THE DIAGNOSTIC VALUE OF MULTI-FREQUENCY TYMPANOMETRY IN OTITIS MEDIA WITH EFFUSION

Thesis

Submitted in Partial Fulfillment for the

Master Degree in

Audiology

BY

Mona Hassan Sharabi

(M.B., B.Ch)

Supervised by

Prof.Dr.Salah Soliman

Professor of Audiology Ain Shams University

Dr.Iman M.S.El Danasoury

Lecturer of Audiology Ain Shams University

Faculty of Medicine Ain Shams University 1996



ACKNOWLEDGMENTS

First and foremost, thanks to **GOD** to whom I relate any success in achieving any work in my life.

I am proud, honored and lucky to be one of Prof. Dr. Salah Soliman's students, to be supervised by him, and to have learned from so great a man as Prof. Dr. Salah Soliman, Professor of Audiology, Ain Shams University, the Father of Egyptian Audiology. Above all, I am so greatfull for his kind encouragement and for giving me the opportunity to work in the Audiology Unit Ain Shams University

My deep thanks are also extended to Dr. Iman El Danasoury, Lecturer of Audiology, Ain Shams University to whom I owe many valuable remarks and lot of precious time, patience and effort.

I also extend my deepest thanks and appreciation to DR. Nagwa Hazzaa, Lecturer of Audiology, Ain Shams University for her valuable help and cooperation all the time.

Finally, I would like to express my great thanks to my colleagues and friends who shared in bringing out this presentation to the light.

CONTENTS

INTRODUCTION	1
AIMS OF THE WORK	3
REVIEW OF LITERATURE	4
Otitis media with effusion	4
Definition and incidence	4
Risk factors in OME	6
Diagnosis of OME	18
Treatment	24
Tympanometery	31
Multifrequency tympanometry (MFT)	51
Clinical applications of MFT	57
MATERIALS AND METHODS	60
RESULTS	64
DISCUSSION	89
CONCLUSIONS	95
SUMMARY	96
REFERENCES	99
ARABIC SUMMARY	

LISTS OF TABLES

Table (1):	Mean and SD of PTA and SRT in the control group64
Table (2):	Mean and SD and range of multifrequency tympanometric parameters in the control group68
Table (3):	10th and 90th percentile of tympanometric parameters in the control group
Table (4):	Correlation between age and RF in the control group69
Table (5):	Correlation between gender and RF in the control group69
Table (6):	Numbers of ears in the studied subgroups
Table (7):	Mean, SD and range of age in different studied subgroups
Table (8):	Mean VSD and range of PTA and SRT in the study group72
Table (9):	Mean SD and range of SRT and ABG in different subgroups74
Table (10)	: Mean SD, and range of MFT parameters in subgroup I76

parameters in subgroup IIa
Table (12): Mean and SD of MFT parameters in subgroup IIb
Table (13): Mean and SD of MFT parameters in subgroupIII80
Table (14): Comparison between the control and different studied subgroups regarding all tympanometric parameters82
Table (15):Comparison between subgroup 1 &Ha83
Table (16):Comparison between subgroup 1 &IIb84
Table (17): Comparison between subgroup IIa &IIb85
Table (18):Comparison between subgroup III & other subgroups86
Table (19): Correlation between RF and ABG in subgroup III
Table (20): Correlation between RF and ABG in subgroup I&II

LIST OF FIGURES

Fig.(1)	Tympanometric gradient calculation39
Fig.(2)	Calculation of tympanometric width40
Fig.(3)	Demonstration of Middle ear pressure, ear canal volume and peak admittance on a normal 226 Hz tympanogram41
Fig.(4)	MFT (226-910 Hz) susceptance, conductance and admittance tympanogram
Fig.(5)	Complex acoustic admittance in polar notation and in rectangular notation49
Fig.(6)	Four patterns of normal 678 Hz admittance phase angle, susceptance and conductance tympanogram
Fig.(7)	MFT for a typical subject53
Fig.(8)	Mean and SD of PTA of control group65
Fig.(9)	(A) Tympanometric pattern in a normal subject using virtual 310
Fig.(10)	Normal contralateral Acoustic reflex thresholds in the control group67
Fig.(11)	Distribution of the studied cases among different studied subgroups.

Fig.(12)	Mean values of PTA in studied subgroups
Fig.(13)	SRT and ABG in the control group and different subgroups
Fig.(14)	Tympanometric pattern in a case of OME77
Fig.(15)	Tympanometric pattern in a case of resolving/starting OME
Fig.(16)	RF in the control group and different studied subgroups
Fig.(17)	Correlation between ABG and RF in subgroup III
Fig.(18)	Correlation between ABG & RF

INTRODUCTION