شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه 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

بعض الوثائق الأصلية تالفة

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

Department of Medical Studies for Children *Faculty of postgraduate childhood Studies*

THE EFFECT OF MEDICATION, MEDICAL SUPPLEMENTS ON BONE MINERAL DENSITY IN AUTISM SPECTRUM DISORDER *(ASD)* CHILDREN

A Thesis Statement

Submitted for Fulfillment of Master Degree in Childhood Studies
(Children with Special Needs)
Department of Medical Studies for Children

By

Nivin Abd El Moneim Mohamed Naguib
MB.B.CH

Supervised By

Prof. Dr./Randa Mohamed Kamal
Professor of Pediatrics
Department of Medical Studies for Children
Faculty of postgraduate childhood Studies
Ain Shams University

Dr./Manal M. Mahdi Omar
Lecturer of child Psychiatry
Department of Medical Studies for Children
Faculty of postgraduate childhood Studies
Ain Shams University

2020

Acknowledgement

First and foremost, thanks to “GOD” who is most beneficial and most merciful.

It is a great pleasure to express my profound gratitude and deep thanks to **Dr. Randa Mohamed Kamal**, professor of pediatrics Medical Studies Department, Faculty of postgraduate childhood Studies, Ain Shams University for keen supervision, generous cooperation, great help and unfailing tenderadvice tofinish thisstudy.

I wish to express my gratitude to **Dr. Manal M. Mahdi Omar**, Lecturer of Psychiatry Medical Studies Department, Faculty of postgraduate childhood Studies, Ain Shams University for her great concern, valuable guidance, sincere effort, continuous encouragement and everlasting support.

I would like to express my sincere thanks to **Dr. Salah Mostafa,** Prof. ofPreventive Medicine, Epidemiology,andMedical StatisticsFacultyofPostgraduate Childhood Studies, Ain-Shams University, who kindly offered me much of his time, experience, valuable help and effort.

Certainly, I am indebted to the volunteers who accepted to be a part of this study. I sincerely hope that this work would be of benefit for them

I would like to thank my precious family for tremendous support. I’m indebted to them for their constant support and tolerance to accomplish this work.

Nivin Abd El Moneim Mohamed Naguib

Contents

List of Tables

List of Figures

Abbreviations

IQ = Intelligence Quotient

BMD = Bone mineral Density

CARS = Childhood Autism Rating Scale

SD = Standard Deviation

AP = Antipsychotic

TAP = Typical Antipsychotic

AAP = Atypical Antipsychotic

DEXA = Dual Energy X-Ray Absorptiometry

ASD = Autism Spectrum Disorder

GIT = Gastrointestinal tract

NAS = National Autism Society

BMI = Body Mass Index

RNI = Reference Nutrient Intake

EAR = Estimated Average Requirement

RDA = Recommended Daily Allowance

DRI = Dietary Reference Intake

NSC = National Research Center

CEBI = Children's Eating Behavior Inventory

FPI = Food Preferences Inventory

DBD = Disruptive Behavior Disorder

BCT = Bone Cortical Thickness

Abstract

Background: Autism Spectrum Disorder ***(ASD)*** is a complex neurodevelopmental disorder, characterized by impaired social interaction, verbal and nonverbal communications, and restricted/repetitive interests/behaviors, the presentation and severity of symptoms of ASD are different in each person.

Children with ASD may be at risk for suboptimal bone development due to poor calcium and vitamin D intake, use of antipsychotic medications, and decrease or limited physical activities.

Objectives:to investigate the effect of antipsychotic medications, and medical supplements on bone mineral density of ASD children.

Methodology:the present study is a cross-sectional study that was conducted on 36 children with ASD ***(31 boys and 5 girls)*** aging between 3 – 9 years old. They were chosen from the neuropsychological assessment unit of the special need center in the faculty of postgraduate childhood studies, Ain Shams University. The study was conducted from the 1st of October 2018 till the 15th of April 2019.

The children were divided into four groups:

Group I: 12 Autistic children on antipsychotic medications and on medical supplements.

Group II:8 Autistic children on antipsychotic medications and with no medical supplements.

Group III: 9 Autistic children with no antipsychotic medications and on medical supplements.

Group IV: 7 Autistic children with no antipsychotic medications and no medical supplements.

All children were subjected to medical and psychiatric history taking, psychiatric examinations and assessment using

Childhood Autism Rating Scale ***(CARS)*** and Dual Energy X-ray Absorptiometry ***(DEXA)*** scanning.

Results: From the results of the DEXA of whole body of autistic children, it has been concluded that 75% ***(9children out of 12)*** of Group I, 62.5% ***(5 children out of 8)*** of Group II, 77.8% ***(7 children out of 9)*** of Group III and 71.4% ***(5 children out of 7)*** of Group IV, had osteopenia versus 25% of Group I, 37.5% of Group II, 22.2% of group III and 28.6% of Group IV respectively had normal bone mineral density. The DEXA scan results of lumbar spine revealed that 66.7% ***(8 children out of 12)*** of Group I, 100% ***(8 children out of 8)*** of Group II, 88.9% ***(8 children out of 9)*** of Group III, and 71.4% ***(5 children out of 7)*** of Group IV had osteopenia, versus 33.3% of Group I, 0 % of Group II, 11.1% of Group III and 28.8% of Group IV respectively had normal bone mineral density. And lastly the DEXA scan of hip revealed that 54.4% ***(6 children out of 11)*** of Group I, 57.1% ***(4 children out of 7)*** of Group II, 57.1% ***(4 children out of 7)*** of Group III and 66.7% ***(4 children out of 6)*** of Group IV had osteopenia versus 45.5 % of Group I, 42.9 % of Group II, 42.9 % of Group III and 33.3% of Group IV respectively had normal bone mineral density with no significant difference between the four study groups.

Conclusions: Antipsychotic medications and medical supplements affects bone mineral density causing osteopenia in the majority of cases receiving those medications.

Keywords: Autism Spectrum Disorder, Bone mineral density, Osteopenia, Antipsychotic medications, medical supplements.