American Handbook of Psychiatry

THERAPY OF MENTAL ILLNESS IN LATE LIFE

Ewald W Busse

THERAPY OF MENTAL ILLNESS IN LATE LIFE

Ewald W Busse

e-Book 2016 International Psychotherapy Institute

From *American Handbook of Psychiatry: Volume 7* edited by Silvano Arieti

Table of Contents

THERAPY OF MENTAL ILLNESS IN LATE LIFE

Ewald W Busse

Prior to the selection and implementation of a therapeutic plan for the treatment of mental illness, it is necessary to establish the proper diagnosis and to have an understanding of the disease. The clinician should know as much as possible about the disease process, the prognosis, the various biological and environmental factors that influence the course of the disorder, and the effectiveness of treatment. This is consistent with the multiarial approach of DSM-III. There are no mental disorders that occur exclusively in late life. There are, however, a number that are more common to the latter part of the life span, after the age of sixty-five. These include organic mental disorders and affective disorders, namely depression, paranoia, hypochondriasis, and sleep disturbances.

Demography

The percentage of the population in the United States of persons over the age of sixty-five has increased steadily, from 4.1 percent in 1900 to 8.1 percent in 1950; 9.8 percent in 1970; 10.3 percent in 1975; and 11 percent in 1980. If current trends continue, the percentage of the older population will be 11.7 percent in the year 2000 and 16.1 percent in 2050.

Computed from death rates in 1977, the average life expectancy at birth for both sexes combined was 73.2 years. For males, it was 69.3 years and for females, 77.1 years, a difference of 7.8 years. At age sixty-five the remaining expected years of life for women are 18.3 years and for men 13.9 years, a difference of 4.4 years. If recent decreases in death rates continue, especially from cardiovascular conditions, life expectancies will increase even further. This may not, however, improve the quality of life, as it is possible that more individuals will develop senile dementia or related organic mental diseases.

Statisticians and epidemiologists frequently refer to persons sixty-five years of age or over as "the older population." However, from a health standpoint those sixty-five to seventy-five years (61.8 percent of the older population) are remarkably different from those seventy-five years of age and older (38.2 percent).' The majority of those sixty-five to seventy-five years are relatively healthy, although they may have some incapacities. Their health as a group is more similar to those between the ages of fifty-five and sixty-five. Consequently, those seventy-five years of age and over constitute the target population for many of the medical and supportive services that are provided by both public and private programs.

Based on data for 1978, the average American fifty-five to sixty-four years of age spends 1.9 days per year in a short hospital stay. This increases to an average of 3.2 days for persons age sixty-five to seventy-four and to 6.0

days for those seventy-five years plus. Nursing home utilization increases rapidly with age. In 1976, on the average, a person aged fifty-five to sixty-four spent a fraction of a day per year in a nursing home. Between sixty-five and seventy-four years of age, this jumped to 4.4 days; between seventy-five and eighty-four years, to 21.5 days; and for those over eighty-five years of age, to 86.4 days per year.

In 1977, there were 1.1 million older people in nursing homes. Fifteen percent were between the ages of sixty-five and seventy-four; 41 percent were seventy-five to eighty-four; and 40 percent were 85 years and over. In the nursing home population, 74 percent were women, 69 percent were widowed, 14 percent were single, and 12 percent were married. Ninety-three percent of occupants of nursing homes are white.

Older people represent 11 percent of the total population of the United States but account for 29 percent (41.3 billion dollars) of total personal health care expenditures.

The Aging Brain

With the passage of time there are numerous biological changes in the human body and brain. So-called normal aging is accompanied by gradual loss of muscle cells and of the number of neurons within the brain and nervous system. Physiological changes also transpire that alter the way the brain

functions while awake and asleep. Such changes have an impact on the way the nervous system responds. However, this does not necessarily mean that the older person who is physically healthy and mentally active inevitably suffers intellectual losses and mental incapacity. When serious losses of intellectual capacity develop and when disruptive patterns of behavior appear, these are the result of one of several diseases which are referred to as organic brain disorders. Included in the organic brain diseases are senile dementia, Alzheimer's disease, and multi-infarct diseases (cerebral vascular disease). All of these incapacitating brain disorders are receiving increasing attention by biological and behavioral scientists. Epidemiological studies throughout the world indicate that these disorders are widespread and occur in 4 to 6 percent of the population age sixty-five and over. So-called Alzheimer's disease is characterized by relatively early onset, that is, sixty years of age or earlier, while senile dementia is likely to make an appearance after the age of seventy. The cause of these diseases is unknown, but it appears that a genetic predisposition plays a role.

Metabolism and Drugs in Late Life

Drugs are metabolized differently by older people than they are by younger adults. The metabolic conditions affected by age include absorption, distribution, destruction, excretion, kinetics of drug binding, and alterations in biological rhythms.

All of these changes can be exacerbated by disease and trauma. Some of the major age changes are the loss or decline of efficiency of renal function. Between the ages of forty and eighty-nine, there is a 55 percent reduction in renal clearance. There is a redistribution of body content, with a decline in protein and an increase in fat. It is estimated that the basic metabolic rate during the adult years declines 16 percent from age thirty to seventy years, while the caloric requirement drops approximately one-third because of decreased metabolism and exercise. The loss of non-replaceable cells plays an important role in aging physiological changes. The loss of brain cells may not only alter important aspects of body metabolism but also may make the brain more sensitive to certain drugs. Striated musculature diminishes to about one-half by approximately eighty years of age. As these muscle cells disappear, they are replaced by fat cells in fibrous connective tissue. Hence, the storage capacity for those drugs that are stored in fat cells is clearly increased. Drugs given orally may not be absorbed as quickly, as the blood flow to the upper gastrointestinal tract is decreased. Aging produces a decrease in heart cells, and there is a decline in cardiac output. In some elderly people, the loss of P cells results in a dysrhythmia or other conductive disturbance of the cardiac rhythm. The aging changes that affect neural transmitters may contribute to causing a number of mental disorders in the elderly patient. There is a decline in concentration and a decrease in certain substances within the brain, including dopamine, norepinephrine, serotonin,

tyrosine hydroxylase, and cholinesterase. The activity of monoamine oxidase increases with age. This would contribute to a decline in norepinephrine, dopamine, and serotonin.

The Health Status of the Older Population

Chronic conditions frequently limit the activity of older Americans. For males age sixty-five and over, two in five report restricted activity, and one in four indicates an inability to carry on some major activity. For adult males between the ages of forty-five and sixty-four, only one in ten reports restrictions in amount or kind of major activity, and only one in sixteen is unable to carry out a major activity. Again, it should be noted that the accumulated data on the older population are significantly influenced by those seventy-five years of age and older.

Medicare did make a difference in the reported use of physicians by older persons between 1962 and 1975. In 1962, 35 percent of older persons had not seen a physician for a year or more. In 1975, this figure dropped to 19 percent. The more severely handicapped older people are far more likely to see a physician now than before Medicare.

As to psychiatric disorders in old age, it appears that 1 percent of persons over the age of sixty-five are in private or public mental institutions. Of the 3 to 4 percent of old people in nursing homes, homes for the aged,

geriatric, or chronic disease hospitals, it is estimated that more than one-half suffer from significant psychiatric disturbances. Therefore, it can be concluded that at least 60 percent of all the old people who have been institutionalized are suffering from psychiatric illnesses.

There is no doubt that elderly people have underutilized outpatient psychiatric and mental health clinics and facilities. This has led to the requirement that all federally supported community mental health centers give special attention to the problems of the elderly. As to the mental health status of the elderly living in the community, a number of surveys conducted in this country and abroad reveal that approximately 4 to 5 percent are either psychotic or else have serious psychopathological symptoms. Another 10 percent have mental problems of moderate extent. There is considerable variation, ranging from an additional 15 to 40 percent, in those considered to have mild disturbances. There is little doubt that there is a deficiency of outpatient care provided for the elderly. Projections by the National Institute of Mental Health indicate that at least 80 percent of the elderly with mental health problems are being neglected in this area.

Organic Mental Disorders

The term *dementia* was first utilized by Philippe Pinel in the early 1800s and gained widespread attention as the result of a paper published by

Benjamin Rush in 1812. Today, it is estimated that 4.4 percent of the elderly population of the United States, that is, 1,-000,000 people, have some degree of organic mental impairment. It is estimated that more than 50 percent of Americans in nursing homes are there because of mental impairment. The cost of maintaining residents in nursing homes has gone up sharply. Over $10 billion was spent for nursing home care in 1976, $12 billion in 1977, and $15 billion in 1978.

