Prevalence of Mild Cognitive Impairment Among Elderly in Geriatric Homes in Cairo

Thesis

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List of Abbreviations

Abb.	Full term
Aβ	Amyloid-beta
ACTIVE	Advanced Cognitive Training for Independent and Vital Elderly
AD	Alzheimer disease
AD8	Eight-item Informant Interview to Differentiate Aging and Dementia
ADL	Activities of daily living scale
a-MCI	Amnestic mild cognitive impairment
ApoE	Apolipoprotein E
AWV	Annual Wellness Visit;
BMI	Body mass index
CDR	Clinical dementia rating scale
CES	Cranial electrical stimulation
CSF	Cerebral spinal fluid
CSF A Aβ42	Cerebrospinal fluid concentrations of A Aβ42
DHA	Docosahexaenoic acid
DLB	dementia with Lewy bodies
FDG	Fludeoxy-glucose
FTD	Frontotemporal dementia
GDS	Geriatric depression scale
GPCOG	General Practitioner Assessment of Cognition;
HIV	Human immunodeficiency virus
HRA	Health Risk Assessment;
IADL	Instrumental activities of daily living scale
IDEA Cognitive Screen	Identification and Intervention for Dementia in Elderly Africans Cognitive Screen
IDEA IADL:	Identification and Intervention for Dementia in Elderly Africans using Instrumental Activities of Daily Living questioner

List of Abbreviations(Cont.)

Abb.	Full term
MCI	Mild cognitive impairment
MIS	Memory Impairment Screen;
MMSE	Mini Mental State Examination
MNA	Mini Nutritional Assessment
MoCA	Montreal Cognitive Assessment
MRI	Magnetic Resonance Imaging
na-MCI	Non-amnestic mild cognitive impairment
NCD	Neurocognitive disorder
NIA-AA	National Institute on Aging and the Alzheimer's Association
NPH	Normal pressure hydrocephalus
PET	Positron emission tomography
RCTs	Randomized clinical trials
SD	Standard deviations
Short IQCODE	Short Informant Questionnaire on Cognitive Decline in the Elderly
SLUMS	St. Louis University Mental Status Exam
SNAP	Suspected non-AD pathophysiology
TMS	Transcranial magnetic stimulation

Abstract

The results of our study showed that the prevalence of Mild Cognitive Impairment using MMSE is 17.3%, MOCA is 24.9%, and IDEA Cognitive Screen is 23.6%.

Using three different cognitive screen tests to detect MCI, these tests are MMSE, MOCA and IDEA cognitive screen test. In this study, there is positive correlation between 3 tests and P-value equals 0.000.

With regard to demographic characteristics, the most significant factor that is associated with MCI in the current study is advanced age but not sex and poor educational status.

Regarding the association between MCI and nutritional status, MCI is significantly higher among those with risk of malnutrition and malnourished when compared to those with well nutritional status using different screening tests.

Keywords: Montreal Cognitive Assessment- Magnetic Resonance Imaging- Neurocognitive disorder- Randomized clinical trials- Standard deviations- Transcranial magnetic stimulation

INTRODUCTION

The prevalence of age related health problems is becoming an important public health concern as the proportion of older individuals groups in population worldwide grow *(World Health Organization, 2008).*

With the substantial aging of global population, the number of people with dementia will likely increase Alzheimer's disease International estimated the prevalence of dementia worldwide after conducting an evidence-based Delphi consensus study. The Delphi study indicated that there were 24.3 million people with dementia in the world in 2001.the number of people with dementia is expected to increase to 42.3 million by 2020 and to 81.1 million by 2040 *(Ferri et al., 2005).*

Mild cognitive impairment (MCI, also known as incipient dementia, or isolated memory impairment) is a brain function syndrome involving the onset and evolution of cognitive impairments beyond those expected based on the age education of the individual, but which are not significant enough to interfere with their daily activities *(Petersen et al., 1999).*

Mild cognitive impairment is an intermediate stage between normal cognitive function and dementia among aging individuals. MCI can present with variety of symptom *(Petersen et al., 1999).*

People with MCI appear to have a significantly high risk of dementia. It is reported that 10-15%, 60.5% and 100% of MCI patients will develop full dementia within I year, 5 years and 9.5 years respectively after initial diagnosis with MCI *(Morris et al., 2001).*

Subjects with mild cognitive impairment constitute a risk of developing disabilities increase health care cost and progression to dementia. Cognitive impairment is costly. In 2009 Alzheimer disease (AD) and related dementia alone were estimated to be the third most expensive disease to treat in United State *(Alzheimer's Association, 2009).*

Because of the development of therapies with disease modifying proprieties, the identification of patients in the preclinical stages of AD is of utmost importance, as these interventions will be more effective if started at such stage when the pathological changes are not so far advanced *(Stephan et al., 2008).*

Many population based studies suggest that the prevalence of MCI can be more than double that of dementia *(Morris et al., 2001).*

The prevalence of MCI in the general elderly population (older than 65) was between 3.1and 19%in the United States and Europe *(Ritchie et al., 2004).*

A systematic analysis of 22 studies in china described a pooled prevalence of MCI of 12.7%among older individuals *(Nie et al., 2011).*

In one study in nursing homes cognitive impairment (MMSE less than 24) was found in 71% of the patients, Mild cognitive impairment (MMSE= 26-24) in 16.5% *(Kowalska et al., 2013).*

In Egypt the prevalence of MCI is between 34.2 and 44.3% of elderly men and women respectively *(Rahman et al., 2009).*

In the light of the continuing rise in the population of elderly persons in Egypt and the impact of impaired cognitive function on quality of life, accurate and effective early recognition of mild cognitive impairment (MCI) is desirable *(Khder et al., 2014).*

THE AIM OF STUDY

The aim of the study is to determine the prevalence of Mild Cognitive Impairment among elderly in geriatric homes in Cairo.

Chapter One

NORMAL PHYSIOLOGICAL CHANGES IN COGNITION WITH AGING

Age-related changes in cognitive function vary extensively across individuals and across different cognitive domains, yet some cognitive functions appear more susceptible to the effects of aging. However, much of the researches about cognitive aging have focused on memory and attention, and indeed it might be that deficits in these basic processes could account for much of the difference observed in higher-level cognitive processes *(Glisky, 2007).*

Moreover, cognitive change as age-related changes has been documented in the scientific researches. Some cognitive abilities, for example vocabulary, are resilient to aging of brain and might even enhance with age, while other abilities, for example memory, processing speed, and conceptual reasoning, decline gradually over time *(Harada et al., 2013).*

Concepts of both crystallized and fluid intelligence are used to describe patterns of age-related changes in cognitive function *(Harada et al., 2013)*

Crystallized intelligence refers to knowledge, ability, and skills that is overlearned, familiar and well-practiced *(Lezak et al., 2012).* General knowledge and Vocabulary are also examples of crystallized abilities. Moreover, crystallized