INPLASY PROTOCOL

Corresponding author:
Sun Xiang-Juan

hot285@163.com

Author Affiliation:
Hospital of Chengdu University of Chinese Medicine.

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Factors influencing the prognosis of tic disorders in children: a systematic review and Meta-analysis

Guo, ZY[1]; Yang, KJ[2]; Lei, J[3]; Zeng, YJ[4]; Guo, ZD[5]; Zhang, FH[6].

Review question / Objective: P:Children under the age of 18 with tic disorders, no restrictions on gender or ethnicity of participants. I:Presence of a certain factor affecting prognosis C:Absence of a certain factor affecting prognosis. O:Rate of poor prognosis.

Condition being studied: Tic disorder (TD) is a neuropsychiatric disorder characterised by sudden, rapid, recurrent, unrhythmic movements or vocalisations that are common in childhood or adolescence. Its pathogenesis and associated causes are unknown, and only a small percentage of children recover spontaneously, while some have recurrent symptoms that persist into adulthood. As the quality of life of children with tic disorders is severely affected due to the persistence of the disease, the investigation of how to improve the long-term outcome of children with tic disorders has become the focus of many scholars. Based on this, this study used an evidence-based research approach to investigate the factors influencing the prognosis of tic disorders in order to provide an updated evidence-based basis for improving the prognosis of children with tic disorders.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 May 2022 and was last updated on 23 May 2022 (registration number INPLASY202250137).

INTRODUCTION

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METHODS

Search strategy: Computer searches of PubMed, EMbase, The Cochrane Library, Web of Science, VIP, WanFang Data, CBM and CNKI databases were conducted with a search time frame of from creation to April 2022. The search was conducted using a combination of subject terms and free terms. The search formula for PubMed, for example, is: ("Tic Disorders"[MeSH Terms] OR ("tourette disorder"[Title/Abstract] OR "tic disorder"[Title/Abstract] OR "tourette syndrome"[Title/Abstract] OR ("chronic motor"[Title/Abstract] OR "vocal tic disorder"[Title/Abstract]) OR ("tic disorder chronic motor"[Title/Abstract] OR "Vocal"[Title/Abstract]) OR ("Motor"[Title/Abstract] OR (("Vocal"[All Fields] OR "vocales"[All Fields] OR "vocalic"[All Fields] OR "vocalisation"[All Fields] OR "vocalisations"[All Fields] OR "vocalised"[All Fields] OR "vocalising"[All Fields] OR "vocalization"[All Fields] OR "vocalizations"[All Fields] OR "vocalize"[All Fields] OR "vocalized"[All Fields] OR "vocalizer"[All Fields] OR "vocalizers"[All Fields] OR "vocalizes"[All Fields] OR "vocalizing"[All Fields] OR "vocally"[All Fields] OR "vocals"[All Fields]) AND "tic disorder chronic"[Title/Abstract])) OR "transient tic disorder"[Title/Abstract] OR "tic disorders transient"[Title/Abstract] OR "transient tic disorders"[Title/Abstract] OR (("Tic Disorders"[MeSH Terms] OR ("Tic"[All Fields] AND "Disorders"[All Fields]) OR "Tic Disorders"[All Fields] OR ("Tic"[All Fields] AND "Disorder"[All Fields]) OR "tic disorder"[All Fields]) AND "Transient"[Title/Abstract]) OR "post traumatic tic disorder"[Title/Abstract] OR "post traumatic tic disorder"[Title/Abstract] OR ("Post-Traumatic"[All Fields] AND "Tic Disorders"[Title/Abstract]) OR (("Tic"[Journal] OR "Tic"[All Fields]) AND "disorders post traumatic"[Title/Abstract]) OR "tic disorder post traumatic"[Title/Abstract] OR "tic disorder post traumatic"[Title/Abstract] OR (("Tic Disorders"[MeSH Terms] OR ("Tic"[All Fields] AND "Disorders"[All Fields]) OR "Tic Disorders"[All Fields]) AND "Vocal"[Title/Abstract]) OR "tic disorder vocal"[Title/Abstract] OR "vocal tic disorder"[Title/Abstract] OR "vocal tic disorders"[Title/Abstract] OR "childhood tic disorders"[Title/Abstract] OR "childhood tic disorder"[Title/Abstract] OR (("Tic"[Journal] OR "Tic"[All Fields]) AND "disorder childhood"[Title/Abstract]) OR (("Tic"[Journal] OR "Tic"[All Fields]) AND "disorders childhood"[Title/Abstract]) OR "motor tic disorders"[Title/Abstract] OR "motor tic disorder"[Title/Abstract] OR "tic disorder motor"[Title/Abstract] OR "tic disorders motor"[Title/Abstract])) AND("Prognosis"[MeSH Terms] OR ("Prognoses"[Title/Abstract] OR "prognostic factors"[Title/Abstract] OR "prognostic factor"[Title/Abstract] OR "factor prognostic"[Title/Abstract] OR "factors prognostic"[Title/Abstract])) AND(("relative"[Title/Abstract] AND "risk*"[Title/Abstract]) OR "relative risk"[Text Word] OR "risks"[Text Word] OR "cohort studies"[MeSH Terms:noexp] OR ("cohort"[Title/Abstract] AND "stud*"[Title/Abstract])).