Considerable scientific effort has been expended to determine if senile dementia can be differentiated from presenile dementia (formerly called Alzheimer's disease). Neuropathologists generally hold that they are the same disorder, as the histopathologic findings are sufficiently similar that they cannot be differentiated. The clinical course of the disorders is similar, but, as defined in DSM-III, the age of onset is the differentiating criterion. Some epidemiologists, behavioral geneticists, and others feel the two disorders are separable. There does appear to be a gap between the usual age of onset of presenile and senile dementia, and familial influence is more evident in presenile dementia than in senile dementia. Two presenile dementias, Pick's disease and Creutzfeldt-Jakob disease, do not enter into this controversy, as the neuropathological findings are characteristic, and the possible cause of these two disorders is better understood.

DSM-III has been revised and undoubtedly will continue to be revised.

Most changes are concerned with name or diagnostic criteria and a distinction is made between organic brain syndromes and organic mental disorders. (The DSM-III classification is given in parentheses when different from traditional diagnosis.) The essential feature of organic mental disorders is the presence of a biologic (organic) defect that permanently or transiently impairs the functioning of the brain. This biologic or physiologic defect may be primary or secondary; that is, it may be located exclusively within the brain or the brain dysfunction may be the secondary result of a disease process located elsewhere in the body. Clearly, the location is a major determinant in planning treatment. The alterations of brain functions that are usually observed include perceptions and interpretation of perceptions, learning, memory, orientation, decision making, speech, and behavior.

Primary Degenerative Dementia, Senile

Early recognition of dementia or any type of organic brain disease is facilitated by observing the sequence of onset of signs and symptoms. Subjective and objective signs and symptoms may not have a consistent relationship. In general, in senile dementia the earliest symptom is short-term memory loss. This is followed by impairment in decision making, which precipitates depression, anxiety, and fear of impending loss of independence. Often clear evidence of emotional instability follows, with reactions that are inappropriate to the situation. Fluctuation in alertness and level of awareness,

a decline in attention span, and speech and sleep disturbances can often be seen throughout the course of the disease. Defects of orientation to time, place, and person then become more evident, followed by global defects in intellectual activities and behavioral changes.

In 1971, Wang and Busse reported in some detail observations from the Duke Longitudinal Study regarding dementia in old age. In the Duke study, the term *brain impairment* was utilized to designate measures of loss of brain function based upon a number of laboratory procedures, including EEG, cerebral blood flow, cerebral metabolism, and so forth. The manifestations of possible brain impairment were determined by person-to-person observations, such as psychological tests, and clinical measures both of intellectual performance and emotional variations.

It was found that there is often a poor correlation between these two types of evaluation, that is, laboratory procedures versus qualified person-to-person observations. Of particular concern is the discrepancy—as high as 25 percent—found in subjects with a precipitous decline in clinically observable mental signs and symptoms which was not paralleled by evidence of physiologically measured brain changes. Careful consideration of factors such as general physical health, economic status, social environment, and previous living habits led to the conclusion that dementia in late life is a socio-psycho-somatic disorder.

The technique of assessment for organic brain syndrome in Longitudinal Study I was a systematized mental status examination which included two sections; the first specifically rated the presence or absence and degree of organic signs and symptoms, and the second was referred to in data as the "Q-SUM"-a six-point global Organic Brain Syndrome (OBS) rating scale.

Longitudinal analysis reveals that approximately one-half of the subjects at some time after the age of sixty years received mental impaired ratings, yet many in a subsequent year (or years) were not impaired. These findings point to a high variability in the course of organic brain syndrome.

The factors contributing to the appearance of organic brain signs and symptoms have been studied in this longitudinal population of subjects. The major contributors appeared to be decompensated heart disease, low socioeconomic status, and decreased physical and mental activity.

The relationship to cardiovascular pulmonary disease has been considered very carefully. Mild elevation of blood pressure was positively correlated with preserved brain function. It is our speculation that the relatively high blood pressure may be necessary to maintain sufficient blood supply to the brain for adequate cerebral function.

Therefore, we have concluded that the loss of mental ability in late life is not usually the result of a pathologic brain change alone. Incapacitating

dementia is not an inevitable consequence of old age. The loss of mental ability (what one does) and capacity (what is possible) is influenced by changes within the brain, the health status of the entire body, behavioral patterns, and socioeconomic determinants. Consequently, the clinical course is often found to be one of periodic exacerbation and remission, or recovery and recurrence.

Differential diagnosis is extremely important, particularly in recognizing those treatable conditions that are masquerading as senile dementia. There are a number of pathological conditions that secondarily affect the brain, including heart failure, infection, uremia, hypothyroidism, vitamin deficiency, and toxicities from a variety of medical drugs as well as alcohol. All of these conditions can result in temporary or permanent mental impairment, and often in memory difficulties and confusion. Treating the medical problem or withdrawing the toxication can often clear the patient's sensorium and return the patient to a reasonable state of functioning. In addition, depressive illnesses are frequently mistaken for organic brain disease. It is unfortunate to miss these cases as they do respond to anti-depressive drugs and, if necessary in severe cases, to electroconvulsive therapy.

Diagnostic Procedures

The clinician who is uncertain of a diagnosis of organic mental disorder

will often request the assistance of a psychological laboratory to determine the extent or existence of organic mental impairment. The Weschler Adult Intelligence Scale (WAIS) has been widely used for over thirty years. The WAIS continues to be one of the best measures of intelligence for use with the aged. It is important to understand the composition of the test and "normal" age changes. The WAIS is organized into two major components: verbal and performance intelligence, with eleven subtests, six verbal and five nonverbal. Siegler concludes that verbal intelligence tends to increase until the sixties and then falls off gradually. Performance intelligence increases until the forties with a gradual decline until the sixties and a sharp decline thereafter. Clearly, verbal abilities are maintained considerably longer than nonverbal abilities. The abilities which require speed for optimal performance are most affected by the aging process and decrements appear early in life, between the ages of thirty and fifty. However, there are always some individuals who apparently maintain many skills into late life.

The estimate of organic impairment utilizing the Weschler Adult Intelligence Scale is usually based on a discrepancy between the verbal scale and the performance scale. Obviously, because of the vagaries of the aging process among the elderly, this discrepancy may not be as significant as when found in the younger adult. In addition to intelligence testing, psychologists have attempted to develop standardized procedures to assess specific organic impairment.

A test familiar to most clinicians is the Bender-Gestalt. This procedure is reported to be more sensitive in discriminating organic brain damage from functional problems when augmented by the Background Interference Procedure.

The Halstead-Reitan test is a rather time-consuming procedure which requires a reasonable degree of cooperation on the part of the patient. When properly carried out, the examination has been useful, but it has obvious limitations.

The most readily available laboratory diagnostic procedures are plain radiographs of the skull. This noninvasive technique is well established as a routine screening procedure. It is particularly useful in revealing the presence of intercranial space-occupying mass that may be an expanding lesion. It is also useful in identifying the presence and extent of a skull fracture. Pneumoencephalography and ventriculography are relatively complicated procedures that have been utilized for years. They have been rapidly replaced, however, by computerized tomography of the brain. Other diagnostic procedures that are giving way to computerized tomography (CT) include cerebral angiography, radioisotope brain scan, and radioisotope-cisternography. Wang, in reviewing all of these diagnostic procedures, concludes that there are three noninvasive procedures that are most useful for diagnostic purposes. These include electroencephalography, computerized

tomography, and the determination of reasonable cerebral blood flow utilizing the xenon-133 inhalation method. This latter procedure is likely to be available in only a few medical centers.

Treatment

The treatment of primary degenerative dementia must be selected with the emphasis upon the most serious symptoms. The techniques can be separated into certain categories including psychosocial therapy (interpersonal and social skills), ergotherapy (work), ludotherapy (playing games), kinesitherapy (movement and exercise), and group therapy. All of these approaches have merit and should be part of a well-organized comprehensive program. A single approach cannot be expected to produce good results. Each of these techniques must be adapted not only to the condition of the patient but to the strengths and weaknesses of the social and physical environment. Reality orientation is a technique that is particularly applicable to hospitalized elderly or brain-damaged persons with moderate symptoms including periods of confusion and disorientation. One of the leading proponents of this early phase rehabilitation believes that the approach is based upon the recognition that the patient with brain damage is likely to withdraw from reality and in general avoid contact with the environment. As the term reality orientation implies, the process utilizes continuing stimulation. There is repetition of such basic material as the

patient's name, the physical location, the day of the week, the month, the year, what meal comes next, and so forth. The success of this approach is heavily dependent upon the dedication and competency of personnel. Reality orientation deals not only with the restoration of information; it can only be successfully implemented if confusing elements in the environment and the routine of the hospital are reduced to a minimum and communication becomes consistent, clear and nonthreatening.

