ORIGINAL ARTICLE

Prevalence and incidence of Alzheimer’s disease in Europe: A meta-analysis

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KEYWORDS
Alzheimer’s disease; Epidemiology; Prevalence; Incidence; Europe; Meta-analysis

Abstract
Background: A disease of unknown aetiology, Alzheimer’s disease (AD) is the most common type of dementia. As the elderly population grows worldwide, the number of patients with AD also increases rapidly. The aim of this meta-analysis is to evaluate the prevalence and incidence of AD in Europe.
Methodology: We conducted a literature search on Medline, Scopus, and CINAHL Complete using the keywords “Alzheimer”, “Alzheimer’s disease”, and “AD” combined with “prevalence”, “incidence”, and “epidemiology”. A Bayesian random effects model with 95% credible intervals was used. The I² statistic was applied to assess heterogeneity.
Results: The prevalence of Alzheimer’s disease in Europe was estimated at 5.05% (95% CI, 4.73-5.39). The prevalence in men was 3.31% (95% CI, 2.85-3.80) and in women, 7.13% (95% CI, 6.56-7.72), and increased with age.
The incidence of Alzheimer’s disease in Europe was 11.08 per 1000 person-years (95% CI, 10.30-11.89). Broken down by sex, it was 7.02 per 1000 person-years (95% CI, 6.06-8.05) in men and 13.25 per 1000 person-years (95% CI, 12.05-14.51) in women; again these rates increased with age.
Conclusions: The results of our meta-analysis allow a better grasp of the impact of this disease in Europe.

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Introduction

The World Health Organization defines Alzheimer disease (AD) as a neurodegenerative disease of unknown aetiology, characterised by progressive memory and cognitive impairment which accounts for 50% to 75% of all cases of dementia. According to global statistical data from the Global Burden of Disease Study, AD was one of the fastest-rising diseases among the leading 50 causes of global years of life lost between 1990 and 2013.

Multiple risk factors have been identified, including female sex, age, low education level, the APOE E4 allele, smoking, obesity, and diabetes mellitus.

A collaborative study including the results of several European population-based cohorts conducted in the 1990s found a prevalence of 4.4% in people older than 65. Rapid population ageing has resulted in an increasing number of patients with AD. In 2006, a total of 26.6 million patients had AD worldwide, with forecasts suggesting that this number will reach 106.8 million by 2050, with 16.51 million patients in Europe. More recent studies have confirmed this upward trend in the incidence of dementia, predicting a 87% increase in Europe for the 2010-2050 period.

A deeper understanding of the epidemiology of AD is therefore important for early prevention, as it helps healthcare authorities and reduces the impact of the disease on the elderly. This meta-analysis aims to analyse the available literature and estimate the prevalence and incidence of AD in Europe.

Material and methods

Search strategy and selection criteria

We searched the MEDLINE, SCOPUS, and CINAHL Complete databases for articles published between 1 January 1995 and 31 March 2015 and written in English, Spanish, French, Italian, or Portuguese.

We searched by title using the following keywords: 'Alzheimer', 'Alzheimer’s disease', and 'AD', combined with 'prevalence', 'incidence', and 'epidemiology'. A total of 615 articles were gathered. Additionally, we reviewed the references cited by the selected articles to identify additional studies meeting our inclusion criteria. Two researchers (H.N. and I.A.A.) searched for and assessed the articles; any discrepancies were solved by consensus.

Our meta-analysis included all observational studies fulfilling the following criteria: 1) original articles; 2) including European populations; 3) participants were men and women older than 50; 4) providing original data on prevalence and/or incidence; 5) describing diagnosis of AD, and 6) available in full text. Review articles, meta-analyses, and studies not addressing the epidemiology of AD were excluded.

Data extraction

Data were extracted by 2 researchers (H.N. and I.A.A.) and discrepancies were resolved through consultation with a
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