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

Prevalence of Frailty in Elderly Patients with Renal Diseases

Thesis

Submitted for Partial Fulfillment of Master Degree in Geriatrics and Gerontology

By

Eman Mahmoud Abdelhamid
M.B.B.CH

Under supervision of

Prof. Dr. Mohamed Shawky khater
Professor of Geriatrics and Gerontology
Faculty of Medicine, Ain Shams University

Dr. Salma Mohamed Samir El said.
Associate Professor of Geriatrics and Gerontology
Faculty of medicine, Ain Shams University

Dr. Suzan Mounir Ali Hassan
Lecturer of Geriatrics and Gerontology Department
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. Dr. Mohamed Shawky khater,*** *Professor of Geriatrics and Gerontology, Faculty of Medicine, Ain Shams University for his 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. Salma Mohamed Samir El said,*** *Associate Professor of Geriatrics and 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. Suzan Mounir Ali Hassan,*** *Lecturer of Geriatrics and Gerontology Department, for her great help, active participation and guidance. She gave me a kind hand and pushed me forward to complete this work.*

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.

Eman Mahmoud Abdelhamid

Dedication

I would like to thank ***Prof. Dr. Mutasim Salah Amer,*** *Professor of Geriatrics and Gerontology Department, who was the author of the idea of this research and who passed away before completing the work.*

List of Contents

Title	Page No.

List of Tables

Table No.	Title	Page No.

List of Tables (Cont...)

List of Figures

List of Abbreviations

Abb.	Full term
ADL	*Activities of daily living*
BDNF	*Brain-Derived Neurotrophic Factor*
BMI	*Body mass index*
BTRC	*Beta-transducin repeat containing*
CASP8	*Caspase 8*
CFS	*Clinical Frailty Scale*
CKD	*Chronic kidney disease*
CREBBP	*CREB-binding protein*
CVD	*Cardiovascular disease*
DM	*Diabetes mellitus*
EFS	*Edmonton Frail Scale*
ESKD	*End-stage kidney disease*
ESRD	*End stage renal disease*
FI	*Frailty index*
GDS	*Geriatric Depression Scale*
GDS-15	*Geriatric depression scale 15 items*
GFI	*Groningen Frailty Indicator*
GFR	*Glomerular filtration rate*
HD	*Hemodialysis*
HF	*Heart failure*
HIF-1alpha	*Hypoxia-inducible factor-1 alpha*
IADL	*Instrumental activities of daily living*
IGF-1	*Insulin-like growth factor-1*
IL-10	*Interleukin 10*
KAT2B	*k-lysine acetyltransferase 2B*
KDIGO	*Kidney disease improving global outcome*

List of Abbreviations (Cont...)

Abb.	Full term

MAF ..... *Multidimensional Assessment of Fatigue*
MMSE ..... *Mini Mental state examination*
MPS ..... *Muscle protein synthesis*
MTR ..... *Methyltransferase*
OA ..... *Osteoarthritis*
P53 ..... *Protein 53*
PA ..... *Physical activity*
SPPB ..... *Short physical performance battery*
TFI..... *Tilburg Frailty Indicator*
TNF-α ..... *Tumor necrosis factor-alpha*
TUG ..... *Timed Up and Go test*

INTRODUCTION

The population aged 65 years old and older is expected to be more than double between 2012 and 2060, from 43.1 million to 92 million ***(Aguirre and Villareal, 2015).***

The continuing increase in the older population has generated interest toward many age-related comorbidities e.g. cardiovascular diseases, osteoarthritis, osteoporosis, cancers, falls, Alzheimer's dementia and frailty ***(Aguirre and Villareal, 2015).***

Frailty can be defined as a clinical syndrome in which there is a state of dysregulation of energetics and multiple physiological systems when reaching a critical threshold, increase in an individual's vulnerability to developing negative health-related events (including disability, hospitalizations, institutionalizations, and death) ***(Fried et al., 2001; Clegg et al., 2013).***

Frailty is common in those with chronic kidney disease (CKD). The prevalence of frailty in the community-dwelling older adult population is reported to be 11%, whereas studies have reported a frailty prevalence of $>60\%$ in dialysis-dependent CKD patients ***(Bao et al., 2012; Collard et al., 2012).***

The prevalence of chronic kidney disease (CKD) is increasing world-wide and more so in the elderly persons. Among individuals 70 years of age or older, the prevalence of CKD increased from 38% in 1988 to 1994 to 47% in 1999 to

2004. This noted increase in the number of elderly patients with CKD has been associated with new challenges where CKD has become increasingly recognized as an important comorbid condition in elderly individuals leading to death, cardiovascular events, and hospitalizations ***(Johansen et al., 2013).***

Frailty is independently linked with adverse clinical outcomes in all stages of CKD and has been repeatedly shown to be associated with an increased risk of mortality and hospitalization ***(Bao et al., 2012; Johansen et al., 2007; McAdams-DeMarco et al., 2013).***

CKD is associated with a greater prevalence of both frailty and disability in the elderly population, with the prevalence of frailty and disability being 15 and 12%, respectively, in elderly with CKD, versus only 6 and 7% in the elderly with normal kidney function, respectively. Similarly, frailty was highly prevalent in patients with end-stage kidney disease (ESKD) on hemodialysis (HD) ***(Johanson et al., 2013).***