Milieu therapy is particularly useful in the treatment of dementia patients in a residential setting. It places a large amount of responsibility on the individual patient for his or her own therapeutic program. It includes a structured series of meaningful behaviors. Positive reinforcement for appropriate behavior is emphasized.

Attitude therapy has been added to the regime of techniques for the institutionalized elderly. In brief, attitude therapy contributes to the consistency of how a particular patient is approached. All of the members of the team follow a predetermined pattern in dealing with the patient. This particular therapeutic approach is often incorporated in both milieu and reality orientation therapy.

The choice of an antipsychotic medication is to a large extent determined by the possible side effects of a particular drug weighted against

the behavioral and medical status of the individual patient. Two of the most commonly used antipsychotic agents used in the treatment of the elderly are Thioridazine and haloperidol. Haloperidol has minimal anticholinergic and alpha adrenergic blocking properties, but Thioridazine may be more effective. The geriatric patient should receive 0.5 mg. daily as a starting dose to lessen the chances of extrapyramidal side effects. An average daily dose of 2 mg. is effective for a variety of symptoms.

Multi-infarct Dementia

Multi-infarct dementia was previously labeled organic brain syndrome with cerebral arteriosclerosis. It is sometimes referred to as repeated infarct disease. This diagnosis of the disorder has been confirmed by autopsy. The clinical course is remittent and fluctuating, with episodes of confusion. Consequently, the intellectual deficits tend to be "patchy." Not infrequently multi-infarct dementia occurs in patients with hypertension. Hence, treatment of this cardiovascular disorder may influence the progression of the mental disorder. Repeated infarct dementia is not nearly as common as senile dementia, and it is generally believed to be more common in men than in women. The age of onset is often in the late sixties, between the usual age of onset of presenile dementia and senile dementia. However, epidemiological studies are far from satisfactory. In addition to the signs and symptoms of mental deterioration, transient or persistent focal neurological signs and

symptoms are associated with the disorder. These signs and symptoms include unilateral exaggeration of deep tendon reflexes, dysarthria, balance, and gate disturbances.

Cardiac Arrhythmias in Dementia

Although brain dysfunction can produce cardiac arrhythmias, it appears that cardiac arrhythmias more frequently contribute to brain dysfunction. Cardiac arrhythmias often lower cardiac output so that cerebral blood flow is impaired. It is also possible that arrhythmias predispose to atrial thrombi resulting in multiple cerebral emboli.

Among the cardiac arrhythmias, auricular fibrillation, auricular flutter, and ventricular arrhythmias are very likely to impair cardiac output and therefore to produce signs and symptoms of cerebral insufficiency.

Patients with tachycardia and bradycardia not infrequently experience cerebral ischemic attacks. To establish the relationship of a cardiac dysrhythmia to cerebral changes, it may be necessary to conduct twenty-four-hour monitoring. Cardiac monitoring during periods of sleep may reveal that serious dysrhythmias are occurring and that there are sufficient indications to justify implanting a cardiac pacemaker.

The Decline in the Incidence of Stroke

During the last twenty-five years there has been a decline in the incidence of stroke (cerebral infarction and intracerebral hemorrhage). The explanation for this apparent reduction is not clear. There is no doubt that mortality from stroke in recent years has altered. The reduction appears to have occurred in two phases—one from 1945 to 1959 when the overall average annual decline in the incidence rate adjusted for age and sex was 3.1 per 100,000. A plateau was reached for the next five years, followed by an acceleration in decline. The average annual decreases were 4.8 and 5.3 per 100,000 for the quinquennial periods 1965 to 1969 and 1970 to 1974, respectively. Since effective antihypertensive therapy was not readily available until the early 1950s, it is hard to explain the 5 percent decline between 1945 and 1949 and 1950 to 1954 on the basis of such treatment.

Transient Ischemic Attacks

Episodic cerebral disturbances commonly referred to as transient ischemic attacks (TIA) are not infrequent in the older population. The majority of these episodes are probably attributable to thrombi and emboli affecting areas where restoration of adequate blood flow is possible largely because of collateral circulation. If, however, adequate cerebral blood flow to the affected areas cannot be reestablished, the disease merges into multiple infarct disease.

The carotid bifurcation has a remarkable predilection for atherosclerotic change. In fact, it is reported that one-third of the people beyond the age of sixty-five have an advanced atherosclerotic plaque at the carotid bifurcation. Consequently, palpation and auscultation of the neck are essential, and a bruit at the carotid bifurcation should never be ignored. Carotid endarterectomy is often indicated.

Treatment of Cerebral Vascular Disease

The inhalation of $C0_2$ in normal individuals has demonstrated a significant increase in cerebral blood flow. Unfortunately many patients with vascular disease fail to show the expected increase in cerebral blood flow following $C0_2$ inhalation. $C0_2$ is a selective cerebral vasodilator, but most drugs do not have this selective capability. Many so-called vasodilators result in a transient increase of cerebral blood flow followed by a peripheral vasodilation, causing postural hypotension and a decrease in cerebral blood flow. Consequently, there are serious limitations in the utilization of many vasodilator drugs. There appear to be emerging two types of so-called vasodilators. The first are primary vasodilators, and the second are mixed action, that is, both vasodilators and metabolic stimulants of the brain. The primary vasodilators include cyclandelate (Cyclospasmol), papaverine hydrochloride (Pavabid), and isoxuprine (Vasodilan). Despite the fact that these drugs continue to be considered vasodilators, there is little evidence

that this is the mechanism by which they influence the physiological status of the brain. The mixed action drugs are predominantly the di-hydrogenated ergot alkaloids (Hydergine) and deapril-ST. In Europe there are a number of other similar drugs such as naftidrofuryl (Praxilene). One theory explaining the mixed action or stimulating drug is that it improves the mechanism of cerebral ganglion cells; that is, it increases their uptake of water, glucose, and oxygen which in turn allows astrocytes and capillaries, particularly on the arterial side, to return to normal dimensions.

Normal Pressure Hydrocephalus

The syndrome of normal pressure hydrocephalus was first defined about fifteen years ago. It is a diagnostic category not found in DSM-III. Typically this disease is manifest by a gait disturbance, incontinence, and intellectual impairment. The diagnosis is established by demonstrating enlarged ventricles attributed to a communicating hydrocephalus in the presence of normal cerebral spinal fluid pressure. Katzman describes two forms of hydrocephalus that must be distinguished. In one group the disorder appears to be secondary to previous head trauma, subarachnoid hemorrhage, or meningitis, while in the other group, the cause is not apparent. Therefore, it is designated idiopathic normal pressure hydrocephalus. In this type, the onset may be insidious, but the course is progressive. It appears that idiopathic normal pressure hydrocephalus is a disease of the presenium. The

usual age of onset is between age fifty-five and sixty-five. After surgical intervention, 60 percent show definite improvement.

A major clinical problem is the differential diagnosis of idiopathic normal pressure hydrocephalus from presenile dementia of the Alzheimer's disease type. Although the usual diagnostic procedures should be carried out, particularly computerized axial tomography, the clinical presentation becomes of utmost importance. Gait impairment, which is common in normal pressure hydrocephalus, is rare in Alzheimer's disease. The clinician must keep in mind the classical triad of gait disturbance, incontinence, and dementia.

As to clinical management, consideration of a neurosurgical shunt procedure is important. The percentage of positive responders appears to be much higher in the secondary forms of normal pressure (65 percent) hydrocephalus than in the idiopathic form (40 percent).

Transient Global Amnesia

In 1964, Fisher and Adams reported a particularly interesting variety of transient amnesia which they labeled transient global amnesia. Since that initial observation, similar cases have been observed. The clinical picture is striking. The victim, usually sixty years of age or older, has a sudden onset episode of retrograde amnesia. The amnesia may last for hours and then may

gradually clear. The victim has no recollection of the amnesic episode, but the cognitive facilities during the amnesic period are not disturbed, although the person is aware of the memory loss and can become very anxious about the disability. Episodes of transient global amnesia are sometimes repeated, but usually they are a single occurrence. Various etiological explanations have been offered, including vascular disease and localized disturbance of blood flow, hysteria, seizures, and postictal reactions. Joynt observed six cases in which there were prominent electroencephalographic abnormalities in the temporal lobe. It is likely that this is significant. It is possible, however, that the temporal lobe disturbance is the same as that frequently encountered in elderly people.

