Correlation Between Psychiatric Morbidity And Single Photon Emission Computed Tomography Findings In Juvenile Rheumatoid Arthritis.

Thesis

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العلاقة بين الا ضطراب النفسى و التغيرات فى الاشعة المقطعية احادية الفوتون على المخ فى مرض التهاب المفاصل المعروف بروماتويد الصغار.

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Contents.

List of Abbreviations

ACA = Anti Centromere Antibody.

ACR = American College of Rheumatology.

ACTH = Adrenocorticotrophic Hormone.

ALL = Acute Lymphoblastic Leukaemia.

APF = Anti Perinuclear Factor.

AS = Ankylosing Spondylitis.

ASPs = American Affected Sib Pairs.

C2 = Type 2 Collagen.

CBC = Complete Blood Count.

CFS = Chronic Fatigue Syndrome.

CNS = Central Nervous System.

CRH = Corticosteroid Releasing Hormone.

CRP = C Reactive Protein.

CRT = Cathode Ray Tube.

CT = Computed Tomography.

ECS = Expected Correct Score.

EEG = Electroencephalogram.

ESR = Erythrocyte Sedimentation Rate.

ELAR = European League Against Rheumatism

EES = Expected Error Score

GHQ = General Health Questionnaire.

Gm- CSF = Granulocyte Colony Stimulating Factor.

GR = Growth Retardation.

HLA = Human Leucocytic Antigen.

HMPAO = Hexa Methyle Propylene Amine Oxime.

HPA axis = Hypothalamic Pituitary Adrenal axis.

HPG axes = Hypothalamic Pituitary Gonadal axes.

HSM = Hepatosplenomegaly.

IBD = Inflammatory Bowel Disease.

IQ = Intelligence Quotient.

IL = Interleukin.

ILAR = International League Against Rheumatism.

INF = Interferon.

IV = Intravenous.

JCA = Juvenile Chronic Arthritis.

JIA = Juvenile Idiopathic Arthritis.

JRA = Juvenile Rheumatoid Arthritis.

MAS = Macrophage Activation Syndrome.

mCi = milli Curi.

MIS = Macrophage Idiopathic Syndrome.

MIF = Migration Inhibitory Factor.

MRA = Magnetic Resonance Angiography.

MRI = Magnetic Resonance Imaging.

NSAIDs = Non Steroidal Anti Inflammatory Drugs.

OCS = Obtained Correct Score.

OES = Obtained Error Score.

PIQ = Performance Intelligence Quotient.

PET = Positron Emission Tomography.

PMTs = Photo Multiplier Tubes.

PHA = Pulse Height Analyzer.

QEEG = Quantified Electroencephalogram.

RA = Rheumatoid Arthritis.

RBPC = Revised Behavioral Problem Checklist.

r CBF = regional Cerebral Blood Flow.

RF = Rheumatoid Factor.

ROI = Region of Interest.

RR = Relative Risk.

SJIA = Systemic Juvenile Idiopathic Arthritis.

So JIA = Systemic onset Juvenile Idiopathic Arthritis.

SJRA = Systemic Juvenile Rheumatoid Arthritis.

So JRA = Systemic onset Juvenile Rheumatoid Arthritis.

SLE = Systemic Lupus Erythematosis.

SPECT = Single Photon Emission Computed Tomography.

SSR = Sleep Self Report.

TH1 = T Helper 1.

TIQ = Total Intelligence Quotient.

TMJ = Tempro Mandibular Joint.

TNF = Tumor Necrosis Factor.

VIQ = Verbal Intelligence Quotient.

WIS = Whechsler Intelligence Scale.

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Introduction

Juvenile Rheumatoid Arthritis (JRA) is one of the most common rheumatic diseases of children and a major cause of chronic physical disability. It is characterized by an idiopathic synovitis of the joints associated with soft tissue swelling and effusion **(Miller and Cassidy, 2004).**The American College of Rheumatology criteria classify it as a category of diseases with three principle types of onset (1)Oligoarthritis (2)Polyarthritis – and (3) Systemic onset disease **(Miller and Cassidy, 2000).**

Juvenile Idiopathic Arthritis (JIA) arises before 16 years of age and lasts for more than 6 months. A serious problem in juvenile idiopathic arthritis is skeletal growth retardation , osteopenia and greater risk of developing fractures **(Quarta et al., 2005)**.The damage to the cartilaginous tissue is often irreversible and responsible for much of the morbidity **(Mine et al.,2006)**.

