Title

Prevalence and genotypic associations of epilepsy in Prader-Willi Syndrome: A systematic review and meta-analysis

Abstract

Objective: To estimate the prevalence of epilepsy and febrile seizures and their association with genotype, i.e., 15q11-q13 deletions, uniparental chromosome 15 disomy (UPD) and other mutations, in the population with Prader-Willi syndrome (PWS). Methods: A systematic search of Medline, Scopus, Web of Science and the Cochrane Library was conducted. Studies estimating the prevalence of seizures, epilepsy and febrile seizures in the PWS population were included. Meta-analyses of the prevalence of epilepsy and febrile seizures and their association with genotype using the prevalence ratio (PR) were performed. Results: Fifteen studies were included. The prevalence of epilepsy was 0.11 (0.07, 0.15), similar to the prevalence of febrile seizures, with a prevalence of 0.09 (0.05, 0.13). The comparison “deletion vs. UPD” had a PR of 2.03 (0.90, 4.57) and 3.76 (1.54, 9.18) for epilepsy and febrile seizures. Conclusions: The prevalence of seizure disorders in PWS is higher than in the general population. In addition, deletions in 15q11-q13 may be associated with a higher risk of seizure disorders. Therefore, active screening for seizure disorders in PWS should improve the lives of these people. In addition, genotype could be used to stratify risk, even for epilepsy, although more studies or larger sample sizes are needed.

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