Differential Diagnosis of Dementia

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The definition and connotation of the word "dementia" are variable. In its most basic form, dementia is defined as simply a mental deterioration. However, dementia is usually employed clinically with more operationally restricted definition (eg see DSM III R criteria in Table 1). Dementia usually implies the loss of several intellectual skills and is not just simply due to impaired consciousness or due to a single deficit from a focal lesion (eg aphasia). The loss of intellectual skill should be of sufficient magnitude to impair social or occupational functions. The deterioration is usually thought of as slowly progressive or as least subacute in onset. A sudden acute change in mental status is usually thought of more in terms of an acute confusional state (eg stroke). Finally, the decline in cognitive skills should be in excess of those expected by normal aging.

Cognitive changes associated with normal aging include a reduced capacity for learning, slowed motor and cognitive speed, impaired divided attention, and a reduction in fluid intelligence as opposed to crystallized intelligence. In contrast, verbal IQ and well learned cognitive skills are preserved. Philosophically, one might view some of these differences in the following manner. AT 18 years of age, a person has not developed a large store of knowledge which we call wisdom, and thus is less reliant on learning capacity. From a physiological point of view, numerous histological, neurochemical and physiological changes occur which appear to underlie some of these cognitive changes across age. Other changes noted on the neurological examination across aging include a decreased sense of smell, visual acuity, and auditory acuity along with a slight impairment in upgaze, reduced vibratory sense in the lower extremities, an da variable reduction in ankle tendon reflexes. In addition to the previously noted reduction in motor speed, there is a generalized decrease in muscle strength and bulk although part of these changes are due, in part, to reduced activity levels.

The cumulative risk for dementia in persons over the age of 65 has been stated to be 15%. However, recent studies suggest that this incidence may further increase with increasing age. For instance, a Framingham study has showed that the risk for dementia exceeded 40 % in individuals greater than 85 years of age. In view of the increasing percentage and absolute numbers of elderly in our population, it is obvious that dementia will be a major national health problem over the next 30 years.

The differential diagnosis of dementia in the elderly is outlined in Table 2. The mos t common cause of dementia in the elderly is Alzheimer's disease, accounting for 40- 6-% of all cases. In some of these cases, there is overlap with other disease processes such as Parkinson's disease or vascular disease. Although originally described in the early part of this century, the relationship between Alzheimer's disease and semile dementia was not

appreciated until the last twenty years. Previously, Alzheimer's disease was relegated to an extremely rare disorder of middle age. However, the histopathological changes are similar in pre senile and senile Alzheimer's disease. This is not to say that all Alzheimer's disease is a single disease entity but rather it probably represents a syndrome, as there is some evidence for heterogeneity in inheritance of the pattern of deficits.

The primary histopathological features in Alzheimer's disease include senile plaques and neurofibrillar tangles. Senile plaques comprise a circular ring of generated dendrites with a central amyloid core. Neurofibrillary tangles are coarsened, thickened, twisted strands, of the intranuclear neuro fibrillar tangles are not specific for Alzheimer's disease, and can even be seen in normal advanced aging. However, the distribution and numbers of these lesions are diagnostic.