Presenile Dementia: Further Experience with an Anticoagulant-Psychotherapy Regimen*

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ABSTRACT: The principles of an anticoagulant-psychotherapy regimen for pre­
senile dementia are discussed. Short histories are given of 10 patients (including one 
with Huntington’s chorea as well as dementia) who responded well to this treatment. 
It is important to keep the blood prothrombin time at 2.0-2.5 times the control 
time. The earlier treatment is started, the better the result. Even in cases in which 
there is no significant improvement, the prevention of further deterioration is of 
great value. If properly controlled, this regimen is relatively safe and can maintain or 
inter titles the quality of life for dementia patients.

When brain deterioration is observed in pa­
tients past the age of 70, it is usually accepted 
as an unfortunate manifestation associated 
with the aging process. However, when ob­
served in patients of the 40-60 age group, it is 
one of the most puzzling problems in medicine. 
Traditionally, age 65 is arbitrarily chosen as the 
dividing line for nomenclature: after that age 
the brain deterioration is called senile demen­
tia; before that age it is called presenile demen­
tia. It is our hypothesis that they both rep­
resent variations of cerebrovascular insufficiency, 
regardless of age.

This paper concerns our recent experience 
with a therapeutic regimen developed during 
the past eleven years. Ten patients have re­
sponded favorably to this treatment in such a 
way as to refute the general belief that pre­
senile dementia is an irreversible disorder with 
a steady downhill course.

Nineteen years of general practice have af­
Fording the writer ample opportunity for ob-
serving senile dementias. Ten years in psychi­
atro have provided experience with the less 
common presenile dementias. The conclusion 
has been inescapable that emotional factors are 
of great importance in both of these disorders.

PRESENLILE DEMENTIA

Presenile dementia appears to be an appro­
priate vehicle for studying the possible blending 
of the symptoms of brain-tissue damage with 
the symptoms of severe emotional conflicts 
related to the loss of mental capacity. The 
patient’s terrible fears and anxieties may be the 
cause, the effect, or both. Such complex and 
terwoven factors create a challenging task for 
the physician. He must try to identify these 
factors and guide therapy according to their 
severity and the treatment resources available.

Presenile dementia seems primarily to result 
from cerebrovascular insufficiency and this insuf­
iciency often can be prevented and even 
reversed by anticoagulant therapy (1). Further 
experience with the treatment of senile and 
presenile dementias (2, 3) has confirmed our 
earlier hypothesis presented in 1967 (4) that 
both disorders have a common etiology (insuf­
ficient blood supply to the brain) and both can 
respond to anticoagulant therapy (5). My psy­
chiatric training led to awareness that complex
and serious emotional factors also are involved in the clinical picture as observed in medical practice.

The encouraging results with the treatment of presenile dementia since 1967, as illustrated in 10 patients of this study, confirm the validity of the regimen. These patients had not responded to adequate trials of the customary treatment. It was also noted that the earlier treatment was started, the better the results.

CEREBROVASCULAR DISTURBANCES

In presenile dementia, brain-cell death or dysfunction is associated with vascular insufficiency which, in turn, usually is caused by arteriosclerotic narrowing of the carotico-vertebral arterial system. Significant narrowing of these arteries, occurring in half of people over 50 years of age, is well described by Hutchinson and Yates (6) who meticulously dissected these arteries in 100 autopsy cases. A variety of abnormalities can occur in the complex carotico-vertebral system. Some patients may have additional (or only) intracerebral arterial or venous blockage, but the result is the same in the end, i.e., the areas of brain tissue which control mental activities are deprived of normal blood supply.

Beyond the stenotic arterial lesion the blood velocity is reduced and the erythrocytes stick together to form “sludge.” Such blood sludging has been thoroughly elucidated by Knisely (7). The sludge blocks the distal arterioles, capillaries and venules since the clumps of blood cells cannot pass freely. For a while the clumping is reversible, but eventually thrombosis may occur. Anticoagulant drugs can reverse or prevent blood sludging (8, 9) as well as forestall thrombus formation. Thus they are effective agents in maintaining or restoring the free blood flow so necessary for optimal functioning of the cerebrocortical neurones.

