

Memory Care Monthly

Supporting Healthcare Professionals in Caring for the Aging

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Alzheimer's Disease Economics: The Cost of Care and the Impact of Delaying the Disease

Currently there are up to 4.8 million individuals in the United States with Alzheimer's Disease (AD) [1]. Annual formal and informal costs of caring for AD patients range from \$15,360 to \$65,885 (midpoint = \$40,622), giving an estimated \$111.9 billion yearly cost of caring for AD in the USA [2]. The average cost of formal care due to physician and emergency room visits, hospitalization, medications and long-term care is \$27,672, which increases with dementia severity [3]. The cost of unpaid caregiving ranges from \$10,400 to \$34,517 annually, which accounts for 60% of caregiving costs, and is up to 70 hours per week [4]. Lost wages for patient and caregiver plus increased medical costs related to caregiver illness costs \$50,000 per year for a total of \$21 billion annually in the USA [5]. Medicare costs for demented patients are 1.6 times that of non-demented patients [6]. For mild and moderate dementia in AD patients, the most significant factor affecting cost of care is the presence of comorbid conditions, with 93% of patients having at least one comorbidity, and 60% having at least three [7]. The cost of caring for comorbid conditions in AD is \$3,000 per year higher than age-matched patients [8]. AD patients visit the emergency room twice as often as non-demented, age-matched patients, and are hospitalized an average of 16 days longer, which costs \$2,500 more per hospitalization [9]. These data clearly indicate that reducing the morbidity related to AD not only reduces healthcare costs but also improves quality of life.

In this regard, cholinesterase inhibitor therapy for six months to two years reduces the chance of being admitted to a long-term care facility by about 50% [10]. At a cost of about \$120 per month for cholinesterase inhibitor therapy combined with home care costs that are 25% of those in institutional settings, the associated delay in AD progression saves approximately \$2,000 (in year 2000) for each month that a patient's institutionalization is delayed [11,12]. A realistic and achievable delay of 2 years in the time to institutionalization would therefore save approximately \$48,000 per AD patient, or approximately \$200 billion for the current cohort of AD patients in the USA.

Through a combination of risk factor identification and treatment, AD medication and non-medication therapy, AD onset can be delayed for 1—5 years, and AD progression can be delayed for ≥ 1 year during the MCI stage and for 1—3.5 years during the dementia stage. When these current treatment approaches are combined, the onset and progression of AD may be delayed by 3—7.5 years. Delaying AD does not prolong life expectancy because most patients pass away for other reasons (e.g., stroke, cancer, heart disease). However, treating AD reduces overall expenses by decreasing

hospitalization and institutionalization rates, diminishing caregiver burden, and helping to control comorbid conditions [11]. This is consistent with data from The National Long-Term Care Survey, which suggests that a greater degree of cognitive impairment at time of diagnosis associates with higher total cost of care and longer duration of residence in a nursing home [12].

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Research Updates

Vulnerable Elderly Not Provided With Required Care

Researchers at the University of California, Los Angeles evaluated the quality of care provided Medicare and Medicaid patients defined as vulnerable elderly, those at risk of death or functional decline. Using the quality of care measurements developed by the Assessing Care of Vulnerable Elders project, 43 specific types of care were evaluated. The study included over 100,000 community-dwelling people with an average age of 81. The researchers concluded that vulnerable elderly received 65% of tests and other diagnostic evaluations and treatments recommended for wide range of illnesses.

Reference: Zingmond DS et al. *Medical Care*. 2007; 45(10): 931-8.

Cognitive Function Returns to Normal Levels Within One Year of Stem Cell Transplant

According to a recent study, cancer patients with hematopoietic stem cell transplantation (HSCT) have regained or improved their cognitive function within one year of the HSCT. Researchers at the H. Lee Moffitt Cancer Center and Research Institute in Tampa, Florida and colleagues conducted the study. Using a sequential longitudinal design, 476 patients were randomized to be tested at all 3 time points, pre-transplant, at 6 month and at 12 months post-HSCT, or at only 12 months post-HSCT. Participants completed a comprehensive battery of neuropsychologic tests that indexed memory, psychomotor speed, attention, and executive functioning, and provided a total neuropsychologic performance score (TNP). There was significant improvement in TNP, and all cognitive domains except attention across the 1-year follow up period. By the 12-month follow up point, these measurements were superior or equal the population normative values.

