins in normal individual, in whom the mean serum level had been about 50 units per milliliter **(Jones et al., 1975)**. In atopic (skin test-positive subject) serum IgE levels was three to five folds higher than in patients with negative skin tests and might range to several thousands units per milliliter **(Knauer and Franklin-Adkinson, 1983)**.

Serum IgE level greater than 2000 I.U./ml added considerable support to the diagnosis of atopic dermatitis. such very high serum levels occurred almost exclusively in AD patients who had personal or family history of rhinitis or atopic respiratory disease (ARD) **(Uchara, 1985a)**.

Antigens had been implicated in the pathogenesis of atopic dermatitis AD presumably by reacting with a tissue-fixed antibody formerly called "reagin" which belong to the IgE class of immunoglobulins. One may ask was there some defect in the gut wall of atopics which allowed excess antigen entry? It had been found that a transient IgA deficiency in atopic babies at about three months of age allowed local entry of excess amounts of antigens through the bowel above all, the diminished Ts cell population

allowed the formation of excess IgE and IgG **(Krafchik, 1983)**. In addition, the elevation of complement levels in patients with atopic dermatitis (AD) might indicate its role in the pathogenesis of the disease **(Buckley, 1983)**.

Meneghini and Bonifazi (1985) stated that,the antigenic portion of serum IgE immune complexes in AD patients is of an alimentary origin. This could explain the problem of latency (up to 6-8 hours) between the ingestion of food and exacerbation of the eczema in these patients. However, the relationship between GIT and patients skin symptoms was a matter of speculation, since not only food but also considerable amounts of swallowed inhalant allergens from the nasopharynx might enter the GIT.

The important role played by T-cells in the generation of the IgE antibody was first demonstrated by **Okumara and Tada (1971a)**. They found that neonatally thymectomized rats were unable to generate IgE antibody responses, subsequent studies carried out in rodents demonstrated that IgE synthesis was regulated by a balance between two distinct T-cell subpopulations (ie helper/inducer T cell required for the induction and enhancement of IgE synthesis, and suppressor T-cells which inhibited IgE synthesis). Low IgE responder rodents appeared to have increased number, or function of suppressor T-cell **(Okumara and Toda, 1971b)**.

IgE serum concentration in AD patients). **Reinhold et al(1985)** suggested that the decreased production of IFN-Y by hyper IgE AD patients is due to intrinsic differences in capacity to produce IFN-Y.Moreover, the findings indicate that decreased production of IFN-Y may be an important factor in the pathogenesis of the disease.

Histopathology:

Acute stage:

Prose (1965) found that the stratum cornium in the acute phase had much oedema with spongiotic vesicle formation, these vesicles contained a few lymphocytes, eosinophils and neutrophils. The epiderms showed psoriasiform hyperplasia with a thinned basement membrane, large basal cells with irregular nuclei, and disturbed tonofilament architecture. There was dispolarity of the cells in the prickle cell layer. Fluid appeared in the granular layer,with marked polymorphism of the keratohyaline granules. The dermis had been found to contain an infiltrate of lymphocytes, lymphoblasts, and monocytes around the superficial venous plexus with no increase in basophils and eosinophils. There was endothelial thickening in the venules of the superficial venous plexus. Macrophages which contained melanin granules were present throughout the dermis **(Mihm et al., 1976).**