Pick's Disease

Pick's disease, named after A. Pick, who first described its symptoms in 189a, is a rare disorder. Pick's original purpose was to illustrate the different types of aphasic manifestations that may occur in senile brain diseases. He did not recognize it as a distinct pathological entity. The work of others was necessary to establish the disease as a distinct heredodegenerative process. It is more frequent in females, occurring in a ratio 2 to 1. Clinical criteria to diagnose Pick's disease are not uniformly accepted, although behavioral changes seem to precede memory defects. In a few cases, it is said to be clinically distinguishable from Alzheimer's disease because its

symptomatology is related to maximum atrophy of the orbitofrontal and temporal areas, particularly on the left.

Microscopically the nerve cell loss and the replacement gliosis are obvious in the supra-granular layers. Sometimes the changes associated with Alzheimer's disease are present. Hence, diagnosis is dependent on the recognition of the "Pick cell." These cells have large agyrophilic inclusion bodies, nuclear eccentricity, and a distorted cell contour. Etiology remains undetermined and the treatment is merely symptom modification.

Creutzfeldt-Jakob Disease

There are several progressive degenerative diseases resulting in dementia which are believed to be caused by a slow virus. Creutzfeldt-Jakob disease is one that occurs in late middle life and is accompanied by the usual symptoms of a dementia, including memory and cognitive changes, visual difficulties, and behavioral alterations. Hallucinations may occur. Other symptoms include myoclonus, hyperesthesia, ataxia, and dysarthria. This disorder was described by Creutzfeldt in 1920. It was not until 1968, however, that it became associated with a slow virus. At that time, Gibbs and his coworkers reported the transmission of the disease to a monkey from a patient diagnosed as having Creutzfeldt-Jakob disease. Since that time it has been observed that it can be transmitted from one human to another by direct

tissue contact, for example, corneal transplant. A slow virus is also the cause of kuru, a somewhat similar disease that was first recognized in New Guinea and was attributed to their practice of cannibalism. The major effects of kuru involve the cerebellum.

Depressive Episodes

Evidence indicates that depressive episodes increase in frequency and depth in the advanced years of life. Elderly subjects are aware of these more frequent and more annoying depressive periods, and they report that during such episodes they feel discouraged, worried, and troubled, and often see no reason to continue their existence. However, only a small number admit entertaining suicidal ideas; a larger percentage state that during such depressive episodes they would welcome a painless death. During such periods, the elderly are more or less incapacitated, but they rarely seek medical help. This type of reaction must be distinguished from a major depressive illness with persistent biologic signs and symptoms, as a major depression requires pharmacologic treatment and often hospitalization.

The observation that elderly subjects were aware that they were experiencing more frequent and more annoying depressive episodes is based upon a study made some years ago and confirmed by more recent longitudinal studies. Observations indicate that there is a difference in the

process leading to depressive episodes in the elderly as compared with middle-aged or young adults. Guilt and the turning inward of unconscious impulses (interjection) are common mechanisms in the depressions of young adults. This is not the case with elderly subjects. Depressive episodes can be readily linked with the loss of so-called narcissistic supplies. The older subject becomes depressed when he cannot find ways of gratifying his needs; that is, when the social environment changes or the decreased efficiency of his body prevents him from meeting his needs and reducing his tensions, he is likely to have a loss of self-esteem. Hence, he feels depressed.

There is clear evidence that the frequency of depressive episodes is influenced by the life situation. For example, three groups of subjects reported mood disturbances occurring at least once a month and lasting from a few hours to a few days. The highest number of subjects (48 percent) reporting mood disturbances were persons over the age of sixty, unable to work, attending an outpatient clinic for various physical disorders, and suffering financial hardships. Depressive spells occurred in 44 percent of those who were retired, in good health, and in acceptable financial condition. Only 25 percent of subjects continuing to work past the usual age of retirement reported such experiences. Most of the subjects in the three groups denied that they had experienced depressive spells of similar frequency or duration earlier in life.

To appreciate fully the factors that are important to depressive episodes in the elderly, particular attention must be given to attitudes toward chronic disease, disability, and death. When studied longitudinally, the importance of physical health as a determinant of depressive feelings becomes increasingly evident. It appears that the aged person can tolerate the loss of love objects and prestige better than a decline in health, as physical disability often disrupts mobility and results in partial isolation. Hence, the opportunities for restoration of self-esteem are reduced.

Important factors that contribute to depressive feelings of elderly persons are often conscious, as approximately 85 percent of elderly subjects are able to identify the specific event or stimulus that precipitated the feelings of depression. Many depressive episodes in the elderly therefore are a realistic grief response to a loss and not primarily influenced by unconscious mechanisms. The symptom is relieved when the actual loss or threat is removed or compensated for.

A recent review of life change events and the onset of major depression in adults indicates a significant relationship between frequency of upsetting experiences and the onset of depression. This suggests that there exist common precipitating factors in both depressive episodes and serious depressions.

Major Depressive Disorders

DSM-III attempts to separate episodic depressions from major depressive episodes. The distinction is based on the presence of a dysphoric mood of at least two weeks' duration and the existence of at least four of eight symptoms which have persisted and are of a significant degree. These include alteration in appetite with weight loss or weight gain, sleep changes and insomnia or hypersomnia, a loss of energy, psychomotor agitation or retardation, a loss of interest or pleasure in usual activities, a decrease in sexual drive, feelings of self-reproach or inappropriate guilt, decreased ability to think, indecisiveness, and lastly, suicide ideation.

Sleep, EEG Changes, and Depression

In recent years there has been increasing evidence that patients with primary depressions have a number of EEG changes including a reduction in total sleep time and a short rapid eye movement (REM) latency (that is, the time between sleep onset and the first REM). In turn, it appears that patients with depression secondary to medical disorders also have characteristic EEG changes. It appears that EEG sleep changes have a relatively high predictive value in determining those who have primary depressions. These studies are summarized in a recent report by R. J. Carroll. It is possible that these EEG changes associated with depressions in young and middle life may not be as

accurate a predictor in late life because of the complication of EEG changes accompanying old age.

Biological Measures and the Differential Diagnosis of Depression

Although EEG recordings during nocturnal sleep are of value in differentiating types of depression, for young and middle-aged adults other procedures are emerging which appear to be less time-consuming, equally effective, and applicable to late life. Growth hormone (GH) stimulation tests require a half day of the patient's time and can be carried out on outpatients as well as inpatients. For several years, studies of pituitary growth hormonal regulation have revealed suggestive evidence that depressed patients secrete less growth hormone than normal in response to a variety of stimuli. Several substances that may be used in diagnosis include amphetamine, clonidine, and desipramine. Utilizing desipramine, it has been demonstrated that endogenous depressives had low growth hormone responses, while the neurotic depressives have exaggerated responses. Such diagnostic studies should be viewed with caution until they are adequately repeated utilizing groups of elderly persons. Although human pituitary *content* of growth hormone is relatively constant with age, the loss of a few hypothalamic cells that influence the *release* of pituitary hormones may be a confusing factor in the diagnosis of those in late life.

The Treatment of Depression

There are several major classes of pharmacological agents that are utilized for treatment of depression in the elderly. These include the tricyclic compounds, the monoamine oxidase inhibitors, the stimulant drugs, and the benzodiazepines. The latter are used primarily for anxious patients with neurotic depressions. Lithium is sometimes used as a prophylactic against recurrent manic attacks and depressions and to modify bipolar mood swings (A first manic attack is rare in late life). The tricyclic compounds are frequently utilized to treat elderly patients with biological signs of depression. Although the tricyclic drugs have a common structure, they do differ chemically from each other. Consequently, these differences influence their clinical effects as well as their undesirable side effects.

