

شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلو

# بسم الله الرحمن الرحيم





MONA MAGHRABY



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلو



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



MONA MAGHRABY



شبكة المعلومات الجامعية التوثيق الإلكترونى والميكروفيلم

# جامعة عين شمس التوثيق الإلكتروني والميكروفيلم قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



MONA MAGHRABY



#### Selection of Children with Drug Resistant Epilepsy who are Candidates for Epilepsy Surgery: Pre and Post- Operative Evaluation

Thesis

Submitted for Partial Fulfillment of Doctorate in Paediatrics

By

Osama Salah Mohamed El Sharkawy

MB BCh

Under supervision of

#### Prof. Dr. Zeinab Anwar El Kabbany

Professor of Paediatrics
Faculty of Medicine – Ain Shams University

#### Prof. Dr. Neveen Tawakol Younis

Professor of Paediatrics Faculty of Medicine – Ain Shams University

#### Prof. Dr. Khaled Aboulfotouh Ahmad

Professor of Radiology
Faculty of Medicine – Ain Shams University

#### Dr. Ahmed Darwish Mahmoud

Assistant Professor of Neurosurgery Faculty of Medicine – Ain Shams University

#### Dr. Mennatallah Osama Shata

Lecturer of Paediatrics
Faculty of Medicine – Ain Shams University
Faculty of Medicine
Ain Shams University
2020



سورة البقرة الآية: ٣٢

### Acknowledgment

First and foremost, I feel always indebted to ALLAH, the Most Kind and Most Merciful.

I'd like to express my respectful thanks and profound gratitude to **Prof. Dr. Zeinab Anwar El Kabbany,** Professor of Pediatrics - Faculty of Medicine- Ain Shams University for her keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.

I am also delighted to express my deepest gratitude and thanks to **Prof. Dr. Neveen Tawakol Younis**, Professor of Pediatrics, Faculty of Medicine, Ain Shams University, for her kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.

I am deeply thankful to **Prof. Dr. Khaled Aboulfotouh Ahmad,** Professor of Radiology Faculty of Medicine – Ain Shams

University, for his great help, active participation and guidance.

I wish to introduce my deep respect and thanks to **Dr. Ahmed Darwish Mahmoud,** Assistant Professor of Neurosurgery Faculty of Medicine – Ain Shams University, for his kindness, supervision and cooperation in this work.

I am deeply thankful to **Dr. Mennatallah Osama Shata**, Lecturer of Paediatrics Faculty of Medicine – Ain Shams University for her great help, outstanding support, active participation and guidance.

Osama El Sharkawy



To the soul of my beautiful daughter **ROFIDA** 

### List of Contents

Title	Page No.
List of Tables	i
List of Figures	iv
List of Abbreviations	vi
Introduction	1
Aim of the Work	3
Review of Literature	
Epilepsy	4
Drug Resistant Epilepsy	12
Epilepsy Surgery	20
Patients and Methods	40
Results	48
Discussion	81
Summary	91
Conclusion	94
Recommendations	95
References	96
Archie Summery	

### List of Tables

Table No.	Title Page N	0.
Table (1): Table (2):	Conceptual definition of seizure and epilepsy  Operational (practical) clinical definition of epilepsy	
<b>Table (3):</b>	Factors to be considered in the selection of an antiepileptic drug	10
<b>Table (4):</b>	Engel's Classification of Postoperative Outcome	45
<b>Table (5):</b>	Epilepsy outcome classification modified from the ILAE classification of outcome with respect to epileptic seizures following epilepsy	4.0
T 11 (0)	surgery	
Table (6):	Distribution of age among study group	
Table (7):	Distribution of sex among study group	
<b>Table (8):</b>	Distribution of vital data among study group	49
<b>Table (9):</b>	Distribution of anthropometric measurements	
	among study group	50
<b>Table (10):</b>	Distribution of laboratory data among study group	51
<b>Table (11):</b>	Distribution of hospital admissions among study group	51
<b>Table (12):</b>	Distribution of age at onset of seizures among study group	
<b>Table (13):</b>	Distribution of perinatal history among study	
	group	52
<b>Table (14):</b>	Distribution of developmental history among	
	study group	
<b>Table (15):</b>	Distribution of diagnosis of patients	54
<b>Table (16):</b>	Distribution of family and past history among study group.	55
<b>Table (17):</b>	Distribution of handedness in study group	

## List of Tables Cont...

Table No.	Title Page No	٥.
Table (18): Table (19):	Distribution of seizures in study group  Distribution of examination among study group	
<b>Table (20):</b>	Distribution of metabolic profile	
<b>Table (21):</b>	Distribution of EEG findings before surgery	
<b>Table (22):</b>	Distribution of MRI findings before surgery	
<b>Table (23):</b>	Distribution of other imaging studies	
<b>Table (24):</b>	Distribution of type of epilepsy surgery	
<b>Table (25):</b>	Distribution of surgery data among study group	
<b>Table (26):</b>	Distribution of surgery data among study group	
<b>Table (27):</b>	Distribution of surgery data among study group	60
<b>Table (28):</b>	Distribution of postoperative complications of epilepsy surgery	
<b>Table (29):</b>	Distribution of mortality rate of surgery	
<b>Table (30):</b>	Engel's classification of postoperative seizures	
	outcome	62
<b>Table (31):</b>	ILAE classification of postoperative seizures outcome.	63
<b>Table (32):</b>	Number of drugs received by the studied	
	patient before and after surgery	64
<b>Table (33):</b>	Distribution of ketogenic diet among study group	65
<b>Table (34):</b>	Reoperation after surgery	
Table (35):	Distribution of number of patients over time	00
1 abic (00).	of study	66