The effectiveness of anticoagulant therapy in maintaining adequate cerebral blood flow is illustrated by its almost 100 per cent ability to prevent the recurrence of transient ischemic attacks, as documented in the report of the National Cooperative Study of Cerebral Infarction (10).

In our experience, a requirement for clinical improvement is that the blood prothrombin time be kept over twice the control time. Supporting evidence is provided by the autopsy studies of Sevitt and Innis (11); they observed thrombi in patients in whom, during life, the prothrombin time had been allowed to drop below twice the control time.

EMOTIONAL FACTORS

In cases of presenile dementia we are dealing not just with blood flow and neurones but with complex human beings who often react with severe anxiety and intense fear.

Individual psychotherapy and family therapy can be very effective in helping the patient and the family to cope with these aspects of the problem while the anticoagulant therapy is exerting its effect (3). Many of these patients are under severe emotional stresses which may have precipitated the cerebral circulatory insufficiency, in the same way that emotional stress may trigger anginal attacks. Even if the patient has been relatively free from emotional stress before the onset of dementia, he certainly becomes subject to severe strain when his mind fails and he can no longer think clearly enough to cope with his daily living problems. Such emotional stress may affect the blood flow by increasing clotting tendencies and thus producing blood sludging. This causes more vascular insufficiency and creates a vicious circle. In addition, the relatives of these patients are put under intense strain in attempting to cope with confused and combative behavior. Their tensions are transmitted back to the patient, further increasing his anxiety. The final blow to the relatives of a steadily deteriorating patient is the emotionally tense process of deciding whether to send him to an institution and, if so, whether to a state hospital or to a nursing home. In certain situations, attention to psychotherapeutics is essential to a successful outcome of therapy.

CASE ABSTRACTS

The following are brief reports on 10 patients who responded well to treatment:

Case 1

This 65-year-old married mother of three had only slight memory changes before severe confusion began in August 1973. Despite standard hospital treatment, she became disoriented and paranoid; she believed her food was poisoned.
and lost 40 pounds. Neurologic investigation included a pneumoencephalogram, which revealed atrophy of the frontal lobes. The final diagnosis was presenile dementia. By this time she required restraints day and night. Three weeks after therapy was started, she could dress and feed herself and recognize her family. On April 5, 1974, her husband reported from their home that she cooks bacon and eggs for his breakfast and goes shopping with him. Although occasionally she is slightly disoriented, she is not paranoid and eats well. Her local physician controls her anticoagulant (warfarin, Coumadin) therapy.

Case 2

A 67-year-old prematurely retired engineer was brought from a midwestern state on December 27, 1972, because of increasing mental deterioration and combativeness. Neurologists had diagnosed "cerebral insufficiency" in 1967 and had found an abnormal electroencephalogram and a pneumoencephalogram showing "gross cerebral atrophy." In December 1972, the diagnosis of "senile dementia" was made and his wife was advised to consider placing him in a nursing home. Treatment was started at once with bishydroxycoumarin (Dicumarol), haloperidol (Haldol) and psychotherapy (individually and conjointly with his wife). There were some rocky periods because of his paranoid reactions and frequent inability to recognize his wife; he thought she was another woman with the same name. After five weeks he showed definite improvement and was allowed to go home, but close supervision was maintained through his wife until his condition became stabilized. He is now able to perform chores around the home, go to church, recognize people, carry on suitable conversations, and even beat his wife at dominoes. He takes haloperidol only occasionally on the basis of need. (In general, we have noticed that once treatment is stabilized, the need for tranquilizers decreases or disappears.) His wife reports that when his prothrombin time falls below twice the control time he becomes confused again. In April 1974 she stated that she was happy to see him leading a "near normal" life and to realize that she would not have to watch him slowly deteriorate in a nursing home the way his mother did. His neighbors and other friends have written about the remarkable improvement they have noticed, describing specific objective changes.

Case 3

This intelligent and formerly capable 52-year-old single nurse was first seen in consultation because of personality changes so severe as to cause her dismissal from her supervisor's job. A pneumoencephalogram showed slight cerebral atrophy. She improved slowly and steadily with therapy and was able to live comfortably at home, but she was not alert enough to resume her job. At present, three years later, she controls her own dosage of anticoagulant (Coumadin) and undergoes blood tests at her local hospital. Occasionally she travels to our hospital for directions and psychotherapy.

