EXOGENOUS PHOTOSENSITIVITY

THESIS

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BY

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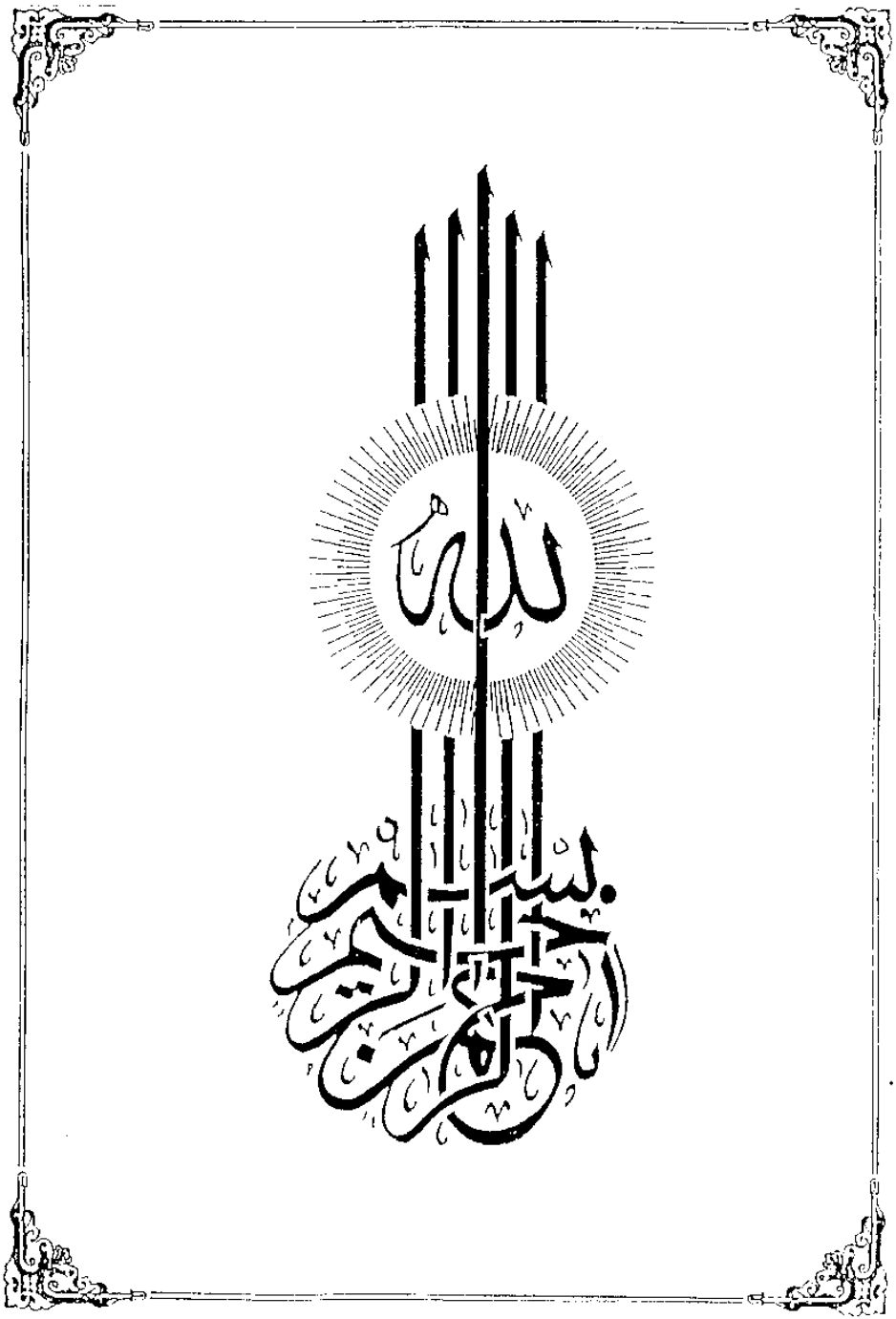

Dedication

To my father who has helped me grow and whos love and strength has sustained me over years ,after loosing my beloved mother in the way

To my beloved wife for her support ,for bearance and understanding resignation

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CONTENTS

Introduction

INTRODUCTION

The terms "Photosensitivity reaction" and "Photosensitivity disorder" are generally used to denote either a quantitative or a qualitative abnormality in the skin's response to sunlight or artificial light exposure.

To establish a proper diagnosis for the photosensitivity disorders,it is useful to have a systematic classification of the various types of the reaction.These disorders can be divided into two basic types:(1) Direct disorders,involving those reactions that simply follow an overexposure or chronic exposure to sunlight alone, and (2)Indirect disorders,involving reactions that require endogenous or exogenous photosensitizing factors along with sunlight exposure.

