

# Brief Communication

## Alzheimer's disease and oral health

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**D**ementia is a major disorder of old age leading to global impairment in higher cortical functions, including memory and the capacity to solve the problems of daily living.<sup>1</sup> The prevalence of dementia and related disorders are increasingly correlated with the increasing life expectancy. Alzheimer's disease (AD) is the leading cause of dementia in older persons, and accounts for over one-half of the dementias. The specific feature of AD is memory loss, characterized by poor learning, and retention of new information, which interferes with social and occupational functioning. Short-term memory is clearly abnormal. These deficits are accompanied by other cognitive impairments in naming, fluency, abstract reasoning and executive dysfunction. A clinical diagnosis of AD requires the presence of memory impairment plus impairment in one other cognitive domain, such as language, executive function, or visuospatial function.<sup>2</sup> Many patients with mild AD present with different cognitive deficits. Other symptoms include personality changes, depression, anxiety and other psychological features. There are no reliable clinical tests to determine if a patient has AD. Diagnosis is established on clinical criteria. Magnetic resonance imaging (MRI), single photon emission computed tomography (SPECT), and positron emission tomography (PET) may provide some insight. However, the main role of brain imaging in the assessment of Alzheimer's is to exclude other pathologies. The mental status questionnaire (MSQ), mini mental status examination (MMSE), figural memory test, wechsler memory scale (WMS), facial recognition, categorical name retrieval, and verbal paired associates tests are useful to assess cognitive and memory impairment. Much of the medical evaluation consists of eliminating other sources of dementia including metabolic, infectious, and nutritional diseases, some of which may be reversible. Although the cause of AD is unclear, the primary pathological findings consist of neuronal and synaptic loss, particularly in the hippocampus and entorhinal cortex as well as a prominent loss of subcortical neurons in the nucleus basalis of Meynert and the locus ceruleus, resulting in a depletion of cholinergic and noradrenergic markers. Pathological definitions include neuritic amyloid plaques, and neurofibrillary tangles composed primarily of tau protein. Cell loss in the nucleus basalis of Meynert and the locus ceruleus results in a depletion of cholinergic markers, a finding that has driven the development of the first

agents for treating AD.<sup>3</sup> The only approved treatments for AD are cholinesterase inhibitors, which enhance cholinergic transmission by inhibiting the breakdown of acetylcholine in the synaptic cleft. Tacrine is the first cholinesterase inhibitor with limited tolerability. Donepezil, rivastigmine and galantamine are new generation drugs and widely used in AD with cholinergic properties. The drugs are able to modify some aspects of cognitive function. There is no consensus as to how long they should continue to be used. Depressive symptoms occur in up to 50% of AD patients. Treatment of psychiatric and behavioral problems in AD includes antipsychotics, antidepressants and nonpharmacological interventions.

**Dental management.** Most health practitioners, including dentists, will become increasingly involved in the care of both AD patients and their family members as their numbers increase. To provide competent and timely care to patients with AD, clinicians must understand the disease, its treatment, and its effect on the patient's physical and cognitive ability to maintain their oral health and to undergo and respond to dental care. Oral health is important to the health of the patient with AD. Diminishing cognitive ability and voluntary motor skills result in neglected or inadequate oral hygiene. It has been demonstrated that patients with AD seem to have poorer oral hygiene, increased prevalence of periodontal disease, and a greater occurrence of dental problems in general.<sup>4</sup> Patients with AD have reduced submandibular salivary flow rates even when not taking medications. Because saliva is essential to maintain oral health owing to its protective actions, patients with AD may be more likely to develop gingivitis, caries, oral infections, dysfunctional speech, chewing, and swallowing. Close observation of the patient's behavior in the dental clinic may give the dentist valuable information about the gravity of the patient's dementia and ability to cooperate as a dental patient. If the patient is capable of understanding, the dentist should address the patient directly. The presence of a family member or caregiver is useful to minimize the patient's anxiety and to obtain information that the patient may not be able to provide. Alzheimer's disease patients will have problems recognizing familiar places and people. Therefore, it is important to avoid new situations, such as a new dentist or a new office. Short and early appointments for patients can be less stressful.<sup>5</sup> Treatment plans should be designed with minimal changes to the oral cavity and should not involve complete rehabilitation. Depending on the medical history and the extent of the dental treatment required, a medical consult may be necessary. In some cases, sedation may be necessary to control the AD patient's movements and quiet the patient's anxiety.

For AD patients, oral sedation with a short acting benzodiazepine is more predictable. In these cases, consultation with the physician should occur to determine the best agent, dosage, and approach to use. As the mental condition of the patient deteriorates, the patient may become incapable of carrying out some or the entire dental hygiene regimen. In these cases, the education of a family member or some other caregiver is essential.<sup>4</sup>

Good oral care is important to the health and comfort of patients with AD. Therefore, oral health care providers must understand the disease and will be increasingly challenged with preserving oral and nutritional health in these patients with the greatest amount of empathy, dignity, and kindness in order to maintain the quality of life of a person with AD.

Received 29th March 2005. Accepted for publication in final form 2nd July 2005.

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