Reference: Jacobs SR et al. *Cancer*. 2007; 110(7): 1560-7.

Delayed Blink Reflex Seen in Patients with Lewy Body Disease

The blink response, used to evaluate brainstem lesions, is in response to electrical stimulation of the supraorbital nerve. Researchers at the University G. d'Annunzio of Chieti-Pescara found the blink response delayed in patients with dementia with Lewy bodies (DLB). The study included 26 patients with DLB, 20 with Alzheimer's disease without REM sleep behavior disorder (RBD), 26 with Parkinson's disease (with or without RBD), 26 with multiple system atrophy, 20 with progressive supranuclear palsy and 30 age-matched controls. There was a significant difference in the latencies of the R2 response, which is generated in polysynaptic pathways involving the brainstem reticular formation. In the DLB group, the R2 mean latencies were significantly delayed when compared with the other groups.

Reference: Bonanni L et al. *J Neurol Neurosurg Psychiatry*. 2007; 78(10):1137-9.

Screening Battery May Help Physicians Evaluate Parkinson's Patients' Fitness to Drive

Dr. Hannes Devos at the Katholieke Universiteit Leuven, Belgium, and colleagues evaluated various models to help predict fitness to drive for Parkinson's patients. The study included 80 subjects, 40 with Parkinson's disease and 40 healthy matched controls. All subjects were assessed using a driving simulator, a driving history survey, and the Clinical Dementia Rating scale. Additionally Parkinson's patients underwent a clinical test battery and an evaluation of fitness to drive performed by the Center for Fitness to Drive Evaluation and Car Adaptations (CARA) of the Belgian Road Safety Institute. The latter was comprised of visual, cognitive, and driving tests. The model that best predicted fitness to drive included the Clinical Dementia Rating Scale, assessment of the duration of the disease, sensitivity to contrast, and the Unified Parkinson's Disease Rating Scale. The model correctly predicted whether 36 (out of 40) patients with Parkinson's disease would pass or fail the driving test.

Reference: Devos H et al. *Neurology*. 2007; 69(14):1434-41.

Family History of Parkinson's May Increase Risk of Alzheimer's

Relatives of individuals with Parkinson's have an increased risk for developing Alzheimer's disease

according to a recently study led by Dr. Walter A. Rocca, of the Mayo Clinic of Medicine in Rochester, Minn. The study included three groups: 1,019 first-degree relatives of 162 patients with Parkinson's Disease; 858 relatives of 147 individuals who were of same age and sex as those with Parkinson's but did not have the disease; 2,716 relatives of 411 patients with Parkinson's disease referred to the Mayo Clinic. Relatives of those with Parkinson's had a 37% increased risk of developing Alzheimer's. Furthermore, relatives of those who developed Parkinson's before the age of 66 were 73 percent more likely to develop Alzheimer's.

Reference: Rocca WA et al. *Arch Neurol.* 2007; 64:1458-64.

Alzheimer's Patients Maintain Sustained Response to Treatment

643 subjects with probable Alzheimer's disease were evaluated annually using neuropsychiatric testing an average of 3 years and up to 10 years. The study was led by Dr. Susan D. Roundtree of Baylor University in Houston, Texas. Researchers concluded that while patients' families may not notice, Alzheimer's patients who consistently use Alzheimer's medications have a slower rate of decline than those that do not consistently take medication.

Reference: 132nd annual meeting of the American Neurological Association

Quick Treatment of Mini-Stroke Significantly Reduces Major Stroke Risk

Researchers at Oxford's Radcliffe Hospitals found that prompt treatment of minor strokes reduces the risk of major strokes by about 80%. The study included two stages. In the first stage, 310 patients were evaluated in a standard primary care practice setting in the UK. They waited on average about three days for an assessment and an average of 20 days to receive treatment. 10.3% of these subjects had a major stroke within 90 days of the initial assessment. The second phase of the study was conducted in a specialized clinic set-up for treating stroke patients. The 281 patients included in this phase of the study were evaluated and given treatment within one day. 2.1% of individuals in this group had a major stroke within 90 days of their initial assessment. The reduction in risk was independent of age and sex.

Reference: Rothwell PG et al. *Lancet.* 2007; 370(9596):1432-42.



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