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Epilepsy and mortality in Latin America

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ABSTRACT

Purpose: To assess the mortality related to epilepsy in Latin America.
Methods: We searched MEDLINE, EMBASE, and LILACS from inception to December 2013 for articles evaluating mortality in patients with epilepsy in Latin America. Studies were included if they evaluated any mortality outcome, included a population of subjects with recurrent seizures or epilepsy, and contained original data analysis.
Results: The search strategy yielded 177 publications in MEDLINE and EMBASE, and 59 publications in LILACS; of which 18 met inclusion criteria for our overall review of epilepsy and mortality in Latin America. Most excluded studies did not report the mortality or lacked original data. We also included two references obtained from 2 non-systematic reviews fulfilling our inclusion criteria, and able to provide data for our analyses. Five studies reported Standardized Mortality Ratio (SMR), and demonstrated that people with epilepsy had a higher risk of death than the general population. The SMRs reported in two community-based studies were 1.34 and 2.45.
Conclusion: The information about mortality in epilepsy in Latin America is very scarce. Comparisons cannot be made among studies due to methodological differences. More studies are needed.

1. Introduction

Epilepsy is a potentially life-threatening condition,[1] and there is evidence of a higher prevalence and incidence in Latin America[2] when compared with developed countries. Mortality in patients with epilepsy is known to be considerably higher than in the general population.[3–11] Unfortunately, mortality data from developing countries has been difficult to obtain because incidence studies are difficult to perform, death certificates are not very reliable, autopsies are not easy to obtain, and the cause of death is not usually known with certainty.[12–14] Ideally, identification of at risk individuals is imperative so that strategies to prevent mortality can be implemented. Furthermore, comparison of epilepsy mortality data between countries could potentially identify conditions that require specific regional treatment or medical attention.

To examine if epilepsy increases the risk of dying in Latin America, we reviewed cohort studies from this region that assessed mortality in populations with epilepsy compared with that expected in the general population.

2. Methods

2.1. Eligibility criteria

Type of studies: cohort studies of epilepsy cases from Latin America, evaluating mortality. Latin America includes Central America, South America, Mexico, and the Caribbean. No language or publication date restrictions were imposed.

Type of population: cohorts of any age collected in a community, neurology department, or epilepsy center were included.

Type of exposure: cohorts were selected if epilepsy was defined in accordance with International League Against Epilepsy definitions and recommendations.

Primary outcome measures: presentation of the observed number of deaths in people with epilepsy or of a calculated standardized mortality ratio (SMR).

Secondary outcome measures: distribution of causes of death.

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Information sources: studies were identified by searching electronic databases and scanning reference lists of articles. This search was applied to MEDLINE (1946–present), EMBASE (1974–present) and LILACS (1981–present). LILACS is the most important and comprehensive index of scientific and technical literature of Latin America and the Caribbean. The last search was run in December of 2013 (see Appendix A for full electronic search strategy for each database).

Study selection: two reviewers performed eligibility assessments independently. Any disagreement between the reviewers was resolved by consensus. Studies were included if they met the following criteria: (a) prospective or retrospective cohorts of subjects with the diagnosis of epilepsy, (b) presentation of a calculated standardized mortality ratio (SMR) or mortality rate (MR), and (c) contained original data analysis. We excluded studies evaluating mortality rates from epilepsy in the general population obtained from death certificates, non-systematic reviews (with the exception of using them to retrieve references not found in the above mentioned databases), and duplicate publications.

Data collection process: one review author extracted the following data from included studies and the second author verified the extracted data: country, year of study start, cohort type (prospective or retrospective), selected cases (incident or prevalent), source of cases (neurology department, epilepsy center, rural community or urban community), study size, proportion of treated people, age at study entry, years of follow-up, number of observed deaths, SMR, causes of death.

3. Results

The search strategy yielded 192 publications in MEDLINE, 425 publications in EMBASE, and 415 publications in LILACS. After the first screening, 14 documents were read and critically reviewed. Five final articles were selected (Fig. 1).