Systemic onset disease is characterized by presence of fever, faint erythematous macular rash, visceral involvement including hepatosplenomegaly ,lymphadenopathy and serositis such as pericardial effusion **(Miller and Cassidy , 2000)**.

Although systemic onset (JRA) accounts for only about 20% of most reported series, children with systemic onset (JRA) are often the most difficult to treat. Many children have marked physical and emotional disability as a result of both disease and treatment – related morbidities **(Adams and Lehaman, 2005)**.

Juvenile rheumatic diseases have important impacts on health, on patient's body functions and structures , activities , and social participation **(Minden., 2006)**. Juvenile rheumatoid arthritis is a chronic painful disorder with adverse psychological sequalae that might influence the outcome of the disease and its treatment **(Mullick et al., 2005)**.Children with chronic illness have increased rates of mental health problems and psychological difficulties **(Glazebrook et al., 2003)**. Psychological factors may play a more active role in debilitating pediatric patients with JRA **(Carter et al., 1999).**

The long duration of illness is associated with higher proportion of cases with psychiatric disorders, the diagnoses in decreasing order were depression disorder15%, somatoform disorder 12.5%, adjustment disorder 5% and mixed anxiety and depression disorder 2.5% **(Mullick et al., 2005)**.The strongest predictors of depression were high tension and low self esteem, fatigue, passive coping, pain, and physical disability **(Covic et al., 2006)**.Sleep abnormalities are common in children

with JRA including night awaking, parasomnias, sleep anxiety, sleep disordered breathing and morning waking / daytime sleepiness **(Bloom et al ., 2002)**.

Bartolini et al (2002) detected in 38% of patients with JRA some difficulties in mental flexibility. These poor performances are related to hypo perfusion of the frontal and parietal lobes as detected by brain Single Photon Emission Computed Tomography (SPECT), while **Pedersen et al (1998)** stated that in an adolescent with JRA, there was vasculitis of the anterior and middle cerebral arteries evident in Magnetic Resonance Angiography (MRA).

Hypothesis

This study hypothesizes that there is psychiatric morbidity in JRA This psychiatric morbidity is accompanied with SPECT changes.

Aim of the study

This study is aimed at:

1) Detection of psychiatric morbidity in children and adolescents with JRA

2) Correlation between psychiatric morbidity and duration of illness.

3)Detection of cognitive dysfunction in children and adolescents with JRA..

4) Correlation of psychiatric morbidity to SPECT findings.

Chapter 1

Juvenile Rheumatoid Arthritis

Juvenile rheumatoid arthritis (JRA) is one of the most common rheumatic diseases of children and a major cause of chronic physical disability. It is characterized by an idiopathic synovitis of the peripheral joints, associated with soft tissue swelling and effusion **(Miller and Cassidy, 2004)**. It is also called juvenile chronic arthritis (JCA) or juvenile idiopathic arthritis (JIA) **(Patel and Goldstein, 2003)**.

Epidemiology:-

Incidence and Prevalence:-

Early epidemiologic studies showed that the prevalence ranged from 0.16 to 1.10\1000 and the incidence ranged from 0 to 9.2 \100,1000 **(Schneider and Passo, 2002).** Epidemiological incidence in Egypt in1994 provided an incidence of 9.3 cases per 100,1000 per year (yr) **(El -Gamal, 1996).** In another study**, El-Gamal et al., 1999** reported that the incidence of JRA in relation to outpatient clinic in Children' s Hospital of Ain Shams University during the year 1994 was 9.8\100.000.

Oligoarthritis represents the most common onset type of juvenile idiopathic arthritis (JIA) in both Europe and North America accounting for 50 to 75 % of all cases with a meta – analysis producing an overall 58 % estimate within population based studies **(Borchers et al., 2006)**.

Interestingly, in Northern Europe,66%of cases were oligoarticular onset type of JIA when the European League Against Rheumatism (EULAR) criteria were used. This figure decreasedto46%when International League Against Rheumatism (ILAR**)** criteria were used (**Berntson et al., 2003)**. Of note between 20 and 30 % of patients with oligoarticular onset of JIAdevelop a polyarticular disease course **(Fantini et al., 2003).**

Age of Onset and Sex Distribution :-

The average age of onset is 6 yrs with peaks between 1 and 6 yrs, and another peak between 9 and 14 yrs .Girls are affected more frequently than boys **(Glueck and Gollman, 2005)**.