Dementia: Differential Diagnosis
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Thomas A. Ban

Modified Concept

In variance with the original unitary concept, today MID is perceived as a disease category which consists of four distinctive types (Alexander and Geschwind 1984). It includes (1) bilateral hemispheric infarcts, the result of hypertensive disease; (2) water-shed infarcts, the result of low cerebral perfusion; (3) progressive infarction of subcortical white matter; and (4) multiple infarcts due to inflammatory arteries (Gottfries 1989). Among them, the most frequently encountered is progressive infarction of subcortical white matter, referred to as leukoaraiosis (Hachinski, Potter and Merskey 1987), because it produces "white matter lucency" detectable by CT scan and/or MRI. Considering that leukoaraiosis is present in as many as one-third of the patients with dementia (Hachinski 1990; Steingart, Hachinski, Lau et al. 1987), it should not be surprising that the high prevalence of MID in the general population has not changed, in spite of the steady decrease during the past three decades in the incidence of strokes (Brust 1983; Whisnant 1984) and in the incidence of widespread lacunar infarctions due to uncontrolled hypertension (Fisher 1982; Roman 1987a).

While it remains questionable whether it would be Justified to lump all "white matter lucency" under Binswanger's disease or subcortical arteriosclerotic leukoencephalopathy (Roman 1987b), by now it is generally acknowledged that leukoaraiosis is intimately linked with amyloid angiopathy, one of the causes of spontaneous intracerebral hemorrhage, a disorder which shows an increase in incidence with advancing age (Hachinski 1990; Tomonaga 1981).

Classification of Dementing Illnesses

During recent years, numerous classifications of dementing illness have been proposed. Although some of these classifications, such as, for example, the classification of Gottfries (1989), which provides some insight into etiology, severity and course, may offer some advantages for the

practicing physician, the generally accepted classification of dementing illness has remained the traditional dichotomy which separates the primary from the secondary dementias.

Primary Dementias

It is estimated that, with the inclusion of the vascular dementias, 80-90% of the dementias in elderly patients are primary dementias, in which the etiology of the dementia is a primary degeneration or dysfunction of the brain. Among the primary dementias, by far the most frequently encountered are senile dementia of the Alzheimer's type (or primary neuronal degeneration), multi-infarct dementia (including Binswanger's disease) and mixed (SDAT and MID) dementia. Considerably less common are Parkinson's disease (in which dementia may occur in up to 40% of patients), Pick's disease, progressive supranuclear palsy, Creutzfeldt-Jakob's disease and Huntington's chorea (Guterman and Eisdorfer 1989).

Secondary Dementias

In variance with the primary dementias, in which etiology is a primary degeneration of the brain, in the secondary dementias etiology is a known somatic disorder in time relationship with the clinical manifestations. Nevertheless, since the same somatic disorder with similar severity induces only in some, and not in all patients' manifestations which are perceived as dementia, some believe that secondary dementia can be triggered only in those with a predisposition to dementia who can be expected to develop a dementing illness. An alternative possibility raised is that what is referred to as secondary dementia is not dementia at all, but a subacute confusional state or amentia, with incoherence of thinking and corresponding motor behavior. In keeping with this later contention is that vitamin B11 deficiency (i.e., serum B11 values below 130 pmol/1) was present in as high as 50% of the patients with confusional states, whereas B11 deficiency was present in only 23% of patients with SD, in 9% of patients with MID and 8% with AD (Regland, Gottfries, Oreland, and Svennerholm 1988).

In a study of elderly patients with dementia, Popkin and MacKenzie (1984) found that 15% of their cases were potentially reversible secondary dementias; and those seven special medical disorders accounted for 90% of these reversible dementias. Among the seven medical disorders

the most frequently encountered were normal pressure hydrocephalus (31%), followed by mass lesions (30%), drug toxicity (12%), thyroid dysfunction, alcoholism, general paresis and psychiatric illness (Guterman and Eisdorfer 1989).

Real vs Pseudodementia

Among the different psychiatric disorders which might lead to a clinical picture which closely mimics dementia, the most frequent is depression. Because of this, among the secondary dementias the so called pseudodementia of depression (Wells 1979) has received special attention in the psychiatric literature and given special consideration in differential diagnostic decisions.

The concept of pseudodementia, however, is not restricted to the pseudodementia of depression, but includes a wide variety of other conditions. In fact, the term, introduced by Wernicke (1884), was originally used exclusively in reference to "chronic hysterical states mimicking mental weakness"; and it was more than 50 years later that Madden, Luhan, Kaplan et al. (1952) adopted it for reversible cognitive impairment in subjects suffering from involutional (primarily melancholic) psychoses. More recently, the term has also been employed in reference to certain acute disorders of consciousness.