The following review will deal with the photosensitivity disorder of the exogenous origin, namely "Exogenous photosensitivity". This type of photosensitivty had been increased over the last few years due to the increase

in production and use of unsuspected photosensitizing chemicals in antibiotic bar soaps,antiseptics,cosmetics ,drugs and many other commercial, industrial and environmental chemical products.

Exogenous photosensitivity can be divided into two types:(a) Phototoxicity, in which the reaction occurs due to exposure to sunlight after systemic adiministration of a photosensitizing drug (b): Photocontact allergy or photocontact dermatitis;where is the reaction occurs as a result of direct contact of the skin with a photosensitizer.

Historical review, photosensitizing factors ,types , clinical picture,histopathology,management are the main components of the present work.

Review Of Literature

REVIEW OF LITERATURE

Historical review

photosensitivity is one of the commonest skin disorders,that attracted many of the dermatologists since the beginning of this century .The disease is the result of an alteration in the reaction of the skin following exposure to the sun or artificial light.

The early workers in this field discussed the problem in general as a sunburn.MacKenna (1927) mentioned that the actinic rays of the sun (especially the violet and ultra violet rays) causes what is called , erythema solare .He said that the disorder occurs in most persons exposed without any protection to direct action of sun's rays.

Lazarev (1934) mentioned that ,since the nervous system and the organs of vision are related embryologically

to the skin, one would expect to find resemblance also in their reactions towards light.He said that the sensibility of vision,hearing and motor centers is practically zero at birth, after which it begins to develop, reaching its maximum at the age of 20-25 years ,then it decreases .The sensibility of vision as well as that of the skin has been found to vary also according to the seasons of the year,being at its maximum in spring and minimum in summer and winter.Their sensibilites also increase in pregnancy and, in most cases,during menses, but decrease in hemorrhages and in all sorts of oxygen deprivations.

Blum et al.(1935) reported a case of a white man aged 20 years who developed a marked urticrial reaction in areas of his skin exposed to sunlight for as short period as 3 minutes. Light in the blue and violet portion of the visible spectrum, i.e. between 3900 and 5300 A°was found to be responsible. The reaction was strongly resembling the triple response . The authors explanation was that, it could be due to the production of a

histamine like substance following the photoactivation of a particular kind of light absorbing molecule.Jansi-on et al .(1937) noted that there was no difference in the effects of intradermal injections of histamine with or without irradiation.

Blum et al.(1935) mentioned that, three types of response to light were elicited and differentiated in human skin:(a) Normal erythema and pigmentation produc-ed by radiation of wave lengths less than 3200 Aº.(b) Pathological triple response elicited by wave lengths 4000-5000 Aº and not followed by pigmentation.(c)Photo-dynamic triple response following intradermal injection of photodynamic dyes and irradiation with wave lengths absorbed by the dye ,and followed by pigmentation.

Beal and Peter (1947) in their studies found that the spectral sensitivity range was established as being between 2967 and 3341 Aº with a maximum sensitivity at 3131 Aº. The sensitivity could be passively transferred by injecting patient's serum into the skin of normal

individuals. Studies were made of the properties of this transferable antibody and of the possible nature of the antigen which is formed following exposure of the skin to sunshine;these studies showed that the transferable antibody was non-dialyzable,heat-labile and gradually loses activity on storage .

Blum (1945) attributed the causation of sunburn to the direct injury of epidermal cells by ultraviolet radiation.He mentioned that the suntan develops a few days after the exposure to ultraviolet radiation and,as the erythema of the sunburn fades out, migration of melanin pigments occurs from the basal cell layer to the superficial epidermal layers and corneum.

The results of the previously mentioned and many other studies showed that the disease is not a just sunburn but the problem is more complicated.The different factors, which play a role in the development of the disease made the sceintists to search about the nature of those factors , the suitable name and the

proper classification of the disease disorders.

Thus the term photosensitivity was used,indicating the skin reaction to sunlight or artificial light (Cummer and Dexter 1937).

The different photosensitivity disorders were classified into direct and indirect groups.The direct photosensitivity disorders could be subdivided into two types : (a) Acute sunburn reactions,and (b) Chronic sun damage (senile degeneration,premalignant and malignant lesions).Both types of disorders are due to a direct damaging effect of the sun's rays on skin (Fitzpatrick et al ,1963) .

The indirect photosensitivity disorders also could be subdivided into two types,depending upon the origins of their underlying aetilogic factors:(a)Endogenous photosensitivity ,in which reactions are due to an underlying disturbance in biochemical ,metabolic,nutritional,hormonal,enzymatic,or immunologic functions;genetic