



Omega- ω Fatty Acids versus Risperidone in Treatment of Children with Pervasive Developmental Disorders

Thesis

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Abbreviations:

AA: arachidonic acid.

AAC: augmentative and alternative communication

AAP: American Academy of Pediatrics.

ABA : Applied behavior analysis

ABC: Aberrant Behavior Checklist

ABC: Autism Behavior Checklist

ABLIS : Assessment of Basic Language and Learning Skills

Abn: abnormal.

ABR/BSER: Auditory brainstem response/brain stem evoked response

AD: autistic disorder.

ADD: attention deficit disorder

ADHD: attention- deficit /hyperactivity disorder.

ADI-R: Autism Diagnostic Interview-Revised

ADOS: Autism Diagnostic Observation Schedule

ALA: alpha- linoleinic acid.

ARI : Autism Research Institute

AS: Asperger syndrome.

ASD: Autism spectrum disorders or Autism disorders.

ASIEP-3: Autism Screening Instrument for Educational Planning(Third Edition)

ATEC: Autism Treatment Evaluation Checklist

BAP: broader autism phenotype.

BD: bipolar disorder.

Bl Pr: Blood pressure.

BPD: borderline personality disorder.

CAM : complementary and alternative medicine
CARS : Childhood Autism Rating Scale
Case no: case number.
CAST: childhood Asperger syndrome test.
CDC: Centers for disease control.
CDD: childhood disintegrative disorder.
CDKL^o: cyclin- dependent kinase – like ^o.
CGAS : Children's Global Assessment Scale
CGI: Clinical Global Impression
CGI-I : Clinical Global Impression–Improvement scale
CHARGE study: childhood Autism Risk from Genetics and the environment study.
CHAT : checklist for autism in toddlers.
CNS: central nervous system.
CNVS: copy number variation.
CPRS : Children's Psychiatric Rating Scale
CRS-R: Conner's Rating Scales Revised
CSF: cerebro spinal fluid.
CT: computerized tomography.
CY-BOCS : Children’s Yale-Brown Obsessive Compulsive Scale
DA : dopamine receptor antagonists
DAN: Defeat Autism Now
DAT: dolphin-assisted therapy
DCD: developmental coordination disorder.
DGLA: dihomogammalinolenic acids .

DHA: docosahexaenoic acid.

DIR: Greenspan and Wieder's developmental, individual-difference, relationship-based model

DMG: Dimethylglycine

DPT: diphtheria-tetanus-pertussis.

DSM: Diagnostic and statistical Manual of Mental Disorders.

DSM-III: Diagnostic and Statistical Manual third Edition.

DSM-IV: Diagnostic and Statistical Manual fourth Edition.

DT: diphtheria-tetanus.

DTT: discrete trial teaching

ECG: electro-cardiogram.

ECT: Electroconvulsive therapy

EEG: electroencephalography (electroencephalogram).

E-EPA: ethyle ester of EPA.

EFAS: essential fatty acids.

EPA: eicosapentaeoic acid.

EPS : extrapyramidal symptoms

FDA : US Food and Drug Administration

FDA: food and Drug Approval.

FISH: fluorescence in situ hybridization.

FSA: food standard agency.

GARS: Gilliam Autism Rating Scale

GDD: global developmental delay.

GI: gastrointestinal symptoms.

GI: gastrointestinaltract.

GLA: gamma linolenic acids.
HB: hemoglobin concentration.
HBOT: Hyperbaric oxygen therapy
HDL: high density lipoprotein.
HFA: high functioning autism.
HT- ρ : ρ -hydroxytryptamine
HUFAS: high unsaturated fatty acids.
IBD: inflammatory bowel disease.
IgA: immunoglobulin A
IgE: immunoglobulin E
IgG: immunoglobulin G
IgG: immunoglobulin G
IL- γ : interleukin γ .
IQ: Intelligence Quotient
IVIG: intra-venous immunoglobulins
JA: joint attention.
LA: linoleinic acid.
LBW: low birth weight.
LCPUFAS: long chain polyunsaturated fatty acids.
LDL: low density lipoprotein.
LFA: low functioning autism.
LT ξ : series ξ leukotrienes.
LT ρ : series ρ leukotrienes.
LTS: leukotrienes.
Max: maximum.

