Relationship between Oxytocin level and Major Depressive disorder

A Thesis

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بسم الله الرحمن الرحيم
قالوا
سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم
صدق الله العظيم
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Fairouz Ahmed Abdel Moneim Tawfik

List of Contents

List of Abbreviations

Abbr.	Full-term
ACTH	**:** Adrenocorticotropic hormone
ASD	**:** Autism spectrum disorders
BDNF	**:** Brain derived neurotrophic factor
BMI	**:** Body mass index
CNS	**:** Central nervous system
CRH	**:** Corticotropin-releasing hormone
CSF	**:** Cerebrospinal fluid
ECT	**:** Electroconvulsive therapy
FST	**:** Forced swimming test
GABA	**:** Gamma-aminobutyric acid
GAD	**:** Generalized Anxiety disorder
GRs	**:** Glucocorticoid receptors
HPA	**:** Hypothalamic-pituitary-adrenal
HRSD	**:** Hamilton Rating Scale for Depression
i.p	**:** Intraperitoneal
ICV	**:** Intra-cerebroventricular
IQR	**:** Interquartile range
LHA	**:** Lifetime History of Aggression
LH-RH	**:** Luteinizing hormone-releasing hormone gene
M	**:** Mean
MAOA	**:** Monoamine oxidase Type A

MBTs : Mind–body therapies

MDD : Major Depressive Disorder

MnR : Median raphe nuclei

MPFC : Medial prefrontal cortex

NMDA : N-methyl-D-aspartate

NPV : Negative predictive value

OCD : Obsessive-compulsive disorder

OTRs : Oxytocin receptors

OXT : Oxytocin

OXTR : OXT receptor

P : Probability

PPV : Positive predictive value

PTSD : Post-traumatic stress disorder

PVN : Paraventricular nucleus

r : Correlation coefficient

RCTs : Randomized controlled trials

ROC : Receiver operator curve

SCID-I : Structured Clinical Interview for DSM-IV-TR Axis I Disorders

SD : Standard deviation

SNRI : Selective norepinephrine reuptake inhibitor

SON : Supraoptic nucleus

SPSS : Statistical Package for Social Sciences

SSRIs : Selective serotonin reuptake inhibitors

STAI : State trait anxiety inventory

TCA **:** Tricyclic antidepressant

TGOT **:** Thr4, Gly7-oxytocin

WHO **:** World Health Organization

List of Tables

List of Figures

ABSTRACT

Background: major depressive disorder is one of the most common medical disorders worldwide, having huge impact on physical and mental health in the society and is considered an extended life-threatening psychiatric disorder. Abnormalities in the neurohypophyseal system, neuroendocrine, and immune systems have been reported in depression. **Aim of the Work:** this study was carried out to identify the relationship between plasma oxytocin level and the severity of major depressive disorder. **Patients and Methods:** this case control observational study was started from July 2016 till March 2018. The subjects were selected from inpatient and outpatient clinics of Institute of Psychiatry, Faculty of medicine, Ain Shams University. Twenty two female patients were enrolled and fourteen female healthy subjects were considered as controls. Both groups were subjected to Arabic version of Structured Clinical Interview for DSM-IV-TR Axis I Disorders and sampling of serum Oxytocin. Moreover the female patients were subjected to Hamilton rating scale for depression and state trait anxiety inventory to assess the presence of anxiety symptoms. **Results:** our study revealed reduced serum oxytocin levels in depressed female patients with cutoff point ≤25.6 denoting that below this level shows probability for major depressive disorder in females. **Conclusion:** our study revealed reduced serum oxytocin levels in depressed female patients. Consistently with the hypothesis of dysregulated OXT biology may serve as a biomarker for major depression.

Keywords: Oxytocin, major depressive disorder, Hamilton Rating Scale for Depression, state trait anxiety inventory.

Introduction

Major depressive disorder (MDD), is associated with substantial deficits in quality of life, considered to be the leading cause of disability globally as it affects nearly 350 million people worldwide **(Rapaport et al., 2005; Ishak et al., 2013)**.

Importantly, the quality of life deficits revealed to persist beyond the clinical resolution of symptoms. Placing patients at an increased risk for relapse and rising direct and indirect costs **(Ishak et al., 2015).**

In the last decades several neuropeptide families were discovered having modulatory roles on neurotransmission in synapses. This in turn evoked the interest of psychoneuro-endocrinologists predicting potential significant clinical relevance in the treatment of stress-related mood disorders **(Paschos et al., 2009).**

Oxytocin (OXT) is a neuropeptide produced in the hypothalamus, involved in a broad range of physiological and behavioral processes **(McQuaid et al., 2013).**

A few data suggest a link between Oxytocin and neuropsychiatric disorders, especially obsessive-compulsive disorder, eating disorders, addiction, post-traumatic stress