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Substance use disorders and psychotic disorders in epilepsy: A population-based registry study

Inger Johanne Bakken[a,*], **Eline Revdal**[b], **Ragnar Nesvåg**[a], **Eiliv Brenner**[b,c], **Gun Peggy Knudsen**[a], **Pål Surén**[a], **Sara Ghaderi**[a], **Nina Gunnes**[a], **Per Magnus**[a], **Ted Reichborn-Kjennerud**[a,d], **Camilla Stoltenberg**[a,e], **Lill Iren Trogstad**[a], **Siri Eldevik Håberg**[a], **Eylert Brodtkorb**[b,c]

[a] *Norwegian Institute of Public Health, Oslo, Norway*
[b] *Department of Neurology and Clinical Neurophysiology, St. Olav Hospital, Trondheim, Norway*
[c] *Department of Neuroscience, Norwegian University of Science and Technology, Trondheim, Norway*
[d] *Institute of Clinical Medicine, University of Oslo, Oslo, Norway*
[e] *Department of Global Public Health and Primary Care, University of Bergen, Norway*

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Summary
Background: Epilepsy affects around 70 million people worldwide. Psychiatric comorbidity may add to the burden of the disease. We studied substance use disorders and psychotic disorders among people with epilepsy from a population-based perspective.
Methods: Norwegian specialist health services (hospitals and outpatient clinics) report diagnoses for individual patients to the Norwegian Patient Register. We used information on subjects born in 1930—1994 who were registered with a diagnosis of epilepsy at least once during the five-year period of 2008—2012. We compared the proportion of people with epilepsy registered with substance use disorders (alcohol use disorders or non-alcohol drug use disorders) and psychotic disorders (schizophrenia spectrum disorders or bipolar disorder) with similar figures in the population without epilepsy. We applied chi-square tests and log-binomial regression for analysis.

Abbreviations: NPR, Norwegian Patient Register; ICD-10, International Classification of Diseases Version 10.

* Correspondence to: Department of Genes and Environment, Division of Epidemiology, Norwegian Institute of Public Health, P.O. Box 4404 Nydalen, N-0403 Oslo, Norway. Tel.: +47 98 245 149.
E-mail addresses: inger.johanne.bakken@fhi.no (I.J. Bakken), eline.revdal2@stolav.no (E. Revdal), ragnar.nesvag@fhi.no (R. Nesvåg), eiliv.brenner@ntnu.no (E. Brenner), gunpeggy.knudsen@fhi.no (G.P. Knudsen), pal.suren@fhi.no (P. Surén), sara.ghaderi@fhi.no (S. Ghaderi), nina.gunnes@fhi.no (N. Gunnes), per.magnus@fhi.no (P. Magnus), ted.reichborn-kjennerud@fhi.no (T. Reichborn-Kjennerud), camilla.stoltenberg@fhi.no (Camilla Stoltenberg), lill.iren.trogstad@fhi.no (L.I. Trogstad), sirieldevik.haberg@fhi.no (S.E. Håberg), eylert.brodtkorb@ntnu.no (E. Brodtkorb).

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Results: Overall, 0.90% of the Norwegian adult population was registered with epilepsy in somatic hospitals during 2008—2012. The total proportion registered with alcohol use disorder was 5.74% among people with epilepsy and 1.29% in the population without epilepsy (age- and sex-adjusted relative risk [RR]: 4.42, 95% confidence interval [CI]: 4.22—4.62). The corresponding figures were 4.32% and 1.22% (RR 3.86 [95% CI: 3.67—4.06] for drug use disorder, 1.72% and 0.60% (RR 2.94 [95% CI: 2.71—3.19]) for schizophrenia spectrum disorders, and 1.50% and 0.68% (RR 2.29 [95% CI: 2.10—2.49]) for bipolar disorder.

Conclusion: People with epilepsy were more often registered with substance use disorders and psychotic disorders than people without epilepsy. Psychiatric comorbidity requires particular attention in both diagnostic work-up and management of epilepsy, and creates complex medical challenges that require close cooperation between neurologists and psychiatrists. These findings may have implications for the organization and further development of comprehensive epilepsy care.

Introduction

Epilepsy is one of the most common neurological disorders, affecting nearly 3 million people in Europe alone (Wittchen et al., 2011) and around 70 million people worldwide (Ngugi et al., 2010). In the Global Burden of Disease Study 2010, epilepsy was ranked as the world's 16th leading cause of disability-adjusted life-years, indicating that epileptic disorders contribute significantly to premature mortality and severe morbidity (Murray et al., 2012).

Psychiatric comorbidities are often seen in epilepsy and add further burden to these patients in terms of inadequate response to treatment, contribution to poor quality of life, and increased mortality (Lin et al., 2012). Despite the high prevalence of psychiatric disorders in epilepsy, such conditions often remain unrecognized and undertreated (de Boer et al., 2008; Karouni et al., 2013). While a bidirectional relationship between depression and epilepsy is well established, the association with bipolar disease is less clear and the increased risk of schizophrenia has varied in different studies (Kanner and Hesdorffer, 2012). The interaction between substance use disorders and seizure disorders has to our knowledge not been addressed in large population-based studies using the general population as the reference group. The Norwegian Patient Register (NPR) is a nationwide registry containing diagnostic information assigned by Norwegian specialist health services (hospitals and outpatient clinics in somatic and mental health care). Data from this registry have previously been used to determine the proportion of children aged 0—11 years with diagnoses of epilepsy, autism spectrum disorder, attention deficit hyperactivity disorder (ADHD), and cerebral palsy (Suren et al., 2012).

A thorough understanding of the multifaceted challenges met by people with seizure disorders is important for providing comprehensive epilepsy management. The aim of the current study was to compare the proportion and age and sex distribution of substance use disorders and psychotic disorders among adults with epilepsy by using data from the NPR.

Methods

The Norwegian Patient Register

The NPR is an administrative database to which it is mandatory for all Norwegian hospitals and outpatient clinics receiving governmental reimbursement to report. The NPR receives data from hospitals and outpatient clinics, substance use treatment facilities, and specialists in private practice contracted by the health authorities. Diagnoses are reported to the NPR according to the World Health Organization's International Classification of Diseases, Version 10 (ICD-10). The 11-digit personal identification number unique to every inhabitant in Norway has been reported to the NPR from 2008 onwards. Substance use facilities have reported to the NPR from 2009 onwards.

Data material

All individuals born in 1930—1994 (aged 18—82 years by the end of follow-up) who were registered at least once in somatic hospitals during 2008—2012 with a diagnosis of epilepsy, as defined by ICD-10 codes G40.0—G40.9 (G40.x), were eligible for the study (people with epilepsy). The NPR provided data on sex, year of birth, and all ICD-10 codes registered during 2008—2012 in somatic and psychiatric hospitals and outpatient clinics, and in substance use treatment facilities.

We defined alcohol use disorder by ICD-10 code F10.x, non-alcohol drug use disorder by F11.x—F19.x, psychotic disorders by F20.x—F31.x, F32.3, or F33.3, schizophrenia spectrum disorders by F20.x, F21.x, F22.x, or F25.x, and bipolar disorder by F30.x or F31.x registered at least once during 2008—2012 in NPR. The ICD-10 codes F11.x—F19.x refer to mental and behavioural disorders due to a broad range of specified drugs (opioids, cannabinoids, sedatives, cocaine, and other psychoactive substances). In the remaining text we use the term ''drug use disorder'' for non-alcohol use disorder.