Serum Selenium Concentrations In Childhood Collagenosis

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By

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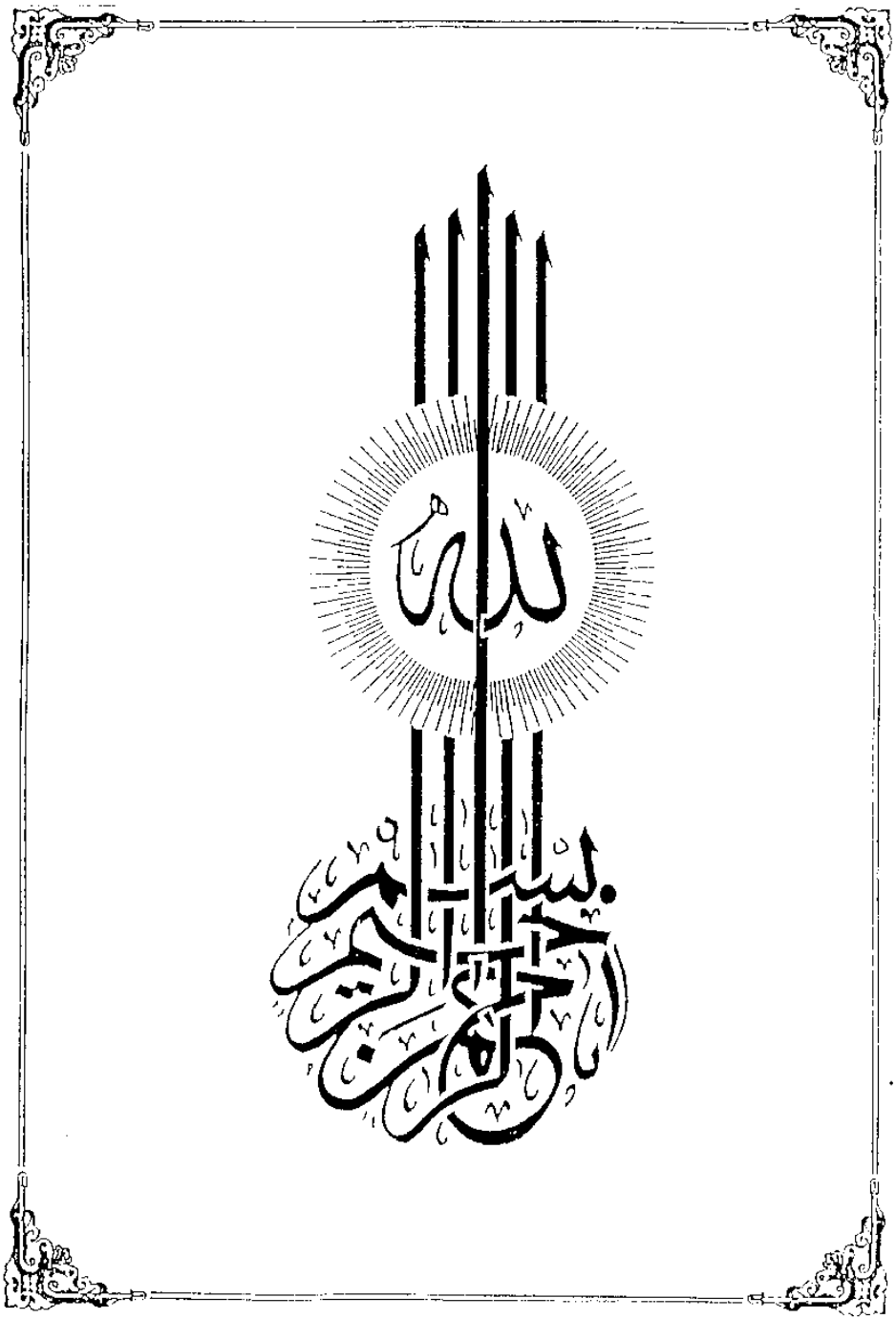
To my

beloved family

and friends



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ABBREVIATIONS

ANA	Anti-nuclear antibody
C_3	Complement 3
DNA	Deoxyribonucleic acid
ds-DNA	Double stranded DNA
ELISA	Enzyme linked immunosorbent assay
ESR	Erythrocyte sedimentation rate
HLA	Human leucocyte antigen
HPETE	Hydroperoxyeico satetraenoic acid
IL	Interleukin
JDM	Juvenile dermatomyositis
JRA	Juvenile rheumatoid arthritis
MCTD	Mixed connective tissue disease
NSAI	Non-steroidal anti-inflammatory
P	Probability of error
RF	Rheumatoid factor
RNP	Ribonucleoprotein
SLE	Systemic lupus erythematosus
Sm	Smith antigen
VDRL	Venereal Disease Research Laboratory

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Introduction and Aim of The Work

INTRODUCTION

Selenium is a trace element and essential nutrient present in meat and various vegetables. The biological importance of selenium is incompletely understood but it is an essential part of the enzyme glutathione peroxidase, which protects cells from oxidative damage (*Rotruck et al,* 1973). Furthermore, selenium has been shown to have anti-proliferative, anti-inflammatory, anti-viral and immune altering effects (*O'Dell et al,* 1987).

Pathogenetic mechanisms in childhood collagen disorders are not completely understood but, clearly, inflammation plays a central part in disease expression. For instance, rheumatoid arthritis is characterized by chronic non-suppurative inflammation of the synovium (*Schaller and Wedgood,* 1991). Therefore, the study of the possible anti-proliferative, anti-inflammatory and immune modulating effects of selenium in such group of disease is of interest.

A number of studies have shown that serum selenium concentration are low in adults with rheumatoid arthritis such as that of

Tarp et al (1985). Again, *O'Dell et al* (1991) observed similar changes in an area where selenium intakes are relatively high.

Aim of The Work

This study is aimed to outline the changes in selenium concentrations in various types of collagen disorders in children in relation to disease activity and treatment received.

Review of Literature

SELENIUM

Selenium was found to be an essential trace element in 1957, when it was observed that animals deficient in selenium had increased susceptibility to liver necrosis (*Schwarz et al*, 1957).

The essentiality of selenium to human health was established in 1979, when beneficial responses to selenium supplementation were observed in certain patients living in low selenium areas as New Zealand and the People's Republic of China. Chinese scientists reported a dramatic reduction in the incidence of Keshan disease which is an endemic cardiomyopathy after an intervention trial with Sodium Selenite (*Chen et al*, 1980 & *Gordon et al*, 1991).

There are several epidemiological studies suggesting an increased incidence of colon, mammary and perhaps other forms of cancer associated with low levels of enviromental selenium (*Schrauzer et al*, 1976). Selenium compounds added to the diet or water have now been shown to be effective inhibitors of chemical carcinogenesis in different experimental animals (*Griffin*, 1979). Some scientists suggested that

selenium may possess anti-malignant properties in humans (*Frost & Lish*, 1975).

Selenium is required for normal growth and fertility. It has been suggested that selenium deficiency may be responsible for the high frequency of myxedematous cretins in Zaire (*Thilly et al*, 1990).

A number of studies have shown that serum selenium concentration are low in adults with rheumatoid arthritis (*Tarp et al*, 1985).