Comorbidity and Complications in Neurological Diseases

av

Heléne E.K. Sundelin

Akademisk avhandling

Avhandling för medicine doktorsexamen i Medicinsk vetenskap, med inriktning mot medicin, som kommer att försvaras offentligt Fredagen den 8 september 2017 kl. 13.00, Hörsal 3, X-huset, Campus USÖ, Örebro Universitetet

Opponent: Professor Rodney Scott
Department of Neurological Sciences at Vermont University, USA
Department of Pediatric Neurology at University College London, United Kingdom

Örebro universitet
Institutionen för hälsovetenskap och medicin
701 82 ÖREBRO
Abstract


Background: Neurological diseases are complex and many share etiology as well as comorbidities. Epilepsy, a brain disorder characterized by an enduring predisposition to generate epileptic seizures and autism spectrum disorder (ASD), are considered to be associated, but the connection is still not fully uncovered. Cerebral palsy (CP), a lifelong, nonspecific, non-progressive disorder of posture and movement control, and Ehlers-Danlos Syndrome (EDS), a connective tissue disorder, both have many consequences for health and wellbeing throughout life.

Aims: The aim of this thesis was to explore the impact of comorbidity and complications in neurological diseases and EDS. The objective was to gain information on the nature of the connection between epilepsy and ASD, if EDS, ASD and CP have consequences for pregnancy outcome, and the risk of traffic accidents in individuals with epilepsy.

Materials and methods: The studies are all historical observational population-based cohort studies with prospectively collected data from national registers. The risk of ASD was analysed in 85,201 individuals with epilepsy and compared with 425,760 controls as well as for their first-degree relatives. In a cohort of 1,248,178 singleton births, 314 births to women with EDS, 2,072 births to women with ASD, and 770 births to women with CP, pregnancy outcome was explored. The risk of traffic accidents was estimated in 29,220 individuals with epilepsy and 267,637 matched controls.

Results: There is an increased risk of; ASD in individuals with epilepsy and their relatives, moderately preterm birth and pre-eclampsia in maternal ASD, of preterm birth in maternal CP and transport accidents in individuals with epilepsy. There is no increased risk of adverse pregnancy outcome in women with EDS.

Conclusions: This thesis found proofs of a bidirectional association between epilepsy and ASD, that ASD and CP have consequences for pregnancy outcome and epilepsy is a risk factor for traffic accidents.

Keywords: antiepileptic drugs, autism, cerebral palsy, child, Ehlers-Danlos Syndrome, epilepsy, obstetric, pregnancy, traffic accidents

Heléne E.K. Sundelin, School of Health and Medical Sciences, Örebro University, SE-701 82 Örebro, Sweden