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توطئة للحصول علي درجة الماجستير في الأمراض العصبية و النفسية

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الطبيبة /**دعاء محمود عبدالرحمن حمودة**

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تحت اشراف

الأستاذ الدكتور/ محمد حامد غانم

أستاذ الأمراض العصبية والنفسية ورئيس مركز الطب النفسي

كلية الطب – جامعة عين شمس

الأستاذة الدكتورة/عفاف محمد عبدالسميع

أستاذ مساعد الأمراض العصبية والنفسية

كلية الطب – جامعة عين شمس

الدكتورة /مروة عبدالرحمن سلطان

مدرس الأمراض العصبية و النفسية

كلية الطب – جامعة عين شمس

كلية الطب

جامعة عين شمس

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Overview Of Tourette's Disorder

Essay
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By
Doaa Mahmoud Abd Al- Rahman Hamouda
MB,BCh 2005-Ain shams University

Supervised by
Prof. Mohamed Hamed Ghanem
Professor of Neuropsychiatry
Head of institute of psychiatry
Ain Shams University

Prof.ass. Afaf Mohamed Abd Al-Samei
Professor assistant of Neuropsychiatry
Ain Shams University

Dr. Marwa Abd Al-Rahman Soltan
Lecturer of Neuropschiatry
Ain Shams University

Faculty of medicine
Ain Shams University
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List of Abbreviations

(18F)	18-fluorodopa
(AD)	Autosomal dominant
(ADHD)	Attention deficit hyperactivity disorder
(BG)	Basal ganglia
(CD)	Conduct disorder
(CDC)	Centers for Disease Control
(CGI)	Clinical Global Impressions
(CSF)	Cerebrospinal fluid
(CSTC)	Cortico-Striatal Thalamic Cortical Circuitry
(CTs)	Computerized tomographies
(DA)	Dopamine
(DAT)	Dopamine transporter
(DBS)	Deep brain stimulation
(DNA)	Deoxyribonuclic acid
(DSM-IV-TR)	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision
(GABA)	Gamma-aminobutyric acid
(GABHS)	Group A ß-hemolytic streptococcal
(GAD)	Generalized Anxiety Disorder
(GP)	Globus pallidus
(HR)	Habit Reversal
(Hz)	Hertz
(ICD-10)	International Classification of Disease and Related Health Problems, Tenth Revision
(IVIG)	Intravenous immunoglobulin
(LOD)	Log of odds

(MOVES)	Motor tic, Obsessions and compulsions, Vocal tic Evaluation Survey
(MP)	Massed practice
(MRI)	Magnetic resonance Imaging
(MSSNs)	Medium-sized striatalneurons
(OCD)	Obssesive Compulsive Disorder
(ODD)	Oppositionl Defiant Disorders
(PANDAS)	Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal infections
(PDDs)	Pervasive Developmental Disorders
(PDDNOS)	Pervasive developmental disorder not otherwise specified
(PET)	Positron Emission Tomography
(PI)	Partial-interval
(PTQ)	The Parent Tic Questionnaire
(PUTS)	Premonitory Urge for Tics Scale
(rTMS)	Repetitive Transcranial Magnetic Stimulation
(SAD)	Separation Anxiety Disorder
(SD)	Standard deviation
(SNpc)	Substantia nigra pars compacta
(SPECT)	Single Photon Emission Computerized Tomography
(SSRIs)	Serotonin reuptake inhibitors
(TCAs)	Tricyclic antidepressants
(Ts)	Tourette's syndrome
(TSSL-R)	Tourette's Syndrome Symptom List—Revised

(YGTSS)	Yale Global Tic Severity Scale

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Introduction:

Tourette's syndrome (TS) is a childhood neuropsychiatric disorder characterized by motor and phonic (vocal) tics. It is commonly associated with behavior disorders, particularly obsessive-compulsive disorder (OCD) and attention deficit hyperactivity disorder (ADHD). These behavior disorders commonly accompany the tics and may dominate the clinical picture in some patients. TS is a genetic condition that runs in families. However, the precise genetic abnormality responsible for the phenotype has not yet been elucidated **(Jankovic et al., 2001).**

In 1885 Gilles de la Tourette the French neurologist and student of Charcot presented 9 children with compulsive tics the symptoms were characterized by multiple muscle tics, vocal noises and compulsive swearing **(Bohlhalter et al., 2006).**

In addition to the involuntary motor and vocal tics and swearing, Dr. Gilles de la Tourette also noted that the disorder had an onset in childhood, usually between 7 and 10 years of age, affected males more than females and was hereditary. The tics usually started in the face or upper extremity. The symptoms waxed and waned spontaneously. The tics were made worse by stress and diminished in sleep and occasionally

during fevers, and it was not a progressive degenerative disorder **(David et al., 1990).**

