بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني 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

Frequency of periictal apnea and cardiac arrhythmias in epileptic seizures

Thesis

Submitted for partial fulfillment of MD degree in Neurology

Presented by

Rady Yousif Bedros Kaldas

(M.B., B.Ch) M.Sc, (Neurology)

Supervised by

Prof. Dr. Mohamad Ossama Abdulghani

Professor of Neurology

Faculty of Medicine, Ain Shams University

Prof. Dr. Naglaa Mohamed El Khayat

Professor of Neurology

Faculty of Medicine, Ain Shams University

Prof. Dr. Ahmed Abdulmonem Gaber

Professor of Neurology

Faculty of Medicine, Ain Shams University

Prof. Dr. Yousry Aboelnaga Abdelhamid

Professor of Neurology

Faculty of Medicine, Ain Shams University

Dr. Mona Mokhtar Wahideldin

Lecturer of Neurology

Faculty of Medicine, Ain Shams University

Faculty of Medicine

Ain Shams University

2021

معدل حدوث انقطاع النفس وعدم انتظام ضربات القلب أثناء النوبات الصرعية

رسالة

توطئة للحصول علي درجة الدكتوراه فى طب المخ والأعصاب

مقدمة من

الطبيب / راضي يوسف بدروس قلدس

بكالوريوس الطب و الجراحة- ماجستير طب المخ والأعصاب

تحت إشراف

أ.د/ محمد أسامة عبد الغني

أستاذ طب المخ والأعصاب

كلية الطب- جامعة عين شمس

أ.د/ نجلاء محمد الخياط

أستاذ طب المخ والأعصاب

كلية الطب- جامعة عين شمس

أ.د/ أحمد عبد المنعم جابر

أستاذ طب المخ والأعصاب

كلية الطب- جامعة عين شمس

أ.د/ يسري أبو النجا عبد الحميد أبو النجا

أستاذ طب المخ والأعصاب

كلية الطب- جامعة عين شمس

د/ / مني مختار وحيد الدين

مدرس طب المخ والأعصاب

كلية الطب- جامعة عين شمس

كلية الطب

جامعة عين شمس

٢٠٢١

سورة البقرة الآية: ٣٢

Acknowledgement

*First, I wish to express my deep thanks, sincere gratitude to **GOD**, who always helps me, cares for me and grants me the ability to accomplish this thesis.*

*Really I can hardly find the words to express my gratitude to **Prof. Dr. Mohamad Ossama Abdulghani,** Professor of Neuropsychiatry, Faculty of Medicine, Ain Shams University, for his supervision, continuous help, encouragement throughout this work and tremendous effort he has done in the meticulous revision of the whole work. It is a great honor to work under his guidance and supervision.*

*I am eternally grateful to **Prof. Dr. Naglaa Mohamed El Khayat**, Professor of Neuropsychiatry, Faculty of Medicine, Ain Shams University, for her help and keep support, without her help this work would have never been completed. I am deeply indebted to her for her scrutiny, her comments and suggestion and her deep interest in the subject.*

*I am eternally grateful to **Prof. Dr. Ahmed Abdulmonem Gaber**, Professor of Neuropsychiatry, Faculty of Medicine, Ain Shams University, for his help and keep support, without his help this work would have never been completed. I am deeply indebted to him for his scrutiny, his comments and suggestion and his deep interest in the subject.*

*I am eternally grateful to **Prof. Dr. Yousry Abo-Elnaga Abd-Elhamid,** Professor of Neuropsychiatry, Faculty of Medicine, Ain Shams University, for his help and keep support, without his help this work would have never been completed. I am deeply indebted to him for his scrutiny, his comments and suggestion and his deep interest in the subject.*

*I would like to express my deepest gratitude to **Dr. Mona Mokhtar Wahideldin,** Lecturer of Neuropsychiatry, Faculty of Medicine, Ain Shams University, for her kind advice support and valuable supervision and her great effort throughout this work.*

Last but not least, I dedicate this work to my family, whom without their sincere emotional support, pushing me forward this work would not have ever been completed.

Contents

List of Abbreviations

AEDs..... Antiepileptic drugs
ASDS ..... Automated seizure detection systems
AVM ..... Arteriovenous malformation
Bpm ..... Beats per minute
CO2…… Carbon dioxide
CPAP..... Continuous positive airway pressure
CPS ..... Complex partial seizures (CPS)
DRE ..... Drug resistant epilepsy
ECG..... Electrocardiography
EEG ..... Electroencephalography
EMG…….. Electromyography
FBTCS..... Focal onset to bilateral tonic-clonic seizures
Fig…….. Figure
FOA ..... Focal onset aware
FOIA..... Focal onset with impaired awareness
GABA…… Gamma-Amino butyric acid
GTCs ..... Generalized onset tonic-clonic seizures
HT……... Hydroxytryptamine
ICA ..... Ictal central apnea
ICSD-2..... International Classification of Sleep Disorders-2
ILAE..... International League Against Epilepsy
JME ..... Juvenile myoclonic epilepsy
MT 1 ..... Melatonin receptor 1
MT 2 ..... Melatonin receptor 2
MORTEMUS ..... Mortality in Epilepsy Monitoring Unit Study
N..... Number
NREM ..... Non rapid eye movement

MRI ..... Magnetic resonance imaging

NHSS……. National hospital seizure severity

OR..... Odd ratio

OSA ..... Obstructive sleep apnea

PGES…….. Postictal generalized EEG suppression

REM ..... Rapid eye movement

SD ..... Standard deviation

SE..... Status epilepticus

SHE..... Sleep-related hypermotor epilepsy

SpO_2…….. Capillary oxygen saturation

SPSS ..... Statistical package for Social Science

SSRIs…….. Selective serotonin reuptake inhibitors

SWI..... Spike wave index

SUDEP ..... Sudden Unexpected Death in Epilepsy

TNF- α …….. Tumor necrosis factor alpha

List of Tables

List of Tables

List of Tables

List of Figures

INTRODUCTION

Epilepsy is a chronic neurological condition representing a significant burden for the patient and the society ***(Moshé, 2015).*** Epilepsy is the most common serious brain disorder worldwide. It has no age, racial, geographic or socio-economic boundaries. The prevalence of epilepsy in Europe is 8.2 per 1000 people, thus around 6.000.000 people in Europe currently have epilepsy whilst 15.000.000 people will have had epilepsy at some time in their lives ***(EUCARE, 2003).*** Similar range (9.3 per 1000) was also reported in Egypt ***(Khedr et al., 2013).***

Epilepsy can be treated very effectively with antiepileptic medication. Up to 70% of patients may become seizure free (about 60% with the first drug and a further 10% after further attempts) ***(Berg and Rychlik, 2015).***

In an Egyptian study incidence of obstructive sleep apnea (OSA) in epileptic patients was studied in both controlled and refractory patients. There was no significant difference in number of patients having OSA between the refractory epilepsy and the medically controlled epilepsy group. The frequency of OSA was found to be 10% in patients with controlled epilepsy, while its frequency in patients with refractory epilepsy was found to be 16.7%. Interestingly, O2 desaturation nadir was significantly higher in refractory than in controlled patients ***(Rashed et al., 2019).***