# Ganciclovir in Treatment of Cytomegalovirus (CMV)



A Thesis Submitted For Partial Fulfillment Of Master Degree In Obstetrics And Gynaecology.

#### ΒY

#### Ahmed Mohamed Khairy Ibrahim

M.B.B.Ch, Resident of Obstetrics and Gynaecology Faculty of Medicine -Ain Shams university

#### Supervised by

62:71

#### Prof. Dr. Ibrahim El-Mitwally Samaha

Professor of Obstetrics and Gynaecology Faculty of Medicine - Ain Shams University

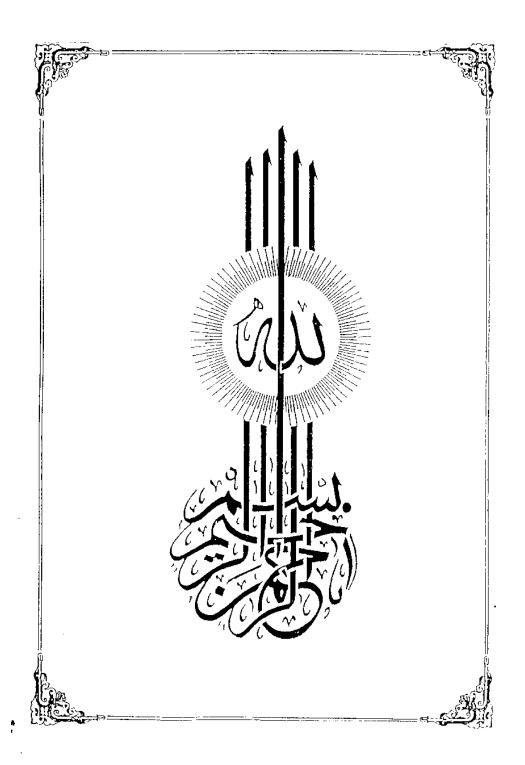
#### Dr. Sherif Abd El Khalek Akl

Assistant Professor of Obstetrics and Gynaecology Faculty of Medicine - Ain Shams University

#### Dr. Rowa Abd El Azim Moustafa

Lecturer of Obstetrics and Gynaecology Eaculty of Medicine - Ain Shams University

> Faculty of Medicine Ain Shams University \*\*\* 1998 \*\*\*



الله التحم هالوا سيدانك لاعلم لنا إلا ما علمتنا إنك أنت العليم الحكرم صدق الله العظرم

@ سورة البقرة - الآية ٣٢ @



To my family



Acknowledgment (H)

# **Acknowledgment**

First, all due thanks are to **God** for blessing this work until it has reached its end, as a part of his generous help througout my life.

I would like to direct special thanks to Prof. Dr. Ibrahim El-Mitwally Samaha, Professor of Obstetrics and Gynaecology

Faculty of Medicine - Ain Shams University, for the great support and encouragement he gave me throughout the whole work. It is a great honor to work under his guidance and supervision.

I would like to express my sincere gratitude to Dr. Sherif Abd El Khalek Akl, Assistant Professor of Obstetrics and Gynaecology, Faculty of Medicine - Ain Shams University, for his close supervision, continuous help, and tremendous efforts he has done in the meticulous revision of the whole work.

Also, I would like to express my sincere gratitude to Dr. Rowa Abd El Azim Moustafa, Lecturer of Obstetrics and Gynaecology, Faculty of Medicine - Ain Shams University.

## List of Contents (II)

## List of Contents

		PAGE
Introduction and Aim of the Work		1
Review of Literature	e	
Chapter I	Cytomegalovirus	4-70
Chapter 2	Ganciclovir	71-90
Patients and method		91-93
Results		94-105
Discussion		106-112
Summary and Conclusions		113-115
References		116-156
Arabic Summary		۱ –۳

#### (11)

### List of Tables

No.	Table	Page
Table (1)	Rate of CMV excretion from cervix and urine of pregnant women according to stages of pregnancy	16
Table (2)	Risk of active CMV infection in pregnant women and its transmission to fetus.	19
Table (3)	Relation between gestational age, fetal transmission and congenital disease in primary maternal CMV infection.	20
Table (4)	Primary CMV infection: Effect of gestational age on transmission in utero and disease in offspring.	21
Table (5)	Sources of CMV infection in man	33
Table (6)	Complication in patients with symptomatic or asymptomatic congenital CMV infection	35
Table (7)	Severity of congenital CMV according to type of maternal infection	37
Table (8)	Clinical and Laboratory Findings in Nonatal CMV Infection	39
Table (9)	Significant Clinical and Laboratory Findings in CMV Mononucleosis	41
Table (10)	Laboratory Abnormalities in Symptomatic Congenital CMV Infection	64
Table (11)	Diagnosis of Fetal CMV Infection	66
Table (12)	Alteration of ganciclovir kinetics to renal functions	76
Table (13)	Recommended Doses of Intravenous and Oral ganciclovir for CMV infections	78

# List of Tables (IV)

Table (14)	Modification of dose according to Renal function	79
Table (15)	Studies comparing ganciclovir with placebo, observation, or acyclovir to prevent CMV disease and death at bone marrow, heart, or liver transplantation	87
Table (16)	Descriptive data of studied cases	94
Table (17)	The rate of 1st trimestric abortion before and after treatment with ganciclovir.	94
Table (18)	The rate of 2nd trimestric abortion before and after treatment with Ganciclovir	95
Table (19)	The rate of 3rd trimsetric IUFD before and after treatment with Ganciclovir	96
Table (20)	The rate of mental retardation before and after treatment with Ganciclovir	97
Table (21)	The rate of deafness before and after treatment with Ganciclovir	98
Table (22)	The rate of blindness before and after Ganciclovir treatment	99
Table (23)	Comparing between patient with and without 1 <sup>st</sup> trimestric abortion and IgG level	100
Table (24)	Comparing between patient with and without 2 <sup>nd</sup> trimsetric abortion and IgG level	101
Table (25)	Comparing between patient with and without mental retardation and IgG level	102
Table (26)	Comparing between patient with and without   deafness and IgG level	104
Table (27)	Comparing between patient with and without blindness and IgG level	105

LICT OT HIGH IDDC		

### <u>List of Figures</u>

No.	Figure	Page
Figure (1)	Prevalence of antibody to cytomegalovirus in general population by age and sex, based on complement-fixing antibody measurement in 4824 middle-class individuals.	12
Figure (2)	Characteristics of CMV infection in pregnancy	17
Figure (3)	The pathway of 2'deoxyguanosine in normal cell.	72
Figure (4)	The pathway of 2'deoxyguanosine in cell infected with replicating CMV.	73
Figure (5)	The pathway of 2'deoxyguanosine in cell infected with replicating CMV when ganciclovir is added.	74
Figure (6)	The average plasma levels acheived after ganciclovir infusion (5 mg/kg)	75