Depression in Patients with Chronic Low Back Pain

Thesis

Submitted for partial fulfillment of requirement for the Master Degree in Physical Medicine, Rheumatology, and Rehabilitation

By

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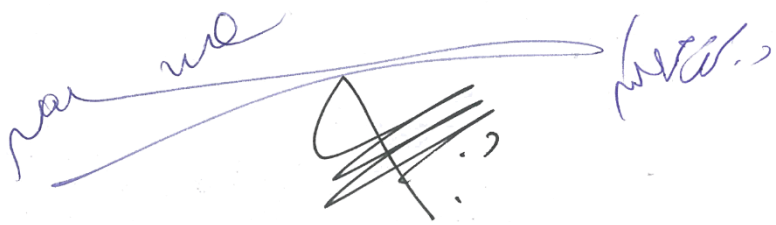
2018



سورة البقرة الآية: ٣٢

Acknowledgments

First and forever, thanks to ***Allah****, Almighty for giving me the strength and faith to complete my thesis and for everything else.*

I would like to express my deepest gratitude and appreciation to **Prof. Dr. Nagwa Mohamed Nassar***, Professor of Physical Medicine, Rheumatology, and Rehabilitation, Faculty of Medicine, Ain Shams University, who initiated and designed the subject of this thesis, for his kindness, over available, fatherly attitude and untiring supervision, helpful criticism and support during the whole work.*

My extreme thanks and gratefulness to **Prof. Dr. Naglaa Yousef Assaf***, Professor of Physical Medicine, Rheumatology, and Rehabilitation, Faculty of Medicine, Ain Shams University I'm much grateful for her patience and strict supervision and revision of practical part of this work. Her valuable advice helped me a lot to pass many difficulties.*

I'm very grateful to **Dr. Dina Abou Bakr Farrag***, Lecturer of Physical Medicine, Rheumatology, and Rehabilitation, Faculty of Medicine, Ain Shams University, as her ideas had created and brought this work to light; for her great effort, guidance, valuable advice and continuous encouragement all through his work.*

I would like also to thank **Dr. Dina Ibrahim Hassan,** Consultant of Psychiatry, Ain Shams University, for her cooperation and help during the whole work.

Last but not least, I would like to thank all members of my family, specially my **Parents** *and my* **Wife***, for their care and support.*

Ali Fadhel Al-Sheekh

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List of Abbreviations

Abbrev.	Full-term
AHA	**:** American Heart Association
AP	**:** Anterior-posterior
APA	**:** American Psychiatric Association
BDI	**:** Beck depression inventory
BDNF	**:** brain-derived neurotrophic factor
BMI	**:** Body mass index
BUN	**:** Blood Urea Nitrogen
CBC	**:** complete blood count
CDI	**:** Children's Depression Inventory
CES-D	**:** Center for Epidemiologic Studies-Depression
CKD	**:** Chronic kidney disease
Cm	**:** Centimeters
COX	**:** Cyclooxygenase
CT	**:** Computed tomography
CVS	**:** Cardiovascular system
DA	**:** Dopamine
DSM	**:** Diagnostics and Statistical Manual of Mental Disorders
EMG	**:** Electromyography
EEG	**:** Electroencephalogram
ECG	**:** Electrocardiogram
ESIs	**:** Epidural steroid injections

FST : Femoral stretch test
GIT : Gastrointestinal tract
HIV : Human immune virus
ICD : International Classification of Diseases
IPT : Interpersonal theory
LBP : Low back pain
MDD : Major depressive disorder
MDE : Major depressive episode
MRI : Magnetic resonance imaging
NCS : Nerve conduction studies
NE : Norepinephrine
NRT : Neuro-reflex therapy
NSAIDs : Non-steroidal anti-inflammatory drugs
ODS : Oswestry disability index
PENS : Percutaneous electrical nerve stimulation
PGs : Proteoglycans
PD : Psychodynamic
PHQ : Patient Health Questionnaire
PMM : Psoas major muscle
PMM : Psoas major muscle
PGs : Proteoglycans
RCTs : Randomized controlled trials
ROM : Range of motion
SAD : Seasonal affective disorder
SLR : Straight leg raising

