Metabolic Syndrome and Psychiatric Profile in a Sample of Egyptian Patients with Obstructive Sleep Apnea

Thesis

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بسم الله الرحمن الرحيم
قالوا
سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم
صدق الله العظيم
سورة البقرة الآية: ٣٢


وأنزل الله عليك
الكتاب والحكمة
وعلَّمَكَ مَا لَمْ تَكُن
تَعْلَمُ وكَانَ فَضْلُ
اللَّهِ عَلَيْكَ عَظِيماً
صدق الله العظيم
سورة النساء الآية
(113)

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Candidate

Sarah Ashraf Mohamed

ListofContents

ListofAbbreviations

Abbr.	Full-term
ACTH	: Adrenocorticotrophic hormone
AHI	: Apnea-hypopnea index
ASUIP	: Ain Shams University Hospitals
ATPIII	: Adult Treatment Panel III report
BMI	: Body mass index
CCK	: Cholecystokinin
CHD	: Coronary heart disease
CPAP	: Continuous positive airway pressure
CRH	: Corticotropin Releasing Hormone
CRP	: C-reactive protein
ED	: Erectile dysfunction
EMG	: Electromyogram
EOG	: Electrooculogram
FP1, FP2	: Fronto-parietal scalp electrodes
GC	: Glucocorticoid
GH	: Growth hormone
GLP	: Glucagon-like peptide
HAM-A	: Hamilton Anxiety Rating Scale
HBP	: High blood pressure
HDL	: High density lipoprotein
HPA	: Hypothalamus-Pituitary Adrenal
HRSD	: Hamilton Rating Scale for Depression

IR : Insulin resistance

ListofAbbreviations*(Cont.)*

Abbr.	Full-term

LDL : Low density lipoprotein
LH : Lateral hypothalamus
LOC : Left outer canthus
mPFC : Medial prefrontal cortex
Mets : Metabolic syndrome
OSA : Obstructive sleep apnea
OSA : Obstructive sleep apnea syndrome
PLMs : Periodic leg movements
PRL : Plasma prolactin
PSG : Polysomnography
PYY : Peptide YY
RAAS : Renin-angiotensin-aldosterone system
RDI : Respiratory disturbance index
REM : Rapid eye movement
ROC : Right outer canthus
SBD : Sleep breathing disorder
SCID I : Structured Clinical Interview for DSM-IV
SCN : Suprachiasmatic nuclei
SD : Standard deviation
SFSR : Sleeping to Forget and Sleeping to Remember
SREBP-1 : Sterol regulatory element-binding protein 1

SWS : Slow wave sleep

Listof Abbreviations *(Cont.)*

Abbr.	Full-term

TRH : Thyrotropin-Releasing Hormone

vmPFC : Ventromedial Prefrontal Cortex

WHO :World Health Organization

WMH : White matter hyperintensities

ListofTables

Listof Tables *(Cont.)*

Listof Figures

Listof Figures *(Cont.)*

Listof Figures *(Cont.)*

Listof Figures *(Cont.)*

Introduction

Sleep is important in regulating metabolism; Metabolism involves two biochemical processes that occur in living organisms. The first is anabolism, which refers to the buildup of molecules. The second is catabolism, the breakdown of molecules. These two processes work to regulate the amount of energy the body uses to maintain itself. During non-REM sleep, metabolic rate and brain temperature is lowered to deal with damages that may have occurred during time of wakefulness***(Sharma et al., 2011).***

It is believed that during normal sleep the metabolic rate reduces by around 15% and reaches a minimum in the morning in a standard circadian pattern ***(Goldberg et al., 1988).***

Glucose utilization in normal subjects is highest during wakeful state and lowest in NREM sleep and intermediate in REM sleep***(Van Cauter et al., 1997).***

Growth hormone and cortisol are two hormones that have an impact on glucose regulation. Growth hormone is typically elevated at onset of sleep with highest levels during slow wave sleep (SWS) while cortisol levels are greatly increased during the second half of the sleep, predominantly in REM sleep***(Turck et al., 1994).***