The tricyclic compounds are usually administered orally and are rapidly absorbed. However, the drug is found in higher levels in an active unbound form in the blood stream of the elderly. This presence of unbound tricyclic drugs is related to the higher incidence of side effects. Furthermore, the rate of metabolism for the tricyclic agents decreases with advancing age. Consequently, patients in late life, despite receiving a lower daily dose of the drugs, tend to have a higher blood level, and the plasma level tends to be unstable. Elimination of the drug in older patients is also prolonged. For the reasons given, the determination of tricyclic plasma levels is particularly

useful in the elderly where a relatively small change in the dose may produce a marked alteration in the plasma level and alter the therapeutic effect or expose the older person to the undesirable side effects. Blood collection for plasma levels should be done before the morning dose, no anticoagulant should be used, and caffeine should not be ingested twelve hours before the sample is taken.

Walker and Brodie believe that there is a curvilinear relationship between the plasma levels of the secondary amine tricyclic antidepressants and the therapeutic effect, while the tertiary means have a linear or a sigmoid relationship. Task originally reported this observation.

The tricyclic drugs can be separated into two groups: The tertiary amines that block the reuptake of inactivation of biogenic amines, principally serotonin, at the synaptic junction, while the secondary amines block reuptake inactivation of norepinephrine. The tertiary amines include imipramine, amitriptyline, and doxepin. The secondary amines are desipramine, nortriptyline, and protriptyline. Tricyclics are powerful anticholinergic agents. The most common side effects are due to their anticholinergic properties and include dry mouth, sweating, blurred vision, urinary retention, and paralytic ileus.

Monoamine oxidase inhibitors (MAO) are rarely used as the first drug of

choice. The MAO inhibitors increase the amounts of norepinephrine, dopamine, and serotonin in the brain. Generally, they are not believed to be as effective as the tricyclic and, in addition, are associated with hypertensive reactions when the patient ingests foods containing tyramine such as cheese and wine.

Amphetamine and similar stimulating drugs are not effective as antidepressant medications.

When the depressive reaction is associated with considerable anxiety, the benzodiazepines are believed to have limited value.

Suicide Rates

The suicide rate in the United States is approximately 12.7 per 100,000 population. This means that just over 1/100th of 1 percent of the total population commits suicide in a single year. Although persons over the age of sixty-five make up only 11 percent of the total population, 16.4 percent of all suicides are persons sixty-five years and over. This age-related phenomenon is influenced by the high suicide rate among elderly males. In 1977, suicide by females was more likely between the ages of forty-five to fifty-four, but even at this age the rate per 100,000 of male suicides is almost double that of females. Throughout adulthood, and abruptly increasing at age seventy, the risk of suicide for the male is much higher. Suicide attempts, however, are

much more frequent among females than among males, but the male's attempt is much more likely to be lethal. Between 1968 and 1977, there was a sharp increase, almost a doubling, of the suicide rate for all males between fifteen and thirty years of age. The older nonwhite male, although more likely to commit suicide than the nonwhite female, does not display the sharp rise in suicide of the older white male. Suicide rates among the nonwhite population are consistently lower than those found among the white population.

The onset of what appears to be organic brain disease is now more frequently associated with suicide than prior studies indicated. This, too, is complicated, as severe depressions are frequently very difficult to distinguish from organic brain disease. There is little doubt that the presence of an incapacitating physical illness is a factor in suicide among the elderly. At the present time, it is most difficult to detect and predict those who are suicidal. This is in contrast to the young would-be suicide for whom the attempt is frequently an overt but disguised cry for help.

Marital status has an influence on suicide rates. The highest suicide rates are seen among men who are divorced, followed by the widowed, and then those who never married. Suicide rates are lowest among persons with intact marriages. Other characteristics of persons who commit suicide in old age are lack of employment or rewarding social roles, unsatisfactory living arrangements, and, as previously noted, a serious concern regarding physical

and mental decline.

Paranoid Disorders and Reactions

A fine line separates an attitude or behavior that can be considered within normal limits and one that is considered excessive or pathological. A satisfactory adjustment in late life appears to be related to the individual's ability to maintain social activities as well as health and physical activity and other factors that have been described by Palmore and Maddox. The elderly need to recognize that because some people with whom they must come into contact may be inconsiderate and self-centered, they must assert their rights, to avoid being ignored by the very systems (including government, private service agencies, church, and family) intended to provide them with assistance. If the recognition of defects in others cannot be kept in perspective, an older person is likely to distort events and relationships, becoming suspicious and paranoid. For the majority of individuals, one of the major functions of social contacts is to maintain this precarious balance of evaluating events and relationships to others.

Eisdorfer emphasizes that this lack of precision regarding paranoid behavior among the aged has made it most difficult to ascertain the prevalence and incidence of pathological paranoid reactions. In order to determine the existence of maladaptive suspiciousness, the examiner must

determine the pervasive scope of the symptom focus; that is, is the symptom consistently maladaptive, and, particularly, has it become so widespread that it interferes with the individual's ability to function within the total environment? Eisdorfer has more or less arbitrarily divided paranoid ideation into four degrees of severity: (1) suspiciousness; (2) transient paranoid reaction; (3) Paraphrenia (late onset paranoia without evidence of schizophrenic illness); and (4) paranoia associated with schizophrenia of late onset.

There are a number of predisposing and contributing factors to the development of excessive suspiciousness and paranoia. There are some individuals who have elected to cope with the complexities of life by adapting to a life-style of partial isolation. Such individuals can make an acceptable adaptation. This is not the normal life style, since isolation is maladaptive. The clinician must constantly keep in mind that late life is constantly influenced by losses that impact upon the individual's capacity to maintain self-esteem. These major losses include the possible disappearance of satisfactions derived from work and a meaningful social role; the loss of friends, spouse, and family; economic instability; and the need to move from a familiar home and neighborhood. The biological losses that seem to have the greatest impact are concerned with the decline in perceptual skills, primarily auditory and visual. The loss of auditory acuity has been associated with paranoia in many stages in the life span, including the aged. Hearing loss is a very frequent

problem in late life. Consequently, the elderly person is vulnerable to misinterpretation of communication, and this failure to interpret properly is easily projected onto others.

In dealing with the increasing suspiciousness of an elderly person, the astute clinician will utilize a number of relatively simple techniques that are of considerable value. Obviously, the use of a hearing aid is of importance, but, in addition, when communicating with a person with a hearing defect, it is essential that both the speaker and the listener have eye contact. This can be encouraged by touching the elderly person when he is addressed so that he turns toward the speaker. The subject of the statement should be clearly stated, for example, "I want to talk with you about your daughter." The speaker must carefully observe the person for what he appears to misunderstand. The speaker should not hesitate to repeat without apology. In the presence of an elderly person, the speaker should avoid making side remarks in a low voice. Also, excessive background noise can severely interfere with the ability of the older person to understand. Perception defects are not the only problems for the suspicious older person. If an older person is moved from one living area or residence to another, it is advisable to attempt to arrange the bedroom in a manner that is as similar as possible to that previously occupied. An older person with loss of some cognitive skills should be assisted in becoming familiar with the location and characteristics of the toilet and kitchen facilities. Attention to this type of procedure can

reduce considerably anxiety and paranoid ideation.

The loss of ability to convert short-term memory to longer-term memory and a decline in level of alertness are often associated with difficulty in locating objects and the subsequent suspicion that the object was intentionally moved or taken by someone. In such a situation, if possible, the family or staff should remain with the older person to assist in the search for the lost object. When the object is found, the person will often say, “Now I remember where I left it.” Seeing the object in place in the proper surroundings is important to such recall. If this is not done, the person may continue to be suspicious.

Transient paranoid reactions may be associated with hallucinations, both visual and auditory, and although paranoia is widespread, the reaction can be frequently precipitated by a major change in life-style. It appears that this reaction is more likely to occur in the older person who has preferred relative isolation but finds this pattern suddenly disrupted. The therapeutic approach may include pharmacological treatment but centers upon the reinstitution of the life-style preferred by the individual.

Paraphrenia, that is, late onset paranoia without evidence of prior paranoid reactions, and paranoid schizophrenia of late onset are difficult to distinguish. Kay and Roth believe they can be distinguished, particularly by

identifying the presence of those attributes of schizophrenia which interfere with cognitive skills. Regardless of the difficulty of separating these two possible paranoid conditions, the prognosis is not particularly encouraging in spite of the utilization of a protective environment and psychopharmacological agents.

