Do the benefits of anti-dementia drugs extend to caregivers?  

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**CRD summary**
This review, which examined the impact of cholinesterase inhibitors (ChEIs) on certain caregiver-specific outcomes, concluded that the use of ChEIs in the treatment of dementia patients had a positive effect on caregiver burden and time use. However, given the limitations in study methodology and the quality of review reporting, the reliability of the authors' conclusions is unclear.

**Authors' objectives**
To identify caregiver-specific outcomes in anti-dementia drug trials and to determine the impact of cholinesterase inhibitors (ChEIs) on carers of patients with dementia.

**Searching**
Five unnamed electronic databases were searched; the search terms were reported.

**Study selection**

- **Study designs of evaluations included in the review**
  Studies were eligible for inclusion if they were prospective trials. Only double-blind, randomised placebo-controlled trials were eligible for inclusion in the meta-analysis.

- **Specific interventions included in the review**
  Studies using a ChEI or an N-methyl-D-aspartate receptor modulator were eligible for inclusion. The included studies used donepezil or other Food and Drug Administration approved drugs, with or without a control group. The average duration of treatment was 35 weeks.

- **Participants included in the review**
  Studies were eligible for inclusion if they involved caregivers of patients being treated for Alzheimer's disease or a related disorder who were living in the community.

- **Outcomes assessed in the review**
  Studies reporting any caregiver-specific outcomes were eligible for inclusion in the review. Only studies evaluating an aspect of caregiver burden or informal care time expenditure were eligible for inclusion in the meta-analysis. The included studies reported caregiver-specific outcomes using various tools to measure caregiver burden and time expenditure.

**How were decisions on the relevance of primary studies made?**
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

**Assessment of study quality**
The authors stated that methodological quality was assessed according to standardised criteria; however, they did not specify the criteria or state how the validity assessment was performed.

**Data extraction**
The authors stated that the data were extracted using a structured data collection form. However, they did not state how many reviewers performed the data extraction. Data were extracted on outcomes to calculate, where appropriate, Cohen’s d effect sizes for differences between caregiver groups with 95% confidence intervals (CIs).

**Methods of synthesis**
How were the studies combined?
A random-effects model was used to pool the effect sizes of the double-blind, randomised placebo-controlled trials.
How were differences between studies investigated?
Differences between the studies do not appear to have been investigated.

Results of the review
Seventeen trials (n=4,744) were included in the review: 8 double-blind, randomised placebo-controlled trials and 9 non-randomised prospective trials, some of which were blinded.

Ten studies examined caregiver burden outcomes, four of which were eligible for inclusion in the meta-analysis. ChEI treatment resulted in a small but statistically significant reduction in caregiver burden (d=0.179, 95% CI: 0.041, 0.316, p=0.011). The studies used between one and three tools to measure outcomes.

Seven studies assessed time used in assisting patients, six of which were eligible for inclusion in the meta-analysis. Caregivers of patients receiving ChEI reported less time expended (d=0.153, 95% CI: 0.07, 0.236, p<0.001).

Sample sizes were between 12 and 978 participants. Baseline characteristics of the caregivers were not well reported.

Authors' conclusions
The use of ChEIs in the treatment of dementia patients has a modest positive effect on caregiver burden and time use.

CRD commentary
The review question was clear and was supported by appropriate inclusion criteria relating to the intervention, outcomes and study design. A literature search was conducted using electronic databases, although these were not named and the range of dates searched was not reported. It is unclear whether publications were restricted by language, which means that language bias might have been introduced. This, together with the fact that there was no apparent search for unpublished material, means it is possible that relevant studies were missed. An assessment of validity was not made clear, which means that the reliability of the included studies and their subsequent synthesis is unclear. In addition, the review process was not made explicit, thus the potential for reviewer error and bias cannot be ruled out. There was no apparent analysis of heterogeneity and it is therefore unclear whether the pooling of studies was appropriate. Sample sizes were small. Study details were also limited and potentially important caregiver and patient characteristics were not reported. Given these limitations, the reliability of the authors' conclusions is unclear.

Implications of the review for practice and research
Practice: The authors stated that dual-oriented dementia interventions may increase the well-being of both patients and their caregivers.

Research: The authors stated that future studies should assess the effects of interventions aimed at both patients and caregivers, such as trials pairing patient-directed pharmacotherapies with caregiver-directed supportive and educational interventions.

Bibliographic details

Indexing Status
Subject indexing assigned by CRD

MeSH
Aged; Alzheimer Disease /drug therapy; Attitude to Health; Caregivers /psychology; Cholinesterase Inhibitors /therapeutic use; Dementia, Vascular /drug therapy; Quality of Life; Treatment Outcome

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.