STUDY OF GASTRIC ELECTRICAL ACTIVITY AND BACTERIAL OVERGROWTH IN HYPOTHYROIDISM

Thesis

Submitted for Partial fulfillment of Master Degree in INTERNAL MEDICINE

By EMAN MOHAMED KAMEL *M.B.,B.Ch.*

Under supervision of Prof. Dr. / Fadilah Ahmed Gad Allah

Professor of Internal Medicine and Endocrinology Faculty of Medicine, Ain Shams University

DR./ SALWA SEDDIK HOSENY

Assistant Professor of Internal Medicine and Endocrinology Faculty of Medicine, Ain Shams University

DR./ INAS EL-KHADER

Lecturer of Internal Medicine Faculty of Medicine, Ain Shams University

Faculty of medicine Ain shams university 2010

دراسة النسق الكهربي للمعدة وزيادة نمو الميكروب الحازوني في مرض نقص هرمون الغدة الدرقية رسالة

توطئة للحصول على درجة الماجستير في الباطنة العامة مقدمة من

الطبيبة/ إيمان محمد كامل راضي بكالوريوس الطب والجراحة

تحت إشراف الأستاذة الدكتورة/ فضيلة أحمد جاد الله أستاذ العدد الصماء والسكر - كلية الطب - جامعة عين شمس

الدكتورة/ سلوي صديق حسني أستاذ مساعد الغدد الصماء والسكر - كلية الطب - جامعة عين شمس

الدكتورة/ إيناس الخضر محمد مدرس الباطنة العامة - بكلية الطب - جامعة عين شمس

كلية الطب جامعة عين شمس



List of abbreviation

ACTH: Adrenocorticotropic hormone

ADH: Antidiuretic hormone

APT: Applied potential tomography

AT: Autoimmune thyroiditis

BER: Basal electrical rhythm

CCK: Cholecystokinine

CPK: Creatinine phosphokinase

CPM: Cycle per minute

ECA: Electrical controlled activity

ERA: Electrical response activity

ECG: Electrocardiography

EGG: Electrogastrography

ELISA: Enzyme linked immunosorbent assay

FFT: Fast Fourier transform

FFA: Free fatty acid

GEA: Gastric electrical activity

GIP: Gastric inhibitory peptide

GOT: Glutamine oxaloacetic transaminase

HP: Helicobacter pylori

HDL: High density liboprotein

HPT: Hypothalamic pituitary thyroid axis

IGA: Immunoglobulin A

ICC: Interstial cells of Cajal

LDH: Lactate dehydrogenase

LT: Levothyroxine

LPS Lipopolysaccharides

LDB: Long distance binding

LDL: Low density liboprotein

MRI: Magnetic resonance imaging

MMC: Migratory myoelectrical comple

NAP: Neutrophil activating protein

NUD: Non ulcer dyspepsia

NR: Nuclear receptor

PD: Postprandial dip

RSA: Running spectrum analysis

SHBG: Sex hormone binding globulin

SDB: Short distance binding

T4: Tetra-iodothyronine

TBG: Thyroid binding globulin

Th: Thyroid hormone

THR: Thyroid hormone receptor

TPO: Thyroid peroxidase

TR α : Thyroid receptor α

TR β : Thyroid receptor β

TSH: Thyroid stimulating hormone

T3: Tri-iodothyronine

UBT: Urea breath test



First and foremost thanks to Allah, the most merciful, who gave me every thing including the ability to fulfill this work.

I wish to express my deep appreciation and sincere gratitude to Prof. Dr. Fadila Ahmed Gad Allah, Professor of Endocrinology, Ain Shams University, for her close supervision, valuable instructions, continuous help, patience and guidance. She has generously devoted much of her time and effort for planning and supervision of this study. It was great honor to me to work under her supervision.

My deepest gratitude to Ass. Prof. Dr. Salwa Seddik Hoseny, Assistant Prof. of Endocrinology, Ain Shams University, who always supports me and reads every word written in this thesis, and for her continuous encouragement which obliged me to bear the responsibility towards this study.

My sincere thanks for Dr. Inas El-Khedr, Lecturer of Internal Medicine, Ain Shams University, for her immense effort in practical part of the work also she really helped me by her precious opinions and contributive comments that served much in the construction of this work.

Last but not least I want to thank my husband, my sons, my parents and my patients without their help, this work could not have been completed.

Contents

	Page
Introduction	1
Aim of the work	4
Review of literature	5
Chapter 1: Thyroid Gland	5
Chapter 2: Hypothyroidism	20
Chapter 3: Autoimmune Thyroiditis	48
Chapter 4: Subclinical Hypothyroidism	51
Chapter 5: The Gastric Electrical Activity	66
Chapter 6 Electrogastrography	88
Chapter 7: Helicobacter pylori	114
Subjects and methods	
Results	
Discussion	
Summary and conclusion	194
Recommendations	196
Appendix	
References	
Arabic summary	

List Of Tables

Table No.	Title	Page
1	Definition in the analysis of frequency spectra of cutaneous 4-channels recordings of gastric myoelectrical activity	103
2	Comparison between 2 groups regarding anthropometric measures	170
3	Comparison between 2 groups regarding their thyroid profile	170
4	Comparison between 2 groups regarding helicobacter titer	170
5	Comparison between 2 groups regarding helicobacter infection percentage.	174
6	Comparison between 2 groups regarding EGG parameter	175
7	Comparison between 2 groups regarding visual analysis (VA)	177
8	Comparing between 2 groups regarding Bradygastria	178

List Of Tables

Table No.	Title	Page
9	Comparison between 2 groups regarding DIP	178
10	The correlation between thyroid profile and age	179
11	The correlation between thyroid profile and helicobacter titer	179
12	Correlation between FT3 and EGG parameter in all subjects	180
13	Correlation between FT4 and EGG parameter in all subjects	180
14	Correlation between TSH and EGG parameter in all subjects	180
15	The correlation between EGG parameter and helicobacter titer	181

List Of Figures

Figure No.	Title	Page
1	Electrical activity of gastric smooth muscle cell	90
2	Contractile activity of gastric smooth muscle cell	90
3	(a) Running fourier transformation at rest and meal in a patients showing normal 3CPM gastric signal, (b) Grey scale plot of running power spectrum in a fasting patient with normal 3CPM gastric signal with postprandial dip	104
4	(a) Running fourier transformation at rest and meal of a patient showing tachygastria with absence of normal 3CPM gastric signal (b) Grey scale plot of running power spectrum in a fasting patient showing tachygastria with absence of normal 3CPM gastric signal.	105
5	(a) Running fourier transformation at rest and meal of a patient showing bradygastria with absence of normal 3CPM gastric signal (b) Grey scale plot of running power spectrum a fasting patient showing bradygastria with absence of normal 3CPM gastric signal.	106

List Of Figures

Figure No.	Title	Page
6	Electrogastrography unite in Ain Shams University Hospital	159
7	Distribution of electrodes of EGG	161
8	Comparing between cases and controls regarding weight	171
9	Comparing between cases and controls regarding body mass index (BMI)	172
10	Comparing between cases and controls regarding the helicobacter titer	173
11	Comparing between cases and controls regarding the percentage of helicobacter infection	174
12	Comparison between different groups as regards EGG results	176
13	Comparing between the cases and controls regarding visual analysis	177



Introduction



Aim of the work



Review of literature



Subjects and methods