Hypochondriasis

Hypochondriasis is one of five diagnostic entities that are included under the category Somatoform Disorders. These DSM III disorders have in common a symptom or symptoms that suggest organic physical illness, but for which there is no discernible organic explanation. In addition, there is evidence that the symptoms are linked to psychological factors. The symptom formation is largely unconscious, which distinguishes it from factitious disorders. According to the 1980 revision of DSM-III there are four diagnostic criteria for hypochondriasis:

A) The predominant disturbance is an unrealistic interpretation of physical signs or sensations as abnormal, leading to preoccupation with the fear or belief of having a disease.

B) Thorough physical examination does not suggest the diagnosis of any physical disease that accounts for the physical signs or symptoms.

C) The unrealistic fears or beliefs of having a disease persist despite

medical reassurance and cause impairment in social, occupational, or recreational functioning.

D) The hypochondriacal preoccupation is not due to schizophrenia, affective disorder, somatization disorder, or anxiety disorder.

Two closely related diagnostic categories are Psychogenic Pain Disorder and Atypical Somatoform Disorder. The former is associated with severe and prolonged pain. Although primarily attributable to psychological factors, it is recognized that there are incidences “in which there is some related organic pathology. The complaint of pain is grossly in excess of what should be expected with such physical finds.” The existence of organic pathology is particularly pertinent to the hypochondriacal reaction in the elderly. This will be elaborated. Atypical Somatoform Disorder is considered to be “a residual category.” An example of a case that would fit this classification is an individual who is preoccupied with some imagined defect in physical appearance. Such atypical disorders are rare.

Clinical experience and a number of studies indicate that hypochondriasis is prevalent in late life, is more frequent among older women, and is associated in many instances with depression. Hypochondriasis in late life is complicated by the fact that many elderly patients do have evidence of chronic physical disabilities, and although their complaints appear to be grossly exaggerated, the actual existence of organic

problems cannot be dismissed. Of particular importance to the clinician is the recognition that the hypochondriacal individual who is given attention on an outpatient basis is much more likely to respond to therapy than a patient who has been hospitalized because of persistent physical complaints. It appears that hospitalization increases resistance, as the patient is convinced that an organic explanation must exist and that the actual cause of the disorder has been missed by the examiners.

It is believed that an older person is particularly vulnerable to hypochondriasis not only because of chronic disease and biological age changes but also because of economic insecurity, the loss of a meaningful social role, and a fear of decline in mental functioning. Consequently, although escape from a personal failure or threatening circumstance into "the sick role" is available at all ages, it seems to be particularly frequent in elderly persons. The escape into "the sick role" by the hypochondriacal elderly person can be successful for varying periods of time; that is, the elderly person is permitted to become more dependent, expectations are decreased, and the previous loss of self-esteem is restored to some degree. Unfortunately this status quo does not persist indefinitely, as family members and associates usually recognize that an organic illness is questionable or nonexistent, and their attitudes towards the "sick person" begin to change. Most normal individuals at some time during their lives have "played sick" to avoid trouble. Most well-adjusted people, however, consider this type of defense an immature one, and when it

is recognized in others, tolerance of such a person decreases. Recognition that the excuse of illness is physically unjustified makes many people, including physicians, feel that they are being exploited. Four psychological mechanisms play a major role in the dynamics of hypochondriasis: (1) withdrawal of psychic interest from other persons or objects and a redirection of this interest on one's self, one's body and its functioning; (2) a shift of anxiety from a specific psychic area to a less threatening concern with bodily disease; (3) use of a physical symptom as a means of self-punishment and atonement for unacceptable, hostile, or vengeful feelings towards persons close to the individual; and (4) an explanation for the failure to meet personal and social expectations. These primary mechanisms are reinforced by a secondary gain, and that is that the person for varying periods of time receives increased attention and sympathy from friends and health care providers. An awareness of these mechanisms makes the patient's complaints more understandable and contributes to the development of any meaningfully designed treatment approach. For example, retirement may produce a loss of a meaningful social role. This partial isolation permits the individual to focus increased attention upon normal bodily functions. Such a person can easily become preoccupied with gastrointestinal functioning.

Because hypochondriasis is influenced, if not precipitated, by social stress, it is important to realize that hypochondriasis, as well as other psychoneurotic reactions of the elderly, is not infrequently fortuitously

alleviated by changes in the environment. For this reason, longitudinal studies confirm the fact that psychoneurotic signs and symptoms can come and go over a period of time. The exacerbations and remissions are largely determined by an identifiable constellation of life events. Furthermore, some individuals tend to react to stress in a habitual manner. There are some individuals in whom the hypochondriacal pattern dominates, while in others a depressive attitude is the major factor. In general, the hypochondriacal elderly person is more likely to be a female of low socioeconomic status with little change in her work role and with patterns of social activity that are not conducive to a good adjustment. Such an individual, because of a number of factors, is placed in a situation where criticism is the rule, and appreciation and work satisfactions are absent. This is compounded by the loss of rewards from the restricted social activity.

In contrast to the hypochondriacal elderly person, there are those individuals who utilize a neurotic mechanism of denial; that is, they fail to deal realistically with important physical diseases. This type of person, a persistent optimist, is more likely to be a male. The physician should not confuse denial with courage, as the courageous person does have a realistic appraisal of the situation. The older male who is likely to utilize denial is often a lifetime achiever from a higher economic status who is not burdened with financial losses but has utilized the work role as a major, if not the sole, source of self-esteem. This person is vulnerable in that at some point the denial

mechanism breaks down and the existence of a serious physical illness can no longer be ignored. At that point, the person can become seriously depressed.

The Treatment of Hypochondriasis

The treatment approach which will be described in some detail was originally developed by Busse and coworkers in a special clinic for such patients in a university medical center. In the years since the development of this treatment approach, it is of particular interest to note that the precipitating social stresses have changed, and it is possible that other factors such as the law prohibiting mandatory retirement will have impact upon this reaction. Experience continues to demonstrate that the therapeutic approach has considerable merit. Beginning these therapeutic techniques prior to clear establishment of the existence of hypochondriacal reaction is in no way detrimental. In fact, it usually strengthens the patient-physician relationship.

There are a few techniques utilized by health professionals which are of doubtful value in dealing with the hypochondriac. For example, it is usually believed that a patient has the right to have a full explanation of his medical condition. The truth of this cannot be denied, but one also has to recognize that it must be approached with considerable skill. For example, if the physician finds that no organic explanation for the patient's complaints can be found, the patient has the right to know this. But if the explanation is stopped

at this point, the patient is suddenly deprived of a psychological defense that was necessary for maintaining self-esteem. Patients may react quickly and hostilely. Therefore, it is essential that the physician combine the explanation with a reassuring and supportive statement, such as, “I realize that you have considerable discomfort, and I am willing to continue to work with you.”

For the hypochondriacal person to continue to live with his family and in society, his psychological defenses must be maintained until more reasonable defense mechanisms can be put in place. Initially it is particularly important for the physician to convey to the patient that he is considered to be sick and that he deserves medical attention. In the early therapeutic contacts, it is most unusual for a hypochondriacal patient to be capable of dealing with personal adjustment problems that may appear simple to the physician. The patient is only able to deal effectively with emotionally charged problems after the therapeutic relationship is established.

The hypochondriacal person usually wants relief from his complaints, and he expects the physician to provide it. If the physician does not do so, he will turn to other sources for relief. Therefore the physician often must comply with this expectation. The patient may be given actual medication or a placebo.

The physician must be careful to avoid utilizing any medication that is

likely to produce side effects since this would only complicate an already confused picture. Particular attention must be given to the avoidance of drugs that have been used previously by the patient without success. The drug or placebo must be given in an assured manner since hypochondriacal patients are alert for any expression of doubt on the part of a physician. There is a degree of deception in utilizing medication or a placebo but its value cannot be ignored. The placebo technique has symbolic value and it contributes to a good patient-physician relationship. It also is possible that in certain hypochondriacal elderly patients who are exaggerating an organic disorder, appropriate medication may reduce the disrupting stimuli. A hypochondriacal complaint is a distress signal, and the patient's anxiety may be reduced and his self-esteem increased by knowing that a highly regarded professional person is "taking care" of him. Thus, the placebo (Latin for, "I will please") can symbolically represent security and satisfaction to the patient. Although the use of medication can to a limited degree be useful, surgical procedures should be avoided. The physician cannot afford to give in to the hypochondriacal patients who request exploratory surgery. Experience has proven that postoperatively the patient is likely to be worse rather than better, and the resistance to psychological insight is dramatically increased.