SPECT : Single photon emission computed tomography
SPECT : Single photon emission computed tomography
SSRIs : Serotonin-specific reuptake inhibitors
SSRIs : Selective serotonin reuptake inhibitors
SNRIs : Serotonin/norepinephrine reuptake inhibitors
SPSS : Statistical package for social sciences
SCS : Spinal cord stimulation
TCAs : Tricyclic antidepressants
TENS : Transcutaneous electric nerve stimulation
TSH : Thyroid-Stimulating Hormone
US : Ultrasound
USPSTF : U.S. Preventive Services Task Force
VAS : Visual analogue scale
VTA : Ventral tegmental area
WHO : World Health Organization

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Introduction

Low Back Pain (LBP) is one of the most common medical problems involving any age worldwide. It is a leading cause of disability, interferes with quality of life, work performance and is the most common reason for medical consultations ***(Tsang et al., 2017).***

There are 2 types of low back pain, specific and non-specific. Specific low back pain is defined as that caused by a specific pathophysiological mechanism, such as disc-prolapse, infection, inflammatory arthropathy, tumors, osteoporosis or fracture. Non-specific LBP is tension, soreness and/or stiffness in lower back region for which it isn't possible to identify a specific cause of the pain.

Most people who develop LBP that comes on suddenly have acute LBP ***(Jiman and Etukumana, 2017).*** They improve quickly. Once the pain has eased or gone, recurrence can occur classified as chronic (persistent) if last for longer than six weeks ***(Kenny, 2013).*** The incidence of chronic low back pain (CLBP) has been reported to be 9% to 21% in the general population and has been increasing steadily ***(Megan Sions et al., 2017).*** As a result, disability associated with CLBP has been studied extensively, and psycho-social factors that may contribute to pain and disabilities have also been studied systematically ***(Guclu et al., 2012).***

Chronic low back pain (CLBP) and Depression are two common problems that present in health facilities.Low back pain is a physical condition which usually presents with physical symptoms while Depression is a psychiatric condition ***(Namgwa et al., 2016).*** The physical and psychological distress of chronic pain interacting with individual and social vulnerability may precipitate an episode of major depression ***(Pinheiro et al., 2015).***

Pain and Depression share biological pathways and nerve transmitters with treatment implications for both conditions. Assessment and treatment of CLBP and depression simultaneously is necessary for better outcomes ***(Søndergård et al., 2017).*** The explanation for this is that pessimistic thoughts activate some specific areas in the brain which cause the person to give more attention to the pain and increase the amplitude of pain felt ***(Hülsebusch et al., 2016).*** Studies from the literature have shown depression to be highly prevalent among persons with CLBP ***(Robertson et al., 2017).***

Major depression is the most common mental illness associated with chronic pain. Other mental illnesses that have been described in patients with chronic pain include: Generalized anxiety disorder, posttraumatic stress disorder, and substance misuse ***(Stubbs et al., 2017).***

Depression or CLBP may become the causative factor for the other and even exacerbate each other ***(Namgwa et al., 2016).***

Patients suffering from depression often present with a complex set of overlapping symptoms of emotional and physical complaints like unexplained pain ***(Namgwa et al., 2016).*** Long standing CLBP would result into many routine changes and may adversely affect the individual's state of mind ***(Hsu et al., 2017).***

Some researchers have studied the reverse connection, that is, patients with depression developing CLBP. One of such studies revealed that in adult males, 42% of patients who suffered primarily from depression developed CLBP, while 58% of patients had a reverse cycle of CLBP leading to depression ***(Robertson et al., 2017).***

Aim of the Work

The aim of this study is to detect if there is association between depression and functional disability in chronic low back pain patients.

Low Back Pain

Introduction:

Low back pain (LBP) is pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without sciatica, and is defined as chronic when it persists for 12 weeks or more. ***(Roger, 2011).***

Low back pain is the most frequent self-reported type of musculoskeletal pain. It is often recurrent, and has important socio-economic consequences. Estimates of the prevalence of LBP are as high as 33% for point prevalence, 65% for 1-year prevalence, and 84% for lifetime prevalence ***(Trompeter and Platen, 2017).*** It is an important health problem in both developed and developing countries ***(Quintana et al., 2016).*** There is no convincing evidence that age affects the prevalence of back pain ***(Savigny et al., 2009).***

LBP is not a disease but a symptom which can be localized between the twelfth rib and the inferior gluteal folds (low back), with or without leg pain from various causes ***(Stefane et al., 2013).***

BIOMECHANICS OF LUMBAR SPINE:

The spine has three defined mechanical functions; to support the trunk, to protect the spinal cord and nerve roots; and to allow motion of the trunk and head. The first two of these and the third can be viewed as conflicting and are probably the