بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / سلوي محمود عقل

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات:
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Ghrelin Serum Level in a Sample of Egyptian Major Depressive Disorder Patients

Thesis

Submitted for Partial Fulfilment of Master Degree in Neuropsychiatry

Submitted by

Mariam Hesham Ali Mohammed

M.B.B.CH - Ain Shams University

Under supervision of

Prof. Dr. Tarek Ahmed Okasha

Professor of Psychiatry

Faculty of Medicine - Ain Shams University

Dr. Dina Mohamed Elgabry

Assistant Professor of Psychiatry

Faculty of Medicine - Ain Shams University

Dr. Fiby Fayez Gabrielle

Lecturer of Psychiatry

Faculty of Medicine - Ain Shams University

Faculty of Medicine

Ain Shams University

2022

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List of Abbreviations

Abb.	Full term
5-HT	*5 hydroxytryptamine*
AG	*acyl ghrelin*
AGRP	*Agouti-related protein*
AMPA	*a-amino-3-hydroxy-5-methyl-4-isoxazole-propionic acid*
ARC	*Arcuate nucleus*
BDI	*Beck depression inventory*
BDNF	*Brain derived neurotrophic factor*
BLA	*Basolateral complex of the amygdala*
BMI	*Body mass index*
CA	*Cornu ammonis*
CDK2	*Cyclin dependent kinase 2*
CNS	*Central nervous system*
DAG	*Des-acyl ghrelin*
DSM-IV	*Diagnostic and statistical manual of mental disorders*
E2F1	*E2F transcription factor*
ELISA	*Enzyme-linked immunoassay*
GH	*Growth hormone*
GHQ-28	*General health questionnaire-28*
GHSR1a	*Growth hormone secretagogue receptor 1a*
GHSR1b	*Growth hormone secretagogue receptor 1b*
GOAT	*Ghrelin O-acyltransferse*
GRs	*Glucocorticoid receptors*
HAM-D	*Hamilton depression scale*
HPA	*Hypothalamic pituitary axis*
IDO	*Indoleamine 2, 3 dioxygenase*
IL-12	*Interleukin 12*
IL-13	*Interleukin 13*

List of Abbreviations *(Cont...)*

Abb.	Full term
IL-18	*Interleukin 18*
IL-1RA	*Interleukin 1 receptor antagonist*
IL-6	*Interleukin 6*
IQR	*Interquartile range*
KYN	*Kynurenine*
MAPK	*Mitogen-activated protein kinase*
MDD	*Major depressive disorder*
miRNA	*Microribonucleic acid*
MRs	*Mineralocorticoid receptors*
NAC	*Nucleus accumbens*
NMDA	*N-methyl-D-aspartate*
NPY	*Neuropeptide y*
NREM	*Non rapid eye movement*
NSC	*Neural stem cells*
PC	*Personal computer*
PFC	*Prefrontal cortex*
PI3K/Akt	*Phosphatidylinositol 3-kinase/Ak strain transforming*
POMC	*Proopiomelanocortin*
PTSD	*Post-traumatic stress disorder*
REM	*Rapid eye movement*
RNS	*Reactive nitrogen species*
ROS	*Reactive oxygen species*
SCID-I	*Structured clinical interview for the DSM-IV axis I disorders*
SD	*Standard deviation*
SPSS	*Statistical package for Social Science*
SSRIs	*Selective serotonin reuptake inhibitors*
sTNFR2	*Soluble tumour necrosis factor receptor 2*

List of Abbreviations *(Cont...)*

Abb.	Full term
SUD	*Substance use disorder*
TDO	*Tryptophan dioxygenase*
TNFa	*Tumour necrosis factor alpha*
VAS	*Visual analogue scale for hunger*
VTA	*Ventral tegmental area*
WHO	*World health organisation*
YLD	*Years lived with disability*

INTRODUCTION

Depression is a common mental disorder with an estimated lifetime prevalence of 13-18% ***(de Graaf et al., 2012).***

Major depressive disorder (MDD); is a leading psychiatric illness across the world, severely affecting quality of life and causing an increased incidence of suicide, although it is underlying pathophysiology is still unclear and recently multiple studies were concerned with the relation between serum Ghrelin level and MDD ***(Ting et al., 2020)***.

Moreover, different parts of the brain are involved in the regulation of mood and the expression of emotions, where neuroimaging and neuropathological studies supported that the medial prefrontal cortex, the caudolateral orbital cortex, the amygdala, the hippocampus and the ventromedial parts of the basal ganglia are networks which modulate emotional behavior and so there is evidence that the function of these structures is altered in patients with MDD ***(Drevets et al., 2008).***

The areas of the brain mentioned above are not only associated to MDD but they also have an important role in feeding behavior and nutrition hormones as Ghrelin and Leptin ***(Gibson, 2006).***

Ghrelin is a 28 amino acid peptide, secreted from stomach and functions as an orexigenic hormone, which

increases before meals and decreases after meals ***(Druce et al., 2005, Kojima, 2010, Toska et al., 2013)***. It is acylated [acyl ghrelin (AG)] by ghrelin-O-acyl transferase in the stomach and 10%20% of circulating ghrelin exists in this form ***(Kojima, 2010)***.

Although ghrelin is present in the stomach and other peripheral tissues like the pancreas, it is also found in smalls amounts in the hypothalamus, therefore ghrelin affects the CNS and does not act only as a hunger signal but it is also involved in reward, motivation and signaling pathways, and is in this way linked with stress, anxiety disorders and depression ***(Schellekens et al., 2012, Zarouna et al., 2015).***

The relation between Ghrelin and MDD is still controversial, as different studies in animals yielded contrasting findings, where some showed that ghrelin could be an anxiogenic hormone whereas others revealed that it can have anxiolytic and antidepressant effect. A few human studies were performed about ghrelin levels in patients with depression and the findings were inconsistent. A study reported low ghrelin levels in depressive patients. However, many others suggested no difference in ghrelin levels between depressive patients and healthy controls. Nevertheless, some studies found high serum ghrelin levels in patients with major depression ***(Ozosy et al., 2014, Zarouna et al., 2015).***