Sleep

Normal Sleep in the Aged

Obrist believes that changes in all night EEG sleep patterns are among the most sensitive age-related physiological variables. Although there is considerable individual variation, overall sleep becomes more fragmented in the elderly, and awakenings during the night are longer and more frequent. This is associated with a marked reduction in stage 4 (high amplitude slow waves), and a moderate decrease in the amount of time occupied by rapid eye movement (REM) sleep. In addition, there is a significant decline in the number of 12-14 cycles per second spindle bursts, which are replaced by lower frequency spindle-like rhythms. Feinberg reported that the amount of REM sleep correlates well with performance scores on the Wechsler Adult Intelligence Scale in both normal elderly adults and in groups with evidence of organic brain disease. Later Feinberg reported that intelligence also correlated with the reduction in the number of spindles.

The sharp decline in stage 4 requires further study. Stage 4 is somewhat like REM sleep in that in normal young subjects following stage 4 sleep deprivation there is a compensatory increase in subsequent sleep. Hence, it is assumed to have a biologic function that is altered by the aging process.

Sleep Disorders

According to a government report, 50 million Americans have trouble sleeping during any given year. Furthermore, in one year, 10 million

Americans are sufficiently concerned regarding their sleep that they consult a physician. Of these, 5 million get sleeping pill prescriptions (33 million sleeping pill prescriptions are given out per year). Although the majority of patients with sleep disorders experience other difficulties such as pain or insomnia, the government report suggests that 15 percent of the 5 million regular sleeping pill takers are chronic insomniacs with no apparent underlying disorder. Hence, the insomnia is the primary problem.

Busse and coworkers found that in a group of subjects over the age of sixty, 7 to 10 percent use sleeping pills habitually. Although the subjects were apparently well adjusted and living in the community, 20 to 40 percent use sleeping pills on occasion. Pain, particularly that from arthritis, is a common contributor to insomnia. In elderly subjects who were free of physical pain, those who used sleeping pills excessively were found to have many other neurotic complaints and to be poorly adjusted socially.

Sleep requirements and sleep patterns of the elderly are different from those found in early and middle adult life. On an average, the elderly need less sleep. The requirement for sleep in the human appears to decrease gradually over the entire life cycle. Many elderly report that they require less than seven hours of sleep per night. It is possible, however, that there is an alteration in sleep distribution, as some healthy older people will nap fifteen minutes or more several times during the day. The sleep of the elderly is lighter and is

associated with more frequent awakenings during the night. Nocturia from prostatic hypertrophy in males contributes to increased awakenings. In normal elderly people, sleep awakenings are increased and prolonged. Also early morning awakening is not unusual. Many elderly people do not understand this physiological alteration in their sleep and become very concerned that they are sleeping poorly and that the condition will lead to serious illnesses. Such lack of information can be easily corrected and this correction will be of considerable help to many of the elderly.

Treatment of Sleep Disorders

A program of good sleep hygiene is a first step in dealing with sleep disorders in late life. Exercise in the afternoon or early evening appears to aid sleep, but exercise two hours before retiring should be avoided. A cool rather than a warm room is often conducive to sleep as is a light bedtime snack. Regularity in retiring as well as arising in the morning appears to strengthen the normal sleep cycle. More than one brief nap in the early afternoon is to be avoided. The prolonged use of sedatives and hypnotics can result in many complications. Many of these drugs lose their potency, particularly the barbiturates. Flurazepam (Dalmane) and glutethimide (Doriden) are widely used. Chloral hydrate continues to be of value since tolerance and addiction to it are rarely a problem.

Alternatives to Institutionalization

The claim is often made that an expanded home-care program including adult day-care facilities would be less costly than the current organization of long-term care which is heavily dependent upon nursing home care, hospitals, and other long-term facilities. Most studies attempting to resolve this problem are focused upon home care, rather than nursing home care, as an alternative to hospitalization. In this type of study, the home-care programs are clearly more cost-effective. Furthermore, previous reports indicated that home-care programs can decrease institutionalization. In contrast, a recent study concludes that day-care services for the elderly may not be cost-effective or prevent eventual need for nursing home care. These studies suggest that persons using day-care programs do not substitute them for other Medicare provided services. Rather they are used as an additional service. However, homemaker services seem to improve the quality of life. The persons who received homemaker services appeared to be more content and lived longer than those who did not receive the services. Curiously, those who received homemaker services showed a higher hospital use rate, and this may be the factor influencing the longer life.

Bibliography

Adams, R. D., Fisher, C. M., and Hakim, S. "Symptomatic Occult Hydrocephalus with 'Normal' Cerebral Spinal Fluid Pressure—A Treatable Syndrome," *New England Journal of Medicine,* 273 (1965): 117-126.

Alarcon, R. "Hypochondriasis and Depression in the Aged," *Gerontologia Clinica,* 6 (1964): 266-276.

American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders,* 3rd ed., (DSM-III). Washington, D.C.: American Psychiatric Association, 1980.

Baldessarini, R. J. *Chemotherapy in Psychiatry.* Cambridge: Harvard University Press, 1977.

Blazer, D. "The Epidemiology of Mental Illness in Late Life," in Busse, E., and Blazer, D, eds., *Handbook of Geriatric Psychiatry.* New York: Van Nostrand Reinhold, 1980. pp. 249-274.

Brotman, H. B. "Every Ninth American, Development in Aging," report to the Special Committee on Aging, United States Senate, revised January, 1980.

----. Personal communication based upon published and unpublished data, National Center for Health Statistics, Vital Statistics of the United States, 1980.

Burton, D. "Determinants of Long-Term Care Facility Utilization by the Elderly, An Empirical Analysis," working paper 963-5. Washington Institute, the Urban Institute, revised 1 March 1976.

Busse, E. W. "Treatment of Hypochondriasis," *Tri-State Medical Journal,* 2 (1954): 7-12.

----. "Psychoneurotic Reactions and Defense Mechanisms in the Aged," in Hoch, P. and Zubin, J., eds., *Psychopathology of Aging.* New York: Grune & Stratton, 1961, pp. 274-284. n. . "The Mental Health of the Elderly," *International Mental Health Research Newsletter,* 10 (1968): 13-16.

----. "Hypochondriasis in the Elderly: A Reaction to Social Stress," *Journal of the American Geriatrics Society,* 24 (1976): 145-159.

----. "Duke Longitudinal Study I: Senescence and Senility," in Katzman, R., Terry, R. D., and Bick, K. L., eds., *Alzheimer's Disease: Senile Dementia and Related Disorders.* New York: Raven Press, 1978, pp. 59-70.

Busse, E. W., Barnes, R. H., and Dovenmuehle, R. H. "The Incidence and Origins of Hypochondriacal Patterns and Psychophysiological Reactions in Elderly Persons," First Pan American Congress on Gerontology, Mexico City, September 1956.

Busse, E., and Pfeiffer, E. "Functional Psychiatric Disorders in Old Age," in Busse, E. W., and Pfeiffer, E., eds., *Behavior and Adaptation in Late Life,* 2nd ed. Boston: Little, Brown, 1977, pp. 158-211.

Busse, E. W., et al. "Studies of the Processes of Aging. X: The Strengths and Weaknesses of Psychic Functioning in the Aged," *American Journal of Psychiatry,* in (1955) 896-901.

Busse, E. W., et al. "Studies of the Processes of Aging. X: The Strengths and Weaknesses of Psychic Functioning in the Aged," *American Journal of Psychiatry,* 111 (i955) 896-901.

Butler, R. N. "Aging Research Leads and Needs," *Forum on Medicine,* (1979): 716-727.

Canter, A. A. "A Background Interference Procedure to Increase Sensitivity of the Bender-Gestalt Organic Brain Disease," *Journal of Consulting Psychology,* 30 (1966): 1-97.

Carroll, B. J. "Implications of Biological Research for the Diagnosis of Depression," in Mendlewicz, J., ed., *New Advances in the Diagnosis and Treatment of Depressive Illness.* Amsterdam: Elsevier, (forthcoming).

Cole, J. O. "Psychopharmacology Update," *McLean Hospital Journal,* 2 (1977): 210-219.

Coons, D. "Milieu Therapy," in Reichel, W., ed., *Clinical Aspects of Aging.* Baltimore: Williams & Wilkins, 1978, pp. 115-127.

Cooper, A. F., et al. "Hearing Loss in Paranoid and Affective Psychoses of the Elderly," *The Lancet,* ii (1974): 851-861.