Participant or population: Children under the age of 18 with Tic disorder , no restrictions on gender or ethnicity of participants.

Intervention: Presence of a risk factor for poor prognosis.

Comparator: Absence of a risk factor for poor prognosis.

Study designs to be included: Cohort studies, case-control studies, cross-sectional studies.

Eligibility criteria: nclusion criteria.(i) Participants must be children with tic disorder under the age of 18 years, regardless of gender, geography or ethnicity; (ii) The source of cases was children with confirmed tic disorder in various medical institutions;(iii) The literature should address one or more relevant factors that influence the prognosis of tic disorders;(iv) The study should be a case-control study or cohort study or cross-sectional study;Exclusion criteria.① Duplicate published literature;② Literature not in Chinese or English; ③Studies with no control group, incomplete basic data and too many lost visits;④Reviews of literature;⑤Studies with NOS scores ≤5.

Information sources: A comprehensive literature search will be conducted in PubMed, Embase, Cochrane Library, Web of Science, China National Knowledge Infrastructure(CNKI), Wanfang Data, SinoMed and VIP Data, up to April 2022.

Main outcome(s): Rate of poor prognosis.

Quality assessment / Risk of bias analysis: NewcastleOttawa scale（NOS）、Agency for Healthcare Research and Quality (AHRQ) The evaluation scale will be used independently by two researchers. Any problems or disagreements will be resolved through discussion with a third investigator.

Strategy of data synthesis: Statistical analysis was performed using RevMan 5.4 software, and literature that met the inclusion criteria was tested for heterogeneity. If $P > 0.05$ or $I^2 < 50\%$ indicated homogeneity between groups, the data were combined using a fixed effects model; if $P < 0.05$ or $I^2 \geq 50\%$, a random effects model was used and the source of heterogeneity was determined by sensitivity analysis, and descriptive analysis was performed for literature with greater heterogeneity. $P<0.05$ for statistically significant difference.

Subgroup analysis: Subgroup analysis was carried out according to the age, gender, place of residence and family background of the children.

Sensitivity analysis: Data from the remaining papers were combined after deleting any one of them in turn, and if the difference between the results before and after deletion was not significant, the sensitivity analysis was considered to have been passed.

Country(ies) involved: China.

Keywords: Tic disorders; Prognosis; Influencing factors; systematic review.

Contributions of each author:
Author 1 - Guo Zhiyi.
Email: 513963172@qq.com
Author 2 - Yang Kejia.
Author 3 - Lei Jing.
Author 4 - Zeng Yongjian.
Author 5 - Guo Zhidong.
Author 6 - Zhang Fenghua.