Epidemiological Study of Toxoplasmosis and Cytomegalovirous among Children with Idiopathic Sensorineural Hearing Loss

Thesis

Submitted for Partial Fulfillment of Master Degree
in Audiology

By

Nayera Salah El-Din Said
M.B.B.Ch.
Faculty of Medicine- Cairo University

Under Supervision of

Prof. Dr. Nadia Mohamed Kamal
Professor of Audiology
Faculty of Medicine- Ain Shams University

Dr. Rasha Hamdy El-Kabarity
Assistant Professor of Audiology
Faculty of Medicine- Ain Shams University

Dr. Shereen Ahmed El-Masry
Assistant Professor of Clinical Pathology
Faculty of Medicine- Ain Shams University

Faculty of Medicine
Ain Shams University
2016

سورة البقرة الآية: ٣٢

Acknowledgement

First, I thank god for granting me the power to proceed to accomplish this work.

I have the greatest pleasure to express my deepest thanks and great appreciation to **Prof. Dr. Nadia Mohamed Kamal,** *Professor of Audiology, Ain Shams University for her great help, continuous encouragement, extremely precious advice and knowledge.*

Special thanks are due to **Dr. Rasha Hamdy El-Kabarity,** *Assistant Professor of Audiology, Ain Shams University for her careful supervision, valuable advice and great support.*

I would like to thank **Dr. Shereen Ahmed El-Masry,** *Assistant Professor of Clinical Pathology, Ain Shams University, Faculty of Medicine, Ain Shams University, for her guidance and suggestions which were of great value to me.*

Finally, my particular appreciation to my family for their unlimited support.

Nayera Salah El-Din

List of Contents

List of Abbreviations

Abb.	Full term
ANSD	Audiotary neuropathy spectrum disorders
ABR	Audiotary brainstem response
CHL	Conductive hearing loss
CMV	Cytomegalovirus
DNA	Deoxyribonucleic acid
EBV	Epstein bar virus
ELISA	Enzyme linked immunosorbant assay
GJB2	Gap Junction beta -2 protein
IUGR	Intrauterine growth retardation
NICU	Neonatal intensive care unit
PCR	Polymerase chain reaction
RNA	Ribonucleic acid
SNHL	Sensorineural hearing loss
T. gondii	Toxoplasma gondii

List of Tables

List of Figures

Epidemiological Study of Toxoplasmosis and Cytomegalovirous among Children with Idiopathic Sensorineural Hearing Loss

Abstract

Background: The accurate identification of the causes of sensorineural hearing impairment in children is very challenging. The recognition of the causes of sensorineural hearing impairment helps in better treatment and in possibility of prevention. The causes of hearing impairment have changed with infections being the least frequent in developed nations, whereas in developing nations they continue being a frequent risk factor. The most frequent infectious agents associated with hearing loss are Cytomegalovirus (CMV). **Aims:** To study the frequency of Toxoplasma gondii and Cytomegalovirus (CMV) in children with sensorineural hearing impairment. To evaluate the possible role of these infectious agents on the occurrence of Idiopathic sensorineural hearing impairment. **Materials & Method:** The study is an attempt to study relation between CMV and toxoplasmosis in occurrence of sensorineural hearing loss. This study was conducted on 82 children, 40 males and 42 females. Their age ranged from 1 to 15 years. Fifty two of these children (study group) had sensorineural hearing loss with unknown etiology (no risk factors), 20 children (control subgroup I) had sensorineural hearing loss but with a risk factor (possible etiology) and 10 children (control subgroup II) had conductive hearing loss. **Results:** ELISA is used to detect IgG and IgM antibodies for CMV and toxoplasmasois. **Conclusion:** Cytomegalovirus is a common viral infection. Majority of cases in study and control groups had past exposure to cytomegalovirus. **Recommendations:** Polymerase chain reaction (PCR) is needed to detect cytomegalovirus load in cases with hearing loss. More researches are needed to emphasis on infectious agent as a cause of hearing loss in children.

Keywords: CMV: Cytomegalovirus, ELISA: Enzyme linked immunosorbant assay. PCR: Polymerase chain reaction.

Introduction

Aims of the Work

Chapter (1)
Sensorineural Hearing Loss in Children

Chapter (2)
Cytomegalovirus