Case 4

A 42-year-old married college graduate, mother of three children, had a history of psychiatric problems for seven years. Recent psychiatric hospitalization led to psychology tests which indicated organic brain damage. The neurologic consultants diagnosed Huntington's chorea. Without the chorea her condition would have been indistinguishable from that of presenile dementia, and since she was in a desperate situation with a poor prognosis, she was offered presenile dementia therapy. She gladly accepted and responded well. After three months the chorea had disappeared, her thinking processes had improved markedly and her personality changes were much less evident. Recently, when her blood prothrombin time dropped below the therapeutic level, the chorea and personality changes began to recur (although, as she remarked, her handwriting was still much improved). This patient's course confirms the findings of Boll et al. (12) regarding "the strikingly consistent similarities between patients with Huntington's chorea and patients with equal ability deficit due to other types of brain damage."

Case 5

A 71-year-old woman with diabetes was referred in 1964 to the psychiatric inpatient service because of severe and increasing confusion. In view of her age, she would not be considered to have classic presenile dementia, yet according to our hypothesis that all such patients
represent variations of cerebrovascular insufficiency regardless of age, she belonged in this group. Her case is purposely included here because her response to treatment illustrates an important point, i.e., that patients with diabetes usually respond to therapy much better than other dementia patients. The most likely explanation is that diabetes can cause sludging of the blood, and this can be reversed by administration of Dicumarol. Thus many more vessels can be opened up than in cases of simple arteriosclerosis, which chiefly affects localized areas of the brain. This particular patient had responded only slightly to adequate control of the diabetes and to standard psychiatric care. During three weeks of Dicumarol therapy (August 31-September 23, 1964), the three-month state of confusion disappeared. She regained coordination, threw away her cane, and was discharged home. Two and a half years later, her daughter reported that she was getting along well without further treatment. If she had not responded to anticoagulant therapy, we would have had to discharge her to a long-term care facility.

Case 6

This married childless 52-year-old woman had been emotionally disturbed for seven years. The illness had a rather abrupt onset when she was caring for her sick father. Several months before she was seen here, she had been in a hospital because of drug overdosage. There she had been given diphenylhydantoin (Dilantin) because of seizures. Besides severe anxiety and stuttering speech, we detected intellectual deficits even though her paranoia made her extremely resentful of our delicately disguised attempts at testing her memory and abstract thinking. A pneumoencephalogram showed cortical atrophy and the neurologist made an "unequivocal" diagnosis of presenile dementia. Psychotherapy (for both the distraught husband and the suspicious hostile patient) was undertaken along with anticoagulant therapy. The result was a definite reduction in the patient's hostility and sarcasm as well as improved ability to express her thoughts and analyze her family conflicts. Despite many ups and downs, the gross improvement was noticeable to herself and her relatives. She began coping much better with her housework, e.g., she did the laundry for the first time in more than a year.

Case 7

This 66-year-old male ex-music teacher with a past history of alcoholism, presented in September 1967 with confusion and other signs of organic impairment, including depression and personality changes. He responded well to therapy. In a few weeks he was able to give impromptu beautiful concerts on the ward piano, drawing patients and staff from all corners of the ward. He played all requested music either by ear or from sheet music and enthralled the large group gathered around in a circle. After discharge, because of personality problems, he would not continue the therapy and had to be re-admitted. After re-treatment, he was maintained with Dicumarol by his local physician. When last heard from in August 1972, he was doing well. His case illustrates another therapeutic point. Brain damage related to the excessive use of alcohol (even though in the past) appears to clear more rapidly and completely than that related to arteriosclerosis alone. Such a good response is similar to that in patients with diabetes, and probably for the same reason, i.e., alcohol, like diabetes, can cause blood sludging (13), a condition that can be reversed by anticoagulant therapy.

