SUNTEXT REVIEWS

SunText Review of Neuroscience & Psychology
ISSN: 2766-4503

Open Access
Review Article
Volume 3:1

Risk Factors of Tourette Syndrome

Bereda G*

Department of Pharmacy, Negelle Health Science College, Guji, Ethiopia

***Corresponding author:** Bereda G, Department of Pharmacy, Negelle Health Science College, Guji, Ethiopia; Tel: +251913118492; E-mail: gudisabareda95@gmail.com

Received date: 07 July 2022; **Accepted date:** 27 September 2022; **Published date:** 02 October 2022

Citation: Bereda G (2022). Risk Factors of Tourette Syndrome. SunText Rev Neurosci Psychol 3(1): 145.

DOI: https://doi.org/10.51737/2766-4503.2022.045

Abstract

Tourette syndrome can be defined by motor and vocal tics that start during childhood, persist for more than one yr, and fluctuate in type, frequency and anatomical distribution over time. Tourette syndrome is a phenomenologically heterogeneous neuropsychiatric disorder comprised of multiple motor and vocal tics that commence in early childhood and persist for at least a yr. The pathophysiology of Tourette syndrome involves an abnormality in the central dopaminergic system either excess amounts of dopamine or a hypersensitivity of dopamine-2 receptors. Additionally, there is growing evidence that certain dysfunction in the central mono-aminergic systems involving serotonin or serotonin 5-hydroxytryptamine-2 receptors may also play a role. Tourette syndrome is a chronic familial neuropsychiatric disorder that typically commences in childhood. Genetic vulnerability is the most common risk factors for Tourette syndrome; for example gestational and perinatal risk factors such as severe nausea and vomiting during the first trimester, severe psychosocial stress of the mother during pregnancy, maternal usage during pregnancy of coffee more than two per days, cigarette smoking more than ten per days, or alcohol consumption, identical twin with a lower birth weight, low birth weight pediatric with evidence of parenchymal lesions, ventricular enlargement, or both, and transient hypoxia or ischaemia during birth (labour greater than 24 hrs), use of forceps, nuchal cord, evidence of fetal distress.

Keywords: Genetic vulnerability; Risk factors; Tourette syndrome

Introduction

Tourette syndrome also known as Gilles de la Tourette's syndrome or Tourette disorder can be a neurodevelopmental disorder characterized by involuntary motor (chronic presence of multiple motor and phonic tics, i.e. involuntary movements and utterances) and vocal tics; that is closely correlated with the spectrum of obsessive-compulsive disorders [1]. Tics can be defined as sudden, intermittent, repetitive vocalizations (phonic tics) or movements (motor tics)/ also defined as stereotyped motor responses originating from an abnormal sensitivity to stimuli coming from within the body or from the outside world [3]. Simple motor tics consist of brief twitches or jerks, such as eye blinking, facial grimacing or head jerks. Simple phonic tics are inarticulate noises or sound such as throat clearing, sniffing and grunting [3]. Chronic motor or vocal tic disorder can be defined by the presence of either motor or vocal tics (but not both) and shares a similar clinical phenomenology and disease course with Tourette syndrome [4]. Tourette syndrome is a phenomenologically heterogeneous neuropsychiatric disorder comprised of multiple motor and vocal tics that commence in early childhood and persist for at least a yr. The pathophysiology of Tourette syndrome involves an abnormality in the central dopaminergic system either excess amounts of dopamine or a hypersensitivity of dopamine-2 receptors. Additionally, there is growing evidence that certain dysfunction in the central mono-aminergic systems involving serotonin or serotonin 5-hydroxytryptamine-2 receptors may also play a role [5,6].

Risk factors

Genetic, examination of disease patterning by socio-economic status and environmental factors are likely to play a role in the development of Tourette syndrome. The strong correlation between childhood socio-economic conditions and stomach cancer mortality, independent of adult status, suggests the

potential role of Helicobacter pylori infection as an etiological factor given its correlation with overcrowding in childhood [7].

Genetic vulnerability is the common risk factors for Tourette syndrome; for example gestational and perinatal risk factors such as severe nausea and vomiting during the first trimester, severe psychosocial stress of the mother during pregnancy, maternal usage during pregnancy of coffee more than two per days, cigarette smoking more than ten per days, or alcohol consumption, identical twin with a lower birth weight, low birth weight children with evidence of parenchymal lesions, ventricular enlargement, or both, and transient hypoxia or ischaemia during birth (labour greater than 24 hrs), use of forceps, nuchal cord, evidence of fetal distress. High heritability's, twin and family studies have consistently demonstrated a significant role for additional, non-genetic factors in the pathogenesis of Tourette syndrome. Low birth weight, maternal nausea and vomiting in the first trimester, maternal life stress and maternal smoking during pregnancy have also been correlated with elevated tic severity [8-10].