3.1. Description of studies

Five references from five different countries were identified. Two studies were community based[15,16] one rural and the other urban. Both were retrospective studies and prevalent cases were selected (Table 1). Interestingly, almost 45% of the patients in these two studies saw remission of their epilepsy during the 8–10 years of the follow-up even though, apparently, only 12% of the patients had taken antiepileptic medications for more than one year.[15]

Three articles corresponded to selected populations with epilepsy. All three were hospital-based,[12,17,18] and in one of them the data was obtained from an epilepsy center.[18] All three had a prospective design, although only one selected incident cases.[12] Additionally, two of these articles were focused on young populations[17,18] (Table 1).

3.2. All causes of mortality

There were two community-based studies (Table 2). In the urban community-based study in Argentina, the SMR was 2.45 and the MR 17.86, while in the rural-community-based study in Bolivia the SMR was 1.34 and the MR was 9.71. Age-specific SMRs were available for the study done in Ecuador; while MRs were available in the study done in Bolivia (Table 3). In regards to etiology, only one study evaluated the mortality in patients with idiopathic epilepsy and did not find a significantly increased risk of death (Table 4), however patients with remote symptomatic epilepsy did have an increased risk. In this last group of patients with symptomatic epilepsy, 61% of cases at risk had neurocysticercosis (NCC)-related epilepsy, and were living in rural areas.[15] Furthermore, the single urban community-based study showed a MR of 40 per 1000 patient-year in the symptomatic epilepsy group, in whom 50% had tumor-related epilepsy.[16]

3.3. Cause-specific mortality

The most common cause of death in community based studies corresponded to underlying disease-related deaths or epilepsy-unrelated deaths (Table 5), although almost 25% of deaths had unknown cause. In selected population-based studies, 20–42% of the observed deaths were in relation with SUDEP, although only 7–14% of them were determined to be definitive cases.

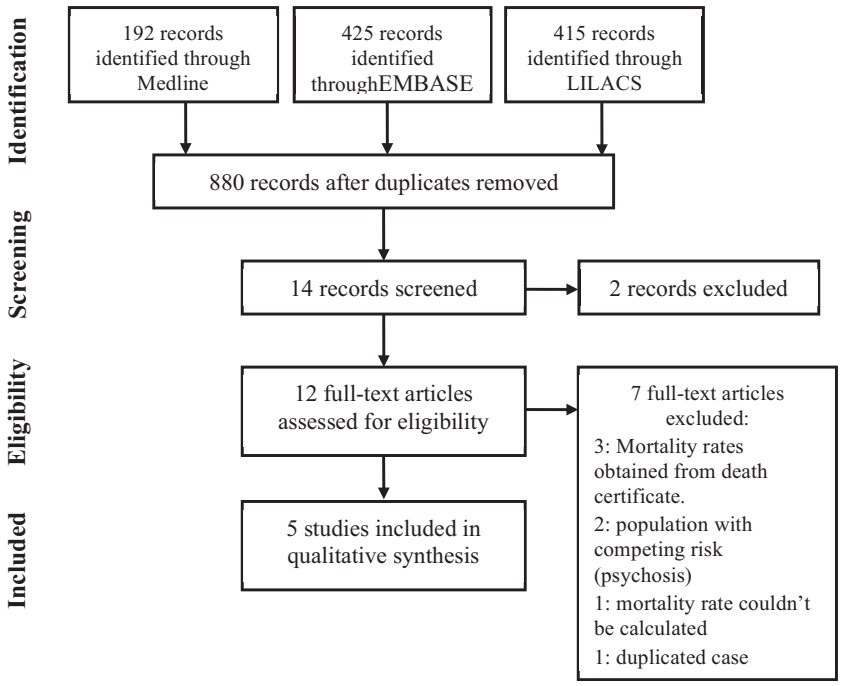

Fig. 1. Flow of information through the different phases of the systematic review.