Case 8

A 60-year-old man was seen in consultation because of intractable pain in an old thoracotomy scar. I was called again to see him after a sympathetic-ganglion operation failed to relieve his pain. He showed the same clinical signs of organic impairment as he did before the operation; he did not even remember having undergone surgery despite the long fresh scar on his back. He had had many major operations over the previous ten years and had developed severe personality problems. He abused his family, even to the point of tearing his wife's clothes. She said he would have to be sent to a state hospital if he did not improve. With therapy his memory improved and he was less confused. Gradually his personality improved so that in three months he was able to live peaceably and even pleasantly at home. In May 1973, he was getting along well and his wife was very happy with the results. This patient illustrates two more therapeutic points. First, major surgery, by reducing the blood flow to the brain, may cause organic damage and even chronically slow the venous blood
flow; these changes can be relieved by anticoagulant therapy. Second, patients who have shown annoying personality changes before treatment may develop a pleasing personality after treatment, sometimes even more pleasing than the premorbid one. This improvement may be partly due to the concomitant psychotherapy. Whatever the cause, it is often the most appreciated result.

Case 9

A 63-year-old physician from another state had had to retire from practice because of organic brain damage with severe memory problems. Treatment produced only slight improvement but appeared to prevent further deterioration. His local physician continued treatment for two years, until urinary bleeding occurred. Anticoagulant therapy was discontinued. Several months later the patient began to deteriorate. Later he was sent to a state hospital in an apathetic dazed condition. He died in April 1973.

Case 10

The 47-year-old mother of three grown children had a psychiatric history which included electroshock therapy a few years previously with no real benefit. After several interviews, surprisingly, signs of organic impairment were detected. She was persuaded to have a neurologic consultation. The pneumoencephalogram indicated unmistakable cortical atrophy, and the patient was made more anxious and upset by the procedure. Treatment (begun December 31, 1973) included exploration of some important family conflicts, even though her husband was quite supportive. When seen on April 10, 1974, she had improved considerably with regard to memory and personality. She had lost her excessive hostility and had become an agreeable intelligent woman. She even wrote a pleasant four-page letter to her son, which impressed the family. She was also able to understand the principles of her therapy and handle the details efficiently.

DISCUSSION

Anticoagulant therapy combined with psychotherapy is an effective form of treatment for carefully selected patients with presenile dementia.

The earlier treatment is begun the better will be the result, but even late in the disease it usually will prevent further deterioration and often may produce worthwhile improvement. Even when there is no improvement, the preventive effect on deterioration is of great value.

Patients with diabetes or a history of alcoholism usually respond faster and may not have to continue treatment as long as other presenile dementia patients. Since there may be a reduction in the requirement for antidiabetic therapy, the physician must be on the alert for the development of hypoglycemia.

Therapy should be continued as long as improvement continues. If therapy is stopped and deterioration recurs, treatment should be resumed at once or the initial gains may not be regained.

The blood prothrombin time must be more than twice the control time to ensure the full therapeutic action of the anticoagulant drug (11). There appears to be no advantage in a criterion of 2.5 times the control time, as this may increase the risk of bleeding; some patients, however, have had a prothrombin time over 60 seconds with no bleeding. There is leeway in supervision of the prothrombin time, but the goal should be 2.0-2.5 times the control value as consistently as possible, especially during the early months of therapy.

The patient, if able, and the responsible relative should sign an informed-consent form, to the effect that: (a) this is a new kind of treatment, not fully accepted as yet; (b) a beneficial result cannot be guaranteed; and (c) there is always the possibility of hemorrhage and even death as a result of anticoagulant therapy. However, the risk to the patient's health is probably much greater without the treatment. A patient who is too confused need not sign; nor should a patient who would be made excessively nervous by seeing such a statement if the extra stress might decrease the chance of good therapeutic results. This should be discussed with the relatives.

The double-blind study of Ratner et al. (14) involved a follow-up period of one year. They found that anticoagulant therapy could prevent brain deterioration in cerebrovascular insufficiency.

Low dosages of anticoagulant drugs are ineffective in preventing serious thrombosis and hence may be dangerous, as illustrated in the study of Evarts and Alfidi (15). This was confirmed in our study.
Anticoagulant therapy, according to Wright (16), is often a life-saving measure for elderly patients who “should not be deprived of this therapy when it is indicated.” If properly controlled, it is a relatively safe form of treatment, and for many patients it is much safer than allowing them to remain untreated. In patients with senile dementia, moreover, it acts to maintain or even improve the quality of life.

REFERENCES