Severe psychosocial trauma, recurrent daily stresses (eg, teasing by peers), or extreme emotional excitement; recurrent streptococcal infections with post-infectious autoimmune response, drug abuse are implicated as the frequently cause of Tourette syndrome [11].

Exposure to androgenic drugs such as chronic intermittent use of cocaine and other psycho stimulants are the etiological factors of Tourette syndrome [12].

Co-existing medical or psychiatric disorders such as hyperkinetic disorders, earning disabilities, depression and manic depression are the commonly implicated causes of Tourette syndrome [13].

Conclusion

Tourette syndrome is a chronic neuropsychiatric disorder that starts in childhood and is characterized by motor and vocal tics persisting for more than 1 yr and varying in frequency. Tourette syndrome is a phenomenologically heterogeneous neuropsychiatric disorder comprised of multiple motor and vocal tics that commence in early childhood and persist for at least a yr. The pathophysiology of Tourette syndrome involves an abnormality in the central dopaminergic system either excess amounts of dopamine or a hypersensitivity of dopamine-2 receptors. Additionally, there is growing evidence that certain dysfunction in the central mono-aminergic systems involving serotonin or serotonin 5-hydroxytryptamine-2 receptors may also play a role. Maternal prenatal smoking, complications during pregnancy, birth weight, gestational age, Apgar scores at five minutes after birth, number of prenatal visits, younger maternal age and older paternal age have all been reported to be correlated with risk of Tourette syndrome.

Acknowledgments

The author would be grateful to anonymous reviewers for the comments that increase the quality of this manuscript.

Funding

None

Competing Interests

The author has no financial or proprietary interest in any of material discussed in this article.

References

1. Seideman MF. A Review of the Current Treatment of Tourette syndrome. J Pediatr Pharmacol Ther. 2020; 25: 401-412.
2. Claussen AH, Bitsko RH, Holbrook JR. Impact of Tourette syndrome on school measures in a nationally representative sample. J Dev Behav Pediatr. 2018; 39: 335-342.
3. Piedad JCP, Cavanna AE. Depression in Tourette syndrome: a controlled and comparison study. J Neurol Sci. 2016; 364: 128-132.
4. Hirschtritt M, Lee PC, Pauls DL. Lifetime prevalence, age of risk, and etiology of comorbid psychiatric disorders in Tourette syndrome. JAMA Psychiatry. 2015; 72: 325-333.
5. Dongmei Y, JaeHoon S, Fotis T. Interrogating the genetic determinants of Tourette's syndrome and other tic disorders through genome-wide association studies. Am J Psychiatry. 2019; 176: 217-227.
6. Hienert M, Gryglewski G, Stamenkovic M. Striatal dopaminergic alterations in Tourette's syndrome: a meta-analysis based on 16 PET and SPECT neuroimaging studies. Transl Psychiatry. 2018; 8: 143.
7. Pringsheim T, Okun MS, Muller-Vahl K. Practice guidelines recommendations summary: treatment of tics in people with Tourette syndrome and chronic tic disorders. Neurology. 2019; 92: 896906.
8. Baldermann JC, Schuller T, Huys D. Deep brain stimulation for Tourette-syndrome: a systematic review and meta-analysis. Brain Stimul. 2016; 9: 296-304.
9. Hoekstra PJ. Environmental factors in Tourette syndrome. Neuroscience and Bio behavioral Reviews. 2013; 37: 1040–1049.
10. Chao TK. Prenatal risk factors for Tourette syndrome: a systematic review. BMC Pregnancy and Childbirth. 2014; 14: 53.
11. Robertson MM. The prevalence and epidemiology of Gilles de la Tourette syndrome. Part 1: the epidemiological and prevalence studies. J Psychosom Res. 2008; 65: 461-472.
12. Scharf JM, Yu D, Mathews CA, Neale BM, Stewart SE, Fagerness JA, et al. Genome-wide association study of Tourette's syndrome. Mol Psychiatry. 2013; 18: 721-728.
13. Castellan Baldan L, Williams KA, Gallezot JD, Pogorelov V, Rapanelli M, Crowley M, et al. Histidine decarboxylase deficiency causes tourette syndrome: parallel findings in humans and mice. Neuron. 2014; 81: 77-90.