He correctly distinguished tics from other similar disorders in that the movements were "Short lived, and extremely brisk. They are intermittent, never continuous, so that they neither prevent normal eating nor limit independent ambulation. Their mental state is normal and most of them are highly intelligent" **(Lees et al., 1986).**

The precise prevalence of TS has been difficult to ascertain, and what once was thought to be a rare condition is now felt to be much more common. Most children with TS have non-disabling symptoms, their tics improve and resolve with age, and they never seek medical attention. As the clinical criteria for the condition has evolved, most investigators believe that the estimated prevalence is 0.7-4.2% based on observation studies in public schools. When the school-based studies were done on students in special education programs, 26% of those students had identified tics compared to 6% of students in mainstream classrooms **(Tanner et al., 1997).**

TS occur worldwide. Cases meeting current diagnostic criteria have been reported in the United States, Europe, New Zealand, Brazil, Japan, China, and the Middle East. The clinical phenomenology appears

similar, regardless of ethnicity or culture, suggesting a common genetic basis **(Kadesjo et al., 2000).**

Tourette's syndrome occurs in all social classes and races; male to female ratio varies from 3:1. However, if OCD is included as a variant of TS, then the male to female ratio is equal **(Cheung et al., 2007).**

Children are much more likely to meet the diagnostic criteria for TS than adults. TS is a childhood-onset condition, and adults who display of symptoms of TS are likely to have had the symptoms since childhood **(Simonic et al., 2001).**

Symptoms of TS can be seen in infancy; however, most children display readily identifiable symptoms around age 7 years. Most children with TS have their symptoms resolve by adulthood. Whether this resolution represents a compensatory process or resolution of the underlying pathology is unclear **(Anca et al., 2004).**

Etiology of TS is unknown, but the preponderance of evidence suggests that TS is an inherited developmental condition. Recently, an alternative autoimmune-mediated theory for the etiology of TS has become of interest. The 3 proposed mechanisms are neurological theory, genetic theory and autoimmune theory **(Anca et al., 2004)**.

The neurological theory suggests that the proposed sites for the primary neuroanatomical lesion are frontal cortex, striatum, thalamus and

midbrain. The potential neurophysiological abnormality are excess striatal excitation, altered interstriatal circuitry, altered striatal output, excess thalamic–cortical excitation, altered thalamic–striatal excitation and impaired cortical inhibition. The Possible neurochemical bases for TS pathogenesis are Dopamine (Abnormal tonic/phasic DA release system, Dopamine hyperinnervation, Supersensitive dopamine receptors, and Excess presynaptic DA synthesis), GABA, Serotonin, Acetylcholine and Neuropeptides **(Woods et al., 2007).**

Genetic theory suggests an autosomal dominant pattern of inheritance in families with TS. The concordance rate among monozygotic twins is 53% compared with 8% for dizygotic twins. Significant efforts have been made over the past 15 years to determine the precise gene or genes responsible for TS. Genetic studies performed through the Tourette Syndrome Association as well as studies of 91 families in South Africa have implicated chromosome 8 as possible genetic loci. Data also support a possible loci on chromosomes 5 and 11 **(Comella et al., 2004).**

The autoimmune theory as the cause of TS poses that antibodies directed against an antecedent infection (such as streptococcal infection) cross react with neuronal structures in the central nervous system. This is the presumed mechanism of action for Sydenham chorea and pediatric autoimmune neuropsychiatric disorder associated with streptococcal

infection (PANDAS). Selected individuals with TS have elevated titers of antistreptococcal antibodies and antineuronal antibodies similar to those individuals diagnosed with PANDAS. However, no correlation exists between the presence or absence of antineuronal antibodies and the severity of the tics, the onset of TS symptoms, or the presence of neuropsychiatric symptoms. Examination of serum antibodies in patients with PANDAS and TS compared with age-matched controls failed to differentiate the 2 disorders from age matched controls **(Singer et al., 2005).**

Tics are the hallmark feature of TS. Tics are abnormal movements or vocalizations that are diverse in presentation. Tics can be simple movements or vocalizations such as eye blinking, coughing, or grunting. They also can be highly complex movements such as running, jumping, or vocalizing phrases or repetitive words. This diversity of presentation can be challenging for the examiner to characterize these abnormal and somewhat bizarre movements **(Bloch et al., 2005).**

However, distinctive characteristics can help distinguish tics from other abnormal movements, such as tremor, chorea, myoclonus, or dystonia. Tics are considered semivoluntary, meaning that the patient can often volitionally suppress the movement for a period a time, suppressing the emotional urge or uncomfortable feeling that often arises to perform