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Review

Risk factors for depression in community-treated epilepsy: Systematic review

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ABSTRACT

Objective: Depression is one of the most common psychiatric comorbidities in epilepsy; however, the factors contributing to this association remain unclear. There is a growing consensus that methodological limitations, particularly selection bias, affect many of the original studies. A systematic review focussed on community-based studies offers an alternative approach for the identification of the risk factors for depression.
Methods: Searches were performed in MEDLINE (Ovid), 2000 to 31 December 2013, EMBASE, and Google Scholar to identify studies examining risk factors for depression in epilepsy. Community-based studies of adults with epilepsy that reported at least one risk factor for depression were included.
Results: The search identified 17 studies that met selection criteria, representing a combined total of 12,212 people with epilepsy with a mean sample size of 718. The most consistent risk factors for depression were sociodemographic factors, despite the fact that most studies focus on epilepsy-related factors.
Significance: Most studies lacked a systematic conceptual approach to investigating depression, and few risk factors were consistently well studied. Future community-based studies require a detailed systematic approach to improve the ability to detect risk factors for depression in epilepsy. Psychological factors were rarely studied in community-based samples with epilepsy, although the consistent association with depression in the few studies that did suggests this warrants further examination.

1. Introduction

Depression is one of the most common psychiatric comorbidities in epilepsy and arguably the most extensively researched [1]. Despite these facts, the factors that contribute to the increased rate of depression remain unclear [2,3]. Comorbid depression has a range of adverse consequences, including decreased quality of life, diminished medication adherence, poorer treatment outcomes, increased health service use, increased cognitive complaints, and increased risk of other chronic diseases and suicide [4]. A better understanding of the risk factors for depression in epilepsy may inform efforts to reduce this important health disparity.

The rate of depression appears to rise as one moves from primary care to secondary care and tertiary care [5,6]. This suggests that ascertainment bias may limit the generalizability of findings from secondary–tertiary samples to community-treated people with epilepsy. The use of systematic reviews in epilepsy research has confirmed the higher prevalence of depression in people with epilepsy and has demonstrated a consistent association between depression and impaired quality of life [7,8], but this approach has not been utilized to identify risk factors for depression. The aim of this study was to review recent studies that examined depression in a community sample of adults with epilepsy to identify factors associated with depression.

2. Methods

A systematic review to identify factors associated with depression in adult patients with community-treated epilepsy was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.

2.1. Eligibility criteria

The following inclusion criteria were applied to identify studies for review: published between 2000 and 2013, use of the English language, contain original human adult data, and use of a community-based sample. Original research published between 2000 and 2013 was selected to expand upon previous reviews of this area [6]. Studies of only children and adolescents (<18 years of age) were excluded because of concerns about the reliability of self-report of emotional problems [9] and

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likelihood of different risk factors for depression in children and adolescents compared with adults [10]. The sampling process had to specifically include adults with community-treated epilepsy (purely hospital-based studies, either inpatients or outpatients were excluded) and at least one risk factor for depression examined. Risk factors were grouped into sociodemographic, disease-related, psychological, treatment-related, and genetic factors.

2.2. Information sources

The search was performed in MEDLINE, 2000 to 31 December 2013, EMBASE, and Google Scholar.

2.3. Search strategy

Several methods were used to maximize the number of studies identified, including use of multiple overlapping search terms and limited exclusion criteria. Search strategies, specific to each database, were developed to maximize sensitivity. Primarily, MEDLINE, accessed via Ovid, was searched based on an analysis of the Medical Subject Headings (MeSH) and text words. The MEDLINE search strategy, which used terms such as "depression", "epilepsy", "seizure", and "community", formed the basis for the strategies developed for the other electronic databases (see Supplemental data S1 for the MEDLINE search strategy). The reference lists of selected articles, related reviews, and editorials were used to identify additional articles.

2.4. Study selection

One author (CL) performed the initial search, scanned all the titles and abstracts, and identified potentially relevant articles to be retrieved. The remaining authors performed independent searches before obtaining the full text for identified studies.

2.5. Data collection

A standardized review form was developed to confirm eligibility, assess study characteristics, and extract relevant data. The following information was extracted from each study: country, year, study design, sampling frame, population characteristics including control group if present, method of identifying epilepsy, method of identifying depression, rate of depression in sample, risk factors, and statistical methods used. Data were extracted by a single reviewer (CL) and checked by a second reviewer (MS or WD).