MCDD: Multiple complex developmental disorder.

M-CHAT: Modified checklist for Autism in toddlers.

MDD: major depressive disorder.

MDI: mental developmental index

MDI: Multi-Dimensionally Impaired disorder.

MECP γ : methyl-CPG- binding protein- γ .

MFA: medium functioning autism.

MI: myocardial infarction.

Min: minimum.

MMR: measles- mumps- rubella vaccine.

MNS: mirror neuron system.

MR: mental retardation.

MRI: magnetic resonant image.

MSAIDS: non steroidal anti-inflammatory drugs.

MSM: methylsulfonylmethane

MUFAS: monounsaturated fatty acids.

MZ: monozygotic twin.

NIMH: National Institute of mental Health.

Nor: normal.

NVLD: non verbal learning disorder

OCD: Obsessive Compulsive disorder

OTs : occupational therapist

PANSS: positive and negative syndrome scale.

PCP: primary care pediatrician.

PCV: hematocrite value.

PDD: pervasive developmental disorder.

PDD-NOS: pervasive developmental disorders not otherwise specified.

PEBM: parent education and behavior management program

PECS: Picture Exchange Communication System

PG ν : series ν prostaglandins.

PG ν : series ν prostaglandin.

PGS: prostaglandins.

PLA ν : platelet activating.

PRT: Pivotal response therapy or treatment

PSC: Pediatric Symptom Checklist

PUFAS: polyunsaturated fatty acids.

RA: rheumatoid arthritis.

RBC : Rossago Behavioral Checklist

RBC: red blood cell count.

RCT: randomized controlled trial

R-F RLRS: Ritvo-Freeman Real Life Rating Scale R-F RLRS

RS: Rett syndrome.

S-B IV: Stanford-Binet Intelligence Test Fourth Edition

SD: standard deviation.

SI: Sensory integration

SIB : self-injurious behavior

SLP ; speech-language pathologist.

SPD: schizotypal personality disorder.

SPD: semantic- pragmatic disorder.

SPS: semantic- pragmatic syndrome.

SSRI : selective serotonin reuptake inhibitors

TCVs: thiomersal containing vaccines.

TD: tardive dyskinesia

TEACCH: Treatment and education of autistic and related communication handicapped children

TG: triglycerides.

TLC: Test of Language Competence

TLC: total leucocytic count.

TMF- α : tumor necrosis factor.

TOLD- γ : Test of Language Development-- γ Intermediate

TOLD- γ : Test of Language Development-- γ Primary

TX: thromboxane.

VLDL: very low density lipoprotein.

VLN- γ FA: very long chain n- γ fatty acids.

WAIS-R : Weschler Adult Intelligence Scale

WISC-III : Weschler Intelligence Scale for Children-Third Edition

WISC-R : Weschler Intelligence Scale for Children-Revised

WPPSI : Weschler Preschool and Primary Scale of Intelligence

ZU: zinc.

Introduction

The pervasive developmental disorders (PDD) are a group of neuropsychiatric disorders that include autistic disorder, Asperger's disorder, childhood disintegrative disorder, Rett's disorder, and PDD not otherwise specified. (**American Psychiatric Association, 1994**) These disorders are characterized by atypical development in social, communicative, and behavior areas. Onset typically occurs within the first years of life.

Most recent reviews tend to estimate a prevalence of 1-2 per 1000 for autism and close to 6 per 1000 for ASD (**Newschaffer, 2007**) Although commonly associated with mental retardation, the developmental and behavioral features of PDD are distinct and do not simply reflect developmental level. (**Volkmar et al, 2005**)

PDD are characterized by severe and pervasive deficits in several areas of development. These include reciprocal social interaction skills; communication skills; or the presence of stereotyped behavior, interests, and activities. Children with PDD may present with difficult behaviors including hyperactivity, inattention, impulsivity, stereotypies, screaming, children with autism frequently have serious behavioral disturbances, such as self-injurious behavior, aggression, and tantrums in response to routine environmental demands. (**American Psychiatric Association, 1994**)

Risperidone is an antagonist of both dopamine (D₂) and serotonin (5-HT_{2A} and others) receptors (**Janssen, 2011**). A number of open-label trials were undertaken to investigate the use of risperidone in children