شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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Electrophysiological Changes in Patient with Pediatric Mental Disorders

Thesis

Submitted for Partial Fulfillment of the Master Degree in Pediatrics

By

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Mahmoud Yousry Ali

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INTRODUCTION

A mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological and developmental process underlying mental functioning. Mental disorders are usually associated with significant distress in social, occupational, or other important activities ***(DSM5, 2013).***

In general, mental health problems in childhood refer to the broad range of emotional, behavioral, and mental disorders that can affect children ***(Foy, 2010).***

Second hand smoke (SHS) might affect mental health of children as many mental disorders have an onset in youth, a time when SHS exposure is high, this correlation was proved by a study done on 45 Egyptian children exposed to SHS and 30 control group, showed that Mean values of attention deficit hyperactivity disorder (ADHD), internalization, and externalization behaviors' sub-scores of PSC were significantly higher in SHS children compared to control ***(Zaky et al., 2015),*** That correlation was further discussed by prof ***Zaky in 2015.***

According to the WHO`s global statistics, prevalence of disabling mental illnesses among children and adolescents attending urban health centers ranges between 20-30% and 13-18% in rural areas ***(Rahman and Hussain, 2001).*** Research

indicates that up to one in five children worldwide experience mental health problems ***(Kieling et al., 2011).***

Attention deficit hyperactivity disorder is a neurodevelopmental disorder characterized by behaviors relating to hyperactivity, impulsivity, and inattention that interfere with a child's ability to function in daily life ***(DSM5, 2013).*** Prevalence estimates of ADHD range from approximately 5% to 8% of children and adolescents, making it the most common neurobehavioral disorder in children ***(American Academy of Child and Adolescent Psychiatry [AACAP], 2011; DSM5, 2013).***

On the other hand, autism spectrum disorder is a medical term that encompasses a broad spectrum of neurodevelopmental disorders characterized by impaired reciprocal socialization and communication, often accompanied with stereotyped ritualistic behavior ***(Levy et al., 2009).*** The clinical boundaries of autism spectrum disorder (ASD) have been changed over the years by the American Psychiatric Association, and at present are based on the 5th edition of the Diagnosis and statistical manual of mental disorders (DMS5**)** ***(American Psychiatric Association, 2013).***

Polysymptomatic enuresis and primary monosymptomatic nocturnal enuresis (PMNE) are common childhood conditions that are likely to have a stressful impact on the everyday life of children and parents. According to the

International Children's Continence Society (ICCS) standards, PMNE may be caused by a mismatch between nocturnal urine production and functional bladder capacity, associated with the inability to awaken before micturition is initiated ***(Nevéus et al., 2006).*** It can be further categorized into primary, which is bedwetting in a child who had never been dry, and secondary when it occurs after a continuous dry period more than 6 months ***(Ozden et al., 2007).***

Electroencephalography (EEG) has a long history in child psychopathology research and was the first methodology used for examining human cortical brain activity among children. In recent decades, new mathematical, technological, and neuroscientific advances have allowed EEG measures to become an important data source for a new quantitative science of macroscopic or microscopic cortical brain dynamics ***(Freeman, 2000).***

AIM OF THE STUDY

The primary objective of this study was to record the central neuro-electrophysiological pattern in children with different types of pediatric mental disorders.

Secondary objective of this study intended to study the recorded pattern with the clinical phenotype and their grading or severity.

Chapter 1

PEDIATRIC MENTAL DISORDERS

Introduction

Pediatric mental disorders encompass neurodevelopmental, emotional, and behavioral disorders that have a lot of serious adverse impacts on psychological and social wellbeing. Children with these disorders need a lot of support from families and educational systems; the disorders may persist into adulthood ***(Nevo and Manassis, 2009).***

These children are more likely to have a compromised developmental abnormality, with increased needs for medical and disability services, and increased risk of contact with law enforcement agencies**.**

1. Attention deficit hyperactivity disorder (ADHD):

ADHD is a neurodevelopmental disorder which is characterized by inattention and disorganization, with or without hyperactivity-impulsivity ***(American Psychiatric Association, 2013).*** ADHD may persist into adulthood in around 20 percent of patients ***(Polanczyk and Rohde, 2007).***

There is no proved single biological cause for ADHD, but most researchers suggest that genes inherited from parents are the leading contributor to ADHD. For example, there is a study that shows that ADHD runs in families. Seventy-six

percent of children with ADHD have a relative with ADHD. Scientists are searching for which genes, or combinations of genes, influence how ADHD affects the behavior of those patients ***(Faraone et al., 2005).***

The Dopamine receptor D2 (DRD2) Taq1A polymorphism affects the intracellular concentration of the second messenger cyclic adenosine monophosphate (cAMP), a study confirmed the correlation between (DRD2) Taq1A gene polymorphism and ADHD using 100 participants , 50 patients with ADHD and 50 control group. ***(Moro 2019)***

Other risk factors are being premature baby, maternal smoking, drinking alcohol or extreme stress during pregnancy, and traumatic brain injury also may contribute to the development of ADHD ***(Faraone et al., 2005).***

- ***Clinical Presentation***

The diagnosis of ADHD should be considered in patients four years or older with poor attention, distractibility, hyperactivity, impulsiveness, poor academic performance, or behavioral problems at home or at school ***(Christner et al., 2013).***

More boys have ADHD overall; however, the inattentive subtype is more common in girls ***(Christner et al., 2013).***

Although no evidence supports universal screening for ADHD at well visits, physicians should be attentive to patients'