2.6. Quality assessment

A previous systematic review of factors associated with quality of life in epilepsy adopted a pragmatic three-item assessment of quality indicators because of the lack of a standardized approach for the assessment of predictor studies [7]. We incorporated these items along with recent recommendations regarding quality assessment of observational studies (MOOSE and STROBE). Subsequently, the Depression in Epilepsy Quality Assessment Tool (DIEQAT) was created (see Supplemental data S2). This included the following criteria: prospective study design, response rate greater than 60%, community sample designed to minimize selection bias, power calculation or sample size greater than 115, systematic validated method of epilepsy diagnosis, systematic validated method of depression diagnosis, and use of multivariate analysis.

2.7. Data synthesis

Results were tabulated for each predictor variable, and a summary of the significance of each variable was presented. Because of the heterogeneity in statistical methods used and the inconsistency in risk factors reported across studies, meta-analyses to assess the magnitude of statistical importance associated with each risk factor were not undertaken.

3. Results

3.1. Study selection

The search strategies identified 222 publications. Many were rejected as they did not include people with epilepsy, and 83 were selected for a full-text review. Fifty-seven studies did not meet the inclusion criteria (see Fig. 1), with failure to measure depression or any risk factors followed by potential selection bias due to reliance on hospital-derived samples being the most common reasons for exclusion. Some studies did not explicitly analyze risk factors for depression, but, where possible, reported data were used to examine risk factors [11,12]. Ultimately, 17 studies were identified for inclusion in this review (for a list of studies excluded on the full-text review, see Supplemental data S3).

3.2. Study designs

The included studies examined a combined 12,212 people with epilepsy with a mean sample size of 718 (range: 31–5834) and a mean age ranging from 35 to 74 years. The vast majority of included studies utilized cross-sectional data. Most studies (82%) were derived from Organization for Economic Co-operation and Development (OECD) countries; others were from Brazil, Iran, Benin, and Togo. The

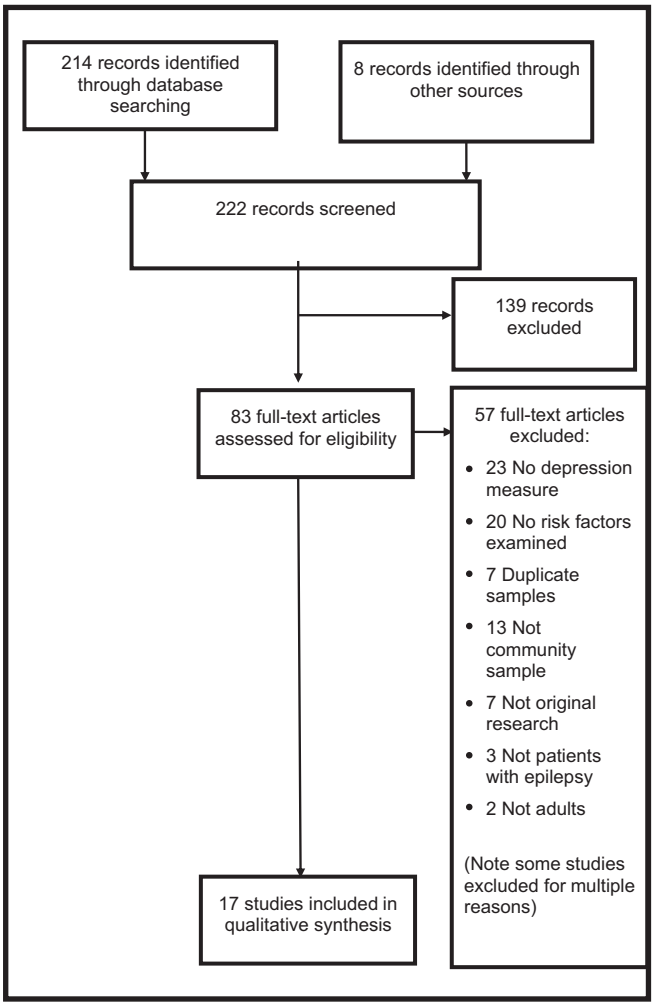

Fig. 1. Flowchart of study selection process.