With consideration of the historical development of the concept, Bulbena and Berrios (1988) contend that "pseudodementia represents a collection of clinical states rather than a process, a convergence point for pathological conditions of different etiology where (the) common denominator is an ability to impair cognition or to disable the mechanisms by which cognition is experienced." By employing this broad frame of reference, they analyzed a "collective sample" comprised of 61 cases of pseudodementia from the literature and found that there are two important subtypes of pseudodementia, one which is associated with depressive illness and another which is associated with delirium, a disturbed state of consciousness.

Because of their frequent occurrence, the separation of delirium and depression from dementia is of great practical importance. Although there are no generally accepted scales for differentiating between the two, delirium can be separated from dementia on the basis of 13 key features identified by Kane, Ouslander and Abrass (1989) (Table 5). Included among these features are onset, awareness and thinking, which in case of delirium are acute, reduced and disorganized,

whereas in the case of dementia are insidious, clear and impoverished. Similar to delirium, depression can be separated from dementia on the basis of 27 features identified by Winstead and Milke (1984) (Table 6). A simpler method, based on neurologic findings, memory and affect, was proposed by Vinogradov (1991) (Table 7).

Table 5

Features	Delirium	Dementia
Onset	Acute, often at night	Insidious
Course	Fluctuating, with lucid intervals during days; worse at nights	Generally stable over course of day
Duration	Hours to weeks	Months or years
Awareness	Reduced	Clear
Alertness	Normally high or low	Usually normal
Attention	Hypoalert or hyperalert; distractible fluctuates over course of day	Usually normal
Orientation	Usually impaired for time; tendency to mistake for familiar place and person	Often impaired
Memory	Immediate and recent impaired	Recent and remote impaired
Thinking	Disorganized	Impoverished
Perception	Illusions and hallucinations (usually visual) relatively common	Usually normal
Speech	Incoherent, hesitant, slow or rapid	Difficulty in finding words
Sleep-wake	Always disrupted	Often fragmented sleep cycle
Physical illness or drug toxicity	Either or both present	Often absent, especially in Alzheimer's disease

Delirium vs dementia: differential features. (Based on Kane, Ouslander and Abrass: Essentials of Clinical Geriatrics, 2nd. ed. McGraw Hill, New York, 1989. Adopted from Canadian Consensus Conference on the Assessment of Dementia, 5-6 October 1989.)

Table 6

Primary Depression		Primary Dementia
	General	
Family usually aware of illness		Family unaware of illness
Onset dated and more accurate		Insidious onset, broadly and vaguely dated
Symptoms of short duration		
Rapid progression		Slow progression
Family history of affective disorder		Possible family history of Alzheimer's disease
	Personal History	
Patient with history of depression		No history of depression
Patient complains of cognitive deficits and seeks help		No complaints of cognitive deficits
Patient complains in detail		Complaints are vague
Patient's complaints of cognitive deficits are emphasized		Deficit is concealed
Patient highlights his/her failures		Patient delights in his/her accomplishments
Patient does not try to keep up		Patient struggles with tasks
		Patient relies on notes, calendars and the like
Patient is in distress		Patient unconcerned
Affective symptoms pervasive		Affect is labile and shallow
Behavior incongruent with cognitive dysfunction		Behavior compatible with cognitive dysfunction
	Examination	
No sun-downing		Sun-downs
Attention and concentration preserved		Faulty attention and concentration
"I don't know" answers are typical		Frequent "near miss" answers
"Don't know" answers on orientation		Orientation tests poor
Recent and remote memory loss are similar		Recent memory loss greater than remote memory loss
Distressed memory for specific periods is common		No gaps in memory
No glabella or snout reflexes		Glabella or snout reflexes present
	Psychological Testing	
Variable performance		Consistently poor performance
Wechsler shows no typical pattern		Great discrepancy between oral and performance scores
	Examination of Mental Status	
No apraxia or agnosia		Has apraxia or agnosia
Will correct and word intrusions		Demonstrates word intrusions
	Neurologic Testing	
CT scan normal		Possible abnormal CT with increased ventricular size and cortical atrophy
DST* 60% nonsuppressed		DST may or may not suppress

*DST - Dexamethasone Suppression Test

Primary depression vs primary dementia: differential features. (Based on Kane, Ouslander and Abrass: Essentials of Clinical Geriatrics, 2nd ed. McGraw Hill, New York, 1989. Adopted from Canadian Consensus Conference on the Assessment of Dementia, 5-6 October 1989.)

Table 7

	Pseudodementia	Dementia
Neurologic Findings	• None • • •	• Dysphasia • Apraxia • Agnosia • frontal lobe release signs • other neurologic findings
Psychometric Tests	• attention • concentration • "forgetfulness" • mild confusion and orientation	• short term memory • patient covers up deficits • Disorientation
Affect	• depressed • anxious • irritable • not influenced by suggestions	• mobile affect • patient is redirectable, easily influenced

Differentiation of the pseudodementia of depression from real dementia. (Adopted from Vinogradov S: Depressive subtypes differentiated from pseudodementia in the elderly. The Psychiatric Times. Medicine & Behavior, April 1991).

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