## List of Tables Cont...

Table No.	Title Po	age No.
Table (36):	Comparison of study group before su and after 3 months of surgery rega seizures control	arding
Table (37):	Comparison of the study group before su and after 6 months of surgery rega seizure control.	arding
Table (38):	Comparison of study group before su and after 12 months of surgery rega seizure control	arding
Table (39):	Comparison between cost of drugs per and cost of surgery.	
Table (40):	Comparison between patients with without history of infantile spam as re Engels seizures outcome at 12 m postoperative.	egards nonths
<b>Table (41):</b>	Comparison between patients with without history of infantile spam as re ILAE outcome at 12 months postoperation	and egards
<b>Table (42):</b>	Correlation of Engel's classification postoperative seizures outcome (1 year surgery) with other parameters	after
<b>Table (43):</b>		n of after
<b>Table</b> (44):		at 12

#### List of Figures

Fig. No.	Title	Page No.
Figure (1):	Framework for classification epilepsies	
Figure (2):	The expanded ILAE 2017 oper classification of seizure types	
Figure (3):	General principles in the pharmatreatment of epilepsy	•
Figure (4):	Likely effect of a ketogenic diet on activity	
Figure (5):	Distribution of sex among study gro	oup49
Figure (6):	Engel's classification of posto seizures outcome	
Figure (7):	ILAE classification of posto seizures outcome	
Figure (8):	Number of drugs received by the patient before and after surgery	
Figure (9):	Distribution of number of patientime of study	
Figure (10):	Comparison of study group before and after 3 months of surgery reseizures control.	egarding
Figure (11):	Comparison of the study group surgery and after 6 months of regarding seizure control	surgery
<b>Figure (12):</b>	Comparison of study group before and after 12 months of surgery reseizure control.	egarding
<b>Figure</b> (13):	Comparison between cost of drugs and cost of surgery.	

### List of Figures Cont...

Fig. No.	Title	Page No.
Figure (14):	Comparison between patients w without history of infantile sy regards Engels seizures outcome months postoperative	pam as e at 12
Figure (15):	Comparison between patients w without history of infantile spregards ILAE outcome at 12 postoperative.	pam as months
<b>Figure (16):</b>	Correlation between Engel at 12 and age of patients.	
<b>Figure (17):</b>	Correlation between Engel at 12 and duration of seizures before surg	
<b>Figure</b> (18):	Correlation between ILAE at 12 and duration of seizures before surg	
<b>Figure</b> (19):	Correlation between ILAE at 12 and age of patients	
<b>Figure (20):</b>	Correlation between Chalfont at 12 and age of patients	
<b>Figure (21):</b>	Correlation between Chalfont at 12 and duration of seizures before surg	

#### List of Abbreviations

Abb.	Full term
2D	. Two dimentional
	. American academy of neurology
	. Antiepileptic drugs
	. Alanine transaminase
	. Acute post-operative seizures
	. Aspatate transaminae
	. Anterior temporal lobectomy
	. Body mass index
	. Blood urea nitrogen
CBC	. Complete blood count
Cm	. Centimeter
CNS	. Central nervous system
CSF	. Cerebrospinal fluid
DRE	. Drug resistant epilepsy
ECoG	. Intraoperative electrocorticography
EEG	. Electroencephalogram
EMS	. Extended metabolic screening
ESI	. Electrical source imaging
EZ	. Epileptogenic zone
FCD	. Focal cortical dysplasia
FDA	. Food and Drug Administration
FMRI	. Functional magnetic resonance imaging
GDD	. Global developmental delay
HEEG	. Hybrid extraoperative EEG
IEEG	. Intracranial electroencephalogram
ILAE	. International League Against Epilepsy
INR	. International normalization ratio
KD	. Ketogenic diet
Kg	. Kilogram

#### List of Abbreviations Cont...

Abb.	Full term
MEG	. Magnetoencephalography
MRI	. Magnetic resonance imaging
MSI	. Interictal magnetic source imaging
MTS	. Mesial temporal sclerosis
PET	. Positron emission tomography
RNS	. Responsive neurostimulation
SD	. Standard deviation
SEEG	. Stereoelectroencephalography
SPECT	. Single-photon emission computed tomography
TLC	. Total leucocytic count
TLE	. Temporal lobe epilepsy
UOA	. Urinary organic acids
VNS	. Vagal nerve stimulation
VP	. Ventriculoperitoneal