

Severity of cognitive impairment at initial diagnosis of Alzheimer's disease was the strongest predictor of survival

Larson EB, Shadlen MF, Wang L, *et al.* Survival after initial diagnosis of Alzheimer disease. *Ann Intern Med* 2004;**140**:501–9.

Q What is the course of disease (specifically life expectancy) after an initial diagnosis of Alzheimer's disease (AD) in community dwelling patients? Which variables are associated with survival?

METHODS

 **Design:** inception cohort with mean follow up of 5.2 years (range 0.2–14 y).

 **Setting:** a health maintenance organisation in Seattle, Washington, USA.

 **Patients:** 521 patients who were >60 years of age (65% women, 89% white) and newly diagnosed with possible or probable AD based on criteria of DSM-III-R (dementia) and National Institute of Neurological and Communicative Disorders and Stroke-Alzheimer's Disease and Related Disorders Association (probable or possible AD).

 **Prognostic factors:** baseline severity of AD (Mini-Mental State Examination [MMSE] score and Dementia Rating Scale score [DRS]); psychiatric symptoms of paranoia or hallucinations; behavioural disturbances including agitation, irritability, or emotional lability; frontal lobe release signs including glabellar, snout or grasp; extrapyramidal signs including rigidity or tremor; wandering; falls; gait disorder; urinary incontinence; and depression. Variables adjusted as potential confounders included age, sex, ethnicity, education, ischaemic heart disease, congestive heart failure (CHF), diabetes, hypertension, and stroke.

 **Outcomes:** duration of survival.

MAIN RESULTS

Median years of survival from initial diagnosis of AD was 4.2 years for men and 5.7 years for women. Proportional hazards models adjusted for age, sex, and ethnicity identified the following independent predictors of mortality: baseline MMSE score ≤ 17 , DRS score 5.5–17, frontal lobe release signs, gait disturbance, falls, CHF, diabetes, and ischaemic heart disease (table).

CONCLUSIONS

Severity of cognitive impairment at initial diagnosis of Alzheimer's disease in community dwelling patients was the strongest predictor

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of survival. Other predictors were frontal lobe release signs, gait disturbance, falls, congestive heart failure, diabetes, and ischaemic heart disease.

Commentary

Given the aging population and the corresponding increase in the incidence of AD, information on the prognosis of AD will help practitioners and unpaid caregivers to better meet the needs of patients with AD.

This well designed, prospective study by Larson *et al* provides estimates of survival after initial diagnosis of AD. Estimated survival rates were longer than those reported by the Canadian Study of Health and Aging (3.2 y for men and 3.4 y for women).¹ This difference may be attributed to the older sample in the Canadian Study of Health and Aging.

Length of survival after onset of AD may be quite different from length of survival after initial diagnosis. Identifying the precise onset of AD may be difficult because of the insidious nature of the disease, unpaid caregiver's lack of awareness of changes in cognition and functional abilities, and the patient's ability to compensate for impairments. Although diagnosis at the onset of disease may not alter the natural course of AD, it could provide opportunities to ensure that patients and their unpaid caregivers receive the most appropriate care and support throughout the course of the disease.

The importance of accurately diagnosing dementia cannot be over-emphasised because different forms of dementia require different types of interventions. Patients with AD primarily need support services, such as help in the home.² Unfortunately, reduced healthcare spending in some countries has affected the availability of homemaking services.³ In addition to recommending effective strategies for managing the symptoms of AD,^{4,5} healthcare professionals should advocate for publicly funded support services required by patients with AD.

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Prognostic factors for mortality in community dwelling patients with newly diagnosed Alzheimer's disease*

Prognostic factor	Median years of survival†	Hazard ratio (95% CI)‡
MMSE score ≤ 17	3.6	2.58 (1.88 to 3.53)
DRS score 5.5–17	3.2	2.15 (1.62 to 2.84)
Frontal lobe release signs	4.6	1.26 (1.03 to 1.54)
Gait disturbance	3.5	1.50 (1.20 to 1.87)
History of falls	4.3	1.30 (1.05 to 1.60)
Ischaemic heart disease	4.1	1.30 (1.05 to 1.61)
Congestive heart failure	3.0	1.48 (1.10 to 1.99)
Diabetes	3.8	1.87 (1.34 to 2.61)

*MMSE = Mini Mental State Examination; DRS = Dementia Rating Scale; other abbreviations defined in glossary.

†Time until death when 50% of patients died.

‡Independent prognostic factors based on proportional hazards model adjusted for age at diagnosis, sex, and ethnicity.



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