بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Perioperative Risk Factors for Postoperative Delirium in Elderly Patients with Hip Fractures

Thesis

Submitted for partial fulfillment of master degree in
Geriatrics and Gerentology

By

Esraa Sobhy Afifi Mohamed
M.B.B.CH

Under supervision of

Prof. Manar Mostafa Adel Maamoun
Professor of Geriatrics & Gerontology
Faculty of Medicine, Ain Shams University

Dr. Walaa Wessam Aly
Assistant Professor of Geriatrics & Gerontology
Faculty of Medicine, Ain Shams University

Dr. Waleed Elsayed Abd Elaleem
Lecturer of Orthopedic
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
2021

سورة البقرة الآية: ٣٢

Acknowledgment

First and foremost, I feel always indebted to ALLAH, the Most Kind and Most Merciful.

I'd like to express my respectful thanks and profound gratitude to ***Prof. Manar Mostafa Adel Maamoun,*** *Professor of Geriatrics & Gerontology - Faculty of Medicine- Ain Shams University for her keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.*

I am also delighted to express my deepest gratitude and thanks to ***Dr. Walaa Wessam Aly,*** *Assistant Professor of Geriatrics & Gerontology, Faculty of Medicine, Ain Shams University, for her kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.*

I am deeply thankful to ***Dr. Waleed Elsayed Abd Elaleem,*** *Lecturer of Orthopedic, Faculty of Medicine, Ain Shams University, for his great help, active participation and guidance.*

I would like to express my hearty thanks to all my family for their support till this work was completed.

Last but not least my sincere thanks and appreciation to all patients participated in this study.

Esraa Sobhy Afifi Mohamed

List of Contents

List of Tables

List of Tables (Cont...)

List of Abbreviations

Abb.	Full term

Ach ..... *Acetylcholine*

ACIs ..... *Angiotensin converting enzyme inhibitors*

ADLs ..... *Activities of daily living*

AGS ..... *American Geriatrics Society*

ALT ..... *Alanine transaminase enzyme*

AST ..... *Aspartate transaminase enzyme*

BBB ..... *Blood brain barrier*

BMECs ..... *Brain microvascular endothelial cells*

CAM ..... *Confusion Assessment Method*

CBC ..... *Complete blood picture*

CCBs ..... *Calcium-channel blockers*

CKD ..... *Chronic kidney disease*

CNPI ..... *Checklist of Nonverbal Pain Indicators*

CoA ..... *Choline and acetyl coenzyme A*

COMT ..... *Cetechol-O-methyl transferase*

COPD ..... *Chronic obstructive lung disease*

CRP ..... *C-reactive protein*

DEAR ..... *Delirium Elderly at Risk*

DESCARD .. *Delirium screening in cardiac surgery*

DHS ..... *Dynamic hip screw*

DRS ..... *Delirium Rating Scale*

DSM-5 ..... *Diagnostic and Statistical Manual of Mental Disorders 5th edition*

EEG ..... *Electroencephalography*

List of Abbreviations (Cont...)

Abb.	Full term
GABA	*Gammaaminobutyric acid*
GABA	*Gamma-aminobutyric acid*
IADL	*Instrumental activities of daily living*
ICDSC	*Intensive Care Delirium Screening Checklist*
ICU	*Intensive care unit*
IHD	*Ischemic heart diseases*
IL	*Interleukin*
IQCODE	*Informant Questionnaireon Cognitive Decline in the Elderly*
K	*Potassium*
LPS	*Lipopolysaccharide*
MDAS	*Memorial delirium assessment scale*
MMSE	*Mini mental state examination*
Na	*Abnormal sodium*
NCSE	*Nonconvulsive status epilepticus*
NICE	*National Institute for Health and Clinical Excellence's*
Nu-DESC	*Nursing Delirium Screening Scale*
OHG	*Oral hypoglycemic*
PCA	*Patient controlled analgesia*
PHQ-2	*Patient Health Questionnaire-2*
POD	*Post-operative delirium*
SAA	*Serum anticholinergic activity*
SIRS	*Systemic inflammatory response syndrome*
TRP	*Tryptophan Precursor*
WHO	*World Health Organization*

INTRODUCTION

Hip fractures in the elderly are a major public health problem. They are associated with increasing morbidity and functional impairment leading to care dependency and nursing home admission.

There are 1.6 million hip fractures occur worldwide each year, this number may be triple or quadruple to reach between 4.5 and 6.3 million in 2050 ***(Kannus et al., 1996).***

Delirium is an acutely altered and fluctuating mental status with features of inattention and an altered level of consciousness & it is one of the most common postoperative complications in elderly patients ***(Morandi et al., 2008).***

The highest incidence (5%-45%) of postoperative delirium has been observed in patients with hip fracture repair ***(Galanakis et al., 2001).***

Postoperative delirium can persist for 6 months or longer in many individuals ***(McCusker et al., 2001).*** Delirium persisted in 39% of those who developed postoperative delirium at the time of hospital discharge ***(Marcantonio et al., 2000).***

Delirium assossiated with increase the hospital stay ***(González et al., 2009),*** functional decline of the patients

(Rudolph et al., 2010) and increases risk of dementia up to 10-fold ***(Witlox et al., 2010).***

Additionally, delirium is associated with more than doubled one-year medical costs ***(Leslie et al., 2008) (Bagri et al., 2008),*** also risk of postoperative complications increase, as risk of falls, pressure ulcers, urinary tract infection, respiratory difficulties, myocardial infarction, and atrial fibrillation ***(Greene et al., 2009) (Bagri et al., 2008).***

For this previous causes mortality rate increases by at least 10–20% for every 48 hours of delirium ***(Pisani et al., 2009) (Shehabi et al., 2010).***

There are preoperative, intraoperative & postoperative factors lead to develop postoperative delirium. Postoperative delirium is preventable by good assessment of this risk factors & multicomponent intervention ***(Innouye et al., 1999).***

Among the preoperative risk factors of delirium are: age above 70 years old, alcohol abuse, prefracture cognitive impairment, abnormal sodium, potassium & blood glucose level, preoperative use of narcotic analgesics & preoperative use of benzodiazepines ***(Litaker et al., 2001).***

Intraoperative risk factors including type of anesthesia ***(Sieber et al., 2010),*** duration of operation more than 3 hours ***(Guo et al., 2016),*** hemodynamic instability as tachycardia or

excessive blood loss ***(Marcantonio et al., 1998) (Leung & Dzankic, 2001).***

The postoperative risk factors including poorly controlled pain ***(Lynch et al., 1998),*** and the development of postoperative complications as (pneumonia, myocardial infarction & arrhythmias) ***(Rudolph &*** **Marcantonio** ***2011).***

Aim of the Work

To assess perioperative risk factors for postoperative delirium in elderly patient with hip fractures.