Creutzfeldt, H. G. "Über Eine Cigenartige Herdformige Erkrankung Des Zentral Nervensystems," *Zeitschrift fur die gesamte Neurologie and Psychiatrie,* 57 (1920): 1-18.

Crowley, L. M., and Blen, R. S. "Double-Blind Study of Thioridazine and Holaperidane in Geriatric Patients with a Psychosis Associated with Organic Brain Syndrome," *Journal of*

Clinical Psychiatry, 40 (1979): 42-52.

Dejong, R. N., and Pope, A. "Dementia," in Chase, T. N., ed., *The Clinical Neurosciences,* Vol. 2 (Tower, D. B., ed., *The Nervous System*). New York: Raven Press, pp. 449-456.

Eisdorfer, C. "Rorschach Rigidity and Sensory Decrement in a Senescent Population," *Journal of Gerontology,* 15 (1960): 188-196.

----. "Paranoia and Schizophrenic Disorders in Late Life," in Busse, E. W. and Blazer, D. G., eds., *Handbook of Geriatric Psychiatry.* New York: Van Nostrand Reinhold, 1980, pp. 329-337.

Feinberg, I. "Functional Implications of Changes in Sleep Physiology with Age," in Terry, R. D. and Gershon, S., eds., *Urobiology of Aging.* New York: Raven Press, pp. 23-41.

Feinberg, I., Koresko, R. L., and Heller, N. "EEG Sleep Patterns as a Function of Normal and Pathological Aging in Man," *Journal of Psychiatric Research,* 5 (1977): 107-144.

Fisher, C. M., and Adams, R. D. "Transient Global Amnesia," *Acta Neurologica Scandinavica,* 40 (1964): 7-82.

Folsom, J. C. "Reality Orientation for the Elderly Mental Patient," *Journal of Geriatric Psychiatry,* 1 (1968): 292-307.

Garraway, W., et al. "The Declining Incidence of Stroke," *New England Journal of Medicine,* 300 (1979): 449-452.

Gibbs, C. J., Gajdusek, D. C., and Asher, D. M. "Creutzfeldt-Jakob Disease (Spongiform Encephalopathy): Transmission to the Chimpanzee," *Science,* 151 (1968): 388-389.

Herbert, M. E., and Jacobson, S. "Late Paraphrenia," *British Journal of Psychiatry,* 113 (1967): 461-467.

Holden, C. "Project Sleep," *Science,* 207 (1980): 61-62.

Javid, H. "Current Status of Carotid Surgery," *Contemporary Surgery,* 16 (1980): 13-25.

Joynt, R. J. "Human Memory," in Chase, T. N., ed., *The Clinical Neurosciences,* vol. 2 (Tower, D. B., ed., *The Nervous System*). New York: Raven Press, 1975, pp. 441-447.

Karasu, T., and Katzman, R. "Organic Brain Syndrome," in Beliak, L., and Karasu, T., eds., *Geriatric Psychiatry.* New York: Grune & Stratton, 1976.

Katzman, R. "Normal Pressure Hydrocephalus," in Katzman, R., Terry, R. D., and Bick, K. L., eds., *Alzheimer's Disease: Senile Dementia and Related Aging Disorders.* New York: Raven Press, 1978, pp. 115-124.

Kay, D., and Roth, M. "Schizophrenias of Old Age," in Tibbetts, C., and Donahue W., eds., *Processes of Aging.* New York: Basic Books, 1963, pp. 402-448.

Lowenthal, M. F. "Social Stress and Adaptation: Toward a Life Course Perspective," in Eisdorfer, C., and Lawton, M. P., eds., *The Psychology of Adult Development and Aging,* Washington, D.C.: American Psychological Association, 1973; pp. 281-310.

Matussek, N. "Neuroendokrinologische Untersuchungen bei Depressiven Syndromen," *Nervenarzt,* 49 (1978): 569-575.

Meier-Ruge, W., et al. "Experimental Pathology in the Aging Brain," in Gerson, S., and Raskin, A., eds., *Aging.* New York: Raven Press, 1975, pp. 55-126.

Milhorzt, T. H. "Surgical Treatment of Hydrocephalus," in Tower, D. B. ed., *The Nervous System.* New York: Raven Press, 1975, pp. 395-406.

MOSS, A. J. "Pacemakers in the Elderly," in Reichel, W., ed., *Clinical Aspects of Aging.* Baltimore: Williams & Wilkins, 1978, pp. 65-68.

Nies, A., et al. "Changes in Monoamine Oxidase with Aging," in Eisdorfer, C., and Fann, W., eds., *Psychopharmacology and Aging.* New York: Plenum Press, 1973, pp. 41-54.

Obrist, W. D. "Cerebral Blood Flow and EEG Changes Associated with Aging and Dementia," in Busse, E. W., and Blazer, D. B., eds., *Handbook of Geriatric Psychiatry.* New York: Van Nostrand Reinhold, 1980, pp. 83-101.

Palmore, E., and Maddox, G. "Sociological Aspects of Aging," in Busse, E. W., and Pfeiffer, E., eds., *Behavior and Adaptation in Late Life,* 2nd ed. Boston: Little, Brown, 1977, pp. 31-58.

Pick, A. "Über die Beziehungen der Senilen Hirnatrophie zur Aphasie," *Mendicinishche Wochenschrift* 17:16 (1892): pp. 165-167.

Plum, F. "Cardiac Arrhythmias and Neurological Dysfunction," in Busse, E. W., ed., *Cerebral Manifestations of Episodic Cardiac Dysrhythmias.* Princeton: Excerpta Medica, 1979, pp. 11-17.

Rahe, R. J. "Life Change Events and Mental Illness: A Review," *Journal of Human Stress,* 5 (1979): 2-10.

Reinberg, A. "Chronopharmacology in Man," in Aschoff, J., Cersa, F., and Halberg, F., eds., *Chronobiological Aspects of Endocrinology,* New York: F. K. Schattauer Verlag, 1974, pp. 3°5-333.

Rossman, I. "Bodily Changes with Aging," in Busse, E. W., and Blazer, D., eds., *Handbook of Geriatric Psychiatry.* New York: Van Nostrand Reinhold, 1980, pp. 123-146.

Shanas, E., and Maddox, G. "Aging, Health and the Organization of Health Resources," in Binstock, R., and Shanas, E., eds., *Handbook of Aging and the Social Sciences.* New York: Van Nostrand Reinhold, 1976, pp. 592-616.

Siegler, I. C. "The Psychology of Adult Development and Aging," in Busse, E. W., and Blazer, D., eds., *Handbook of Geriatric Psychiatry,* New York: Van Nostrand Reinhold, 1980, pp. 169-221.

Simon, A. *Background Paper,* White House Conference on Aging, Washington, D.C.: U.S. Government Printing Office, 1971.

Spitzer, R. L. "Introduction," in American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders,* 3rd ed. (DSM-III). Washington, D.C.: American Psychiatric Association, 1980, pp. 1-12.

Stern, S., and Lavy, S. "Frequency and Type of Cerebral Ischemic Attacks in Patients with

Tachyarrhythmia's and Brady arrhythmias," in Busse, E. W., ed., *Cerebral Manifestations of Episodic Cardiac Dysrhythmias.* Princeton: Excerpta Medica, 1979, pp. 67-80.

Task, R. "Clinical Laboratory Aids in the Treatment of Depression; Tricyclic Antidepressants Plasma Levels and Urinary MHPG," *Comprehensive Psychiatry,* 3 (1979): 12-20.

Walker, I., and Brodie, K. "Neuropharmacology of the Aging," in Busse, E. W., and Blazer, D. G., eds. *Handbook of Geriatric Psychiatry.* New York: Van Nostrand Reinhold, 1980, pp. 102-124.Wang, H. S. "Diagnostic Procedures," in Busse, E. W., and Blazer, D., eds., *Handbook of Geriatric Psychiatry.* New York: Van Nostrand Reinhold, 1980, pp. 285-304.

Wang, H. S., and Busse, E. W. "Dementia in Old Age," in Wells, C. E., ed., *Dementia.* Philadelphia: F. A. Davis, 1971, pp. 152-162.

Weissert, W. *Effects and Costs of Day Care and Homemaking Services for the Chronically III; A Randomized Experiment,* Hyattsville, Md.: Office of Health Research, Statistics and Technology, National Center for Health Services Research, 1980.

Yesavage, J. A., et al. "Vasodilators in Senile Dementia," *Archives of General Psychiatry,* 36 (1979): 220-222.