Study of Cognitive and Executive functions and their Relation with conronaryRisk Factors, Chlamydia Pneumoniae Infection and Acute Inflammatory Factors and Carotid Blood Flow among Elderly Diabetics

Thesis
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By
Amira Gamil Mahmoud El-Taliawi
M.B,B.ch,M.Sc Geriatrics.

Supervised By

Professor Moatassem Salah Amer
Professor of Geriatrics and Internal Medicine, Faculty of Medicine
Ain Shams University

Professor Abdel Sattar Elsayed Eldieb
Professor of Internal Medicine and Endocrinology
Faculty of Medicine
Ain Shams University

Professor Omar Hussein Omar
Professor of Radiodiagnosis, Faculty of Medicine
Ain Shams University

Professor Randa Abdel Wahab Reda Mabrouk
Professor of Clinical Pathologh, Faculty of Medicine
Ain Shams University

Dr.Sarah Ahmed Hamza
Assistant professor of Geriatrics, Faculty of Medicine
Ain Shams University

Faculty of Medicine
Ain Shams University
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مقدمة من

أميرة جميل محمود الطلياوى

بكالوريوس الطب والجراحة – ماجستير طب وصحة المسنين جامعة عين شمس

تحت اشراف

الأستاذ الدكتور/ معتصم صلاح عامر

أستاذ طب وصحة المسنين والباطنة العامة

كلية الطب - جامعة عين شمس

الأستاذ الدكتور/ عبد الستار السيد الديب

أستاذ الباطنة العامة والغدد الصماء

كلية الطب- جامعة عين شمس

الأستاذ الدكتور / عمر حسين عمر

أستاذ الأشعة التشخيصية

كلية الطب- جامعة عين شمس

الأستاذ الدكتور/ راندة رضا عبد الوهاب مبروك

أستاذ الباثولوجية الكلينيكية

كلية الطب – جامعة عين شمس

دكتور / سارة أحمد حمزة

أستاذ مساعد طب وصحة المسنين

كلية طب – جامعة عين شمس

كلية الطب جامعة عين شمس

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ACEI= Angiotensin converting enzyme inhibitor
AD = Alzheimer's Disease
ADA = American Diabetes Association
ADL = Activities of Daily Living
ANOVA = Analysis of Variance
BMI = Body Mass Index
C. pneumonia = Chlamydia pneumonia
CABG = Coronary artery bypass graft
CRP = C-reactive protein
CVD = Cardiovascular disease
EB =
ECG =Electrocardiography

ELISA = Enzyme linked immunosorbant assay
HbA1c = Hemoglobin A1C
HDL= High density lipoprotein
IgA = Immunoglobulin A
IgG = Immunoglobulin G
IADL = Instrumental Activities of Daily Living
IL-1β = Interleukin-1β
IL-6 = Interleukin-6
IMT = Intimal media thickness
LDL = Low density lipoprotein
M = Mean
MMSE = Mini-mental Status Examination
MS = Multiple Sclerosis
NSAIDs = Non steroidal anti-inflammatory drug
OGTT = Oral glucose tolerance test
PCR =Polymerase chain reaction
SD = Standard deviation
SPECT=
TG = Triglycerides
TNF-α = Tumor Necrosis Factor-α
UFOV = Useful Field of Vision
VaD = Vascular Dementia
VLDL = very low density lipoprotein
WAIS-R = Wechsler Adult Intelligence Scale-Revised

Aim of the Work

The aim of this study is to assess the problem of cognitive impairment and executive dysfunction among the diabetic elderly in Ain Shams university hospitals and assessing their relation with Chlamydia pneumoniae infection, level of serum acute inflammatory factors IL-IB and CRP and carotid blood flow.

Introduction

In patients with diabetes, cognitive dysfunction is characterized by a slowing of mental speed and a diminished mental flexibility, whereas learning and memory are spared. The magnitude of the cognitive deficits is mild to moderate, but even mild forms of cognitive dysfunction might hamper everyday activities since they can be expected to present problems in more demanding situations **(Brands et al., 2005).**

Results indicate that the combination of several independent vascular risk factors predicts performance on cognitive tests of information processing capacity and speed in a population-based sample of middle-aged and elderly men. **(Aleman et al., 2005)**

The combination of cardiovascular disease and a pro-inflammatory cytokine response may be associated with cognitive impairment and dementia **(Van Exel E et al., 2003).**

Direct effects of microbial infection on vascular wall cells might include cell lysis, transformation, lipid accumulation, proinflammatory changes, and augmentation of procoagulant activity. Indirect systemic effects may involve induction of acute-phase proteins, establishment of a prothrombotic state, hemodynamic stress caused by tachycardia, increased cardiac output, or a regional inflammatory activation in response to systemic endotoxemia and cytokinemia. **(Kol and Libby, 1998).**

Chlamydia pneumoniae is an intracellular pathogen and an important cause of respiratory tract infections in humans and more recently it has been associated with chronic diseases such as atherosclerosis. Numerous studies have been performed to show the "infectious" hypothesis of atherosclerosis by direct detection of the organisms within atheromatous plaques by seroepidemiological estimation and by animal, immunological and antibiotic interventional studies**.** **(Romano Carratelli et al., 2005)**

The relation between Chlamydia pneumoniae infection and asymptomatic carotid atherosclerosis was examined and results showed that the detection of C. pneumoniae seems to be a first-choice method to identify the patients at risk for endovascular chlamydial infection. **(Sessa et al., 2006)**

The results suggested that carotid atherosclerosis, atherogenic lipoproteins, and C. pneumoniae infection as documented by the IgG and IgA seropositivity may be vascular dementia risk factors**.(Yamamoto et al.,2005)**

Results of studies suggested that cardiovascular risk factors are important predictors of cognitive function among older African Americans **(Izquierdo-Porrera and Waldstein, 2002).**

Diabetes Mellitus in the Elderly

Diabetes is common in the elderly population. By the age of 75, approximately 20% of the population is afflicted with this illness. Diabetes in elderly adults is metabolically distinct from diabetes in younger patient populations, and the approach to therapy needs to be different in this age group **(Meneilly and Tessier, 2001).**

The underlying defect that causes type II diabetes is insulin resistance. Factors that lead to worsening insulin resistance include aging, gaining weight and being sedentary. Since the population is aging, it is not surprising that the elderly increasingly comprise a larger proportion of patients with newly diagnosed diabetes **(Chau et al., 2005).**

With age, there is an increased prevalence of functional disability and co-morbid illness that contributes to the complexity of managing diabetes. Treatment of the older patient with diabetes must take into consideration not only the standard microvascular and macrovascular complications, but also conditions such as cognitive impairment, falls and impaired function **(Chau et al., 2005).**

Many age-related changes can alter the clinical presentation of diabetes and make its diagnosis problematic. Typical symptoms of