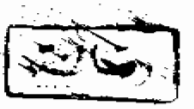
Evaluation of Secondary Prophylactic Schemes for Rheumatic Fever Using Benzathine Penicillin G



Essay

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The Master Degree
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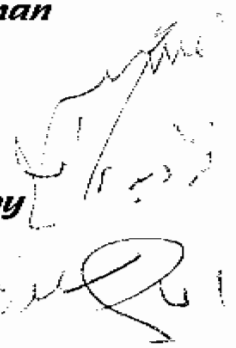
By

Soha Bassioni Ali
(M.B., B. Ch.)

Under Supervision of

Prof. Dr. Gilane Abd El-Hamid Osman
Professor of Pediatrics
Faculty of Medicine
Ain Shams University

Assis. Prof. Dr. Alyaa Amal Kotby
Assistant Professor of Pediatrics
Faculty of Medicine
Ain Shams University



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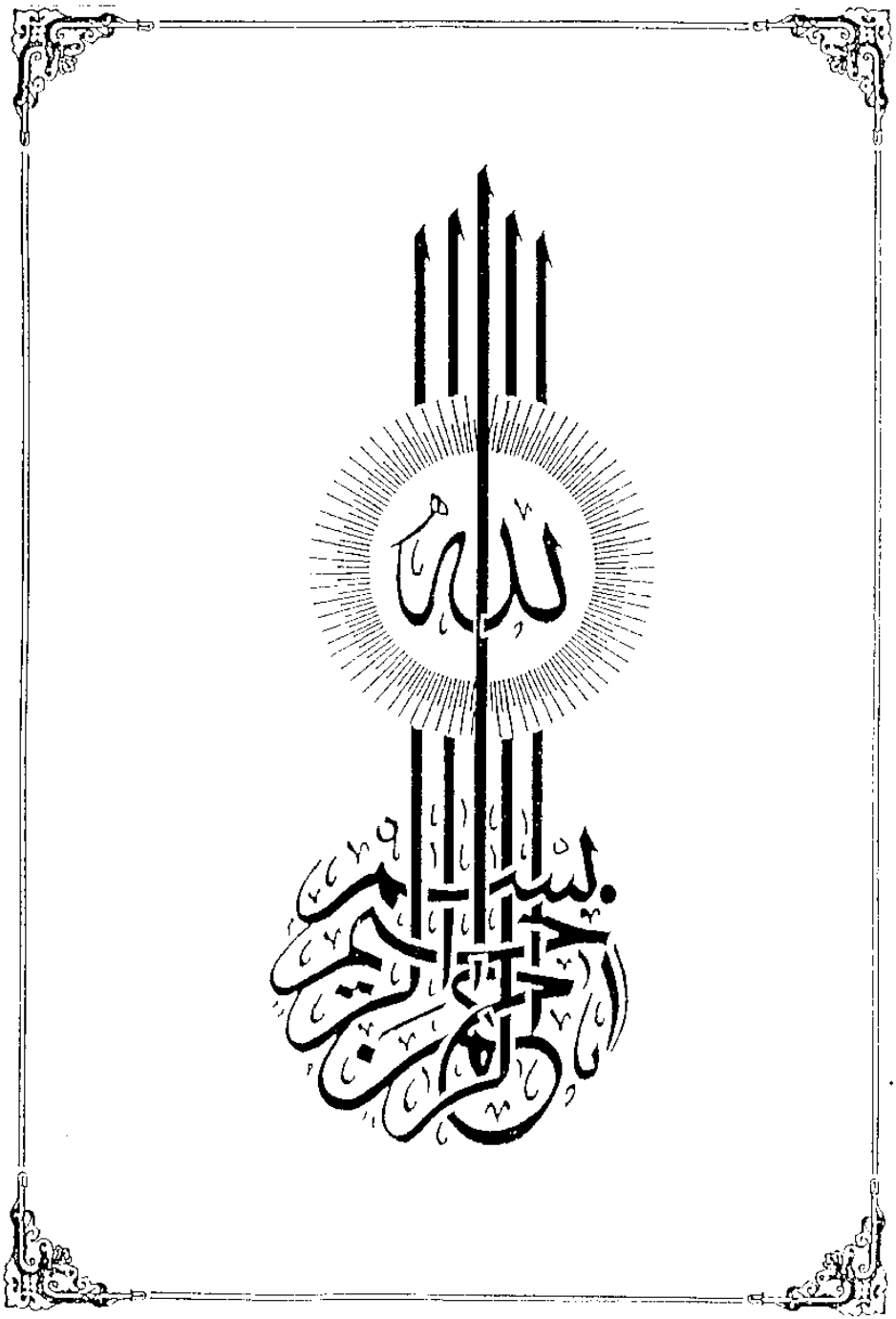

To My Mother and Father
To My Dear Husband
&
Precious Son
Hany

Acknowledgment

First of all, I would like to show my sincere gratitude to Prof. Dr. Gilane Abdel-Hamid Osman Professor of Pediatrics, Faculty of Medicine, Ain Shams University, for supervising this work and for her kind gentle support, generous effort and valuable advice.

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Soha

Contents

List of Abbreviations

AHA	American Heart Association
ARF	Acute rheumatic fever
ASO	Anti-streptolysin O titer
BPG	Benzathine penicillin G
CD4	T-helper cells
CD8	T-suppressor cells
CRP	C-reactive protein
ESR	Erythrocytes sedimentation rate
GABHS	Group A beta hemolytic streptococci
GAS	Group A streptococci
HLA	Human leucocytic antigen
KDa	Kilo Dalton
LAP	Long acting penicillin
MBC	Minimum bactericidal concentration.
MIC	Minimum inhibitory concentration
PBPG	Procaine benzathine penicillin G
PBPs	Penicillin binding proteins
PSRA	Post streptococcal reactive arthritis
RF	Rheumatic fever
RHD	Rheumatic heart disease

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Introduction

Acute rheumatic fever is a multisystem febrile disease, affecting mainly the connective tissue, particularly the heart and joints. Its seriousness centers around the fact that it might lead to chronic cardiac damage with subsequent disability and high mortality over the years *(Karademir et al., 1994).* During the past decades, the course of rheumatic fever was found to be severe and aggressive in different areas in Egypt *(Kassem et al., 1995).*

The most striking feature of rheumatic fever is its tendency to recur, both the initial and secondary attacks of the disease are proceeded by an upper respiratory infection with group A β-hemolytic streptococci, so protection of rheumatic subjects against group A β-hemolytic streptococcal infection is expected to prevent recurrences *(WHO, 1980).* However, despite the introduction of penicillin prophylaxis for rheumatic fever since the early 1950, the morbidity and mortality of the disease remained high in most developing countries *(Padmavati, 1979).*

A monthly injection of 1,200,000 units of long acting penicillin has been advised as the most accepted prophylactic regimen, however, recurrences have been repeatedly reported in groups of patients maintaining regular prophylaxis *(Berry, 1982).* Several reports recently appeared questioning the

persistence of effective penicillin levels beyond the second, third and fourth week after long acting penicillin injection *(Begue, 1988).*

Aim of the Work

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The objective of this essay is to review the literature for the best regimen of prophylaxis against rheumatic fever that ensures an adequate serum level of penicillin after long acting penicillin injection.

Review of Literature

Chapter One