Depression Associated With a Stroke

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DR. DAVID D. SCHMIDT (*Chairman, University of Connecticut Department of Family Medicine*): Dr. Coll is going to give a discussion today on a patient he is managing in the nursing home following a major stroke. This case illustrates the difficulties encountered when depression further complicates the situation.

CASE PRESENTATION

DR. PATRICK P. COLL (*Fellow in Geriatrics, Department of Family Medicine*): Our patient today, Mrs. M., is a 71-year-old lady admitted on October 3, 1986, to the nursing home affiliated with our practice. Her admission diagnosis was a stroke, which had occurred in June of 1986. Her stroke occurred while she was living independently in California. She had been a successful corporate business woman in New York and retired to California when she was 65 years old. After her stroke she was hospitalized in an acute care hospital and then a rehabilitation hospital for a total of two months. Her only living relative, her nephew, lives here in Connecticut. After her discharge he arranged for her to come here and live in a small house purchased for her. With intensive nursing services she was able to live alone, but because of increasing confusion and agitation, it was felt she could no longer be left alone, and a nursing home admission was arranged.

At admission to the nursing home, her medical history was found to include long-standing hypertension, which had been particularly difficult to control prior to her stroke. She had smoked cigarettes heavily for many years. She also had a history of breast cancer, for which she had had a mastectomy on the left side 20 years previously.

On examination she was found to be a pleasant lady with an expressive aphasia, which made communication difficult. Her affect was low and she was prone to episodes of uncontrollable sobbing. Her blood pressure was 160/95 mmHg lying down and 150/90 mmHg sitting. Her pulse was 60 beats per minute, irregular in rate and rhythm, and auscultation of the precordium revealed a 2/6 systolic murmur at the apex radiating toward the left axilla. The left breast was absent and the right was normal without any palpable lumps noted. On neurological examination she was alert; there was mild right-sided weakness, more marked in the arm than the leg. She was noted to be right-handed. There were no peripheral sensory deficits, and she was able to walk slowly with the aid of a walker. The plan at admission was to institute physical and speech therapy.

A computed tomographic (CT) scan that accompanied her records from California showed a large oval-shaped zone of diminished attenuation in the area of the left posterior parietal-occipital junction and smaller areas of attenuation through several other areas of the cerebrum (Figure 1).

I would like to now ask the speech and physical therapists who saw her for assessment to briefly give us their findings.

SANDRA COOK (*Speech Therapist*): Mrs. M. demonstrates a profound expressive aphasia with minimal fluent speech. She also exhibits apraxia of the muscles associated with phonation. Apraxia is an impairment of voluntary or purposeful movements that cannot be accounted for on the basis of motor weakness. She has a good gag reflex with no evidence of pharyngeal muscle weakness. She is able to swallow solids and fluids without evidence of aspiration. She is prone to episodes of crying and agitation during the assessment. Her best means of communication is to construct words by pointing to letters on a board that has the alphabet on it.

GENE DANGONA (*Physical Therapist*): Mrs. M. is able to walk with minimal assistance and can transfer from bed to chair unaided. She has a right hemiparesis, with the upper limb significantly more affected than the lower. She has some mild spasticity of the hand muscles on the right and wears a splint on this hand to prevent contractures. She is able to eat her own meals if they are cut into small pieces for her. She comes to the physical therapy department for exercises each day, but she is very difficult to engage and will not do the exercises unless given a lot of stimulation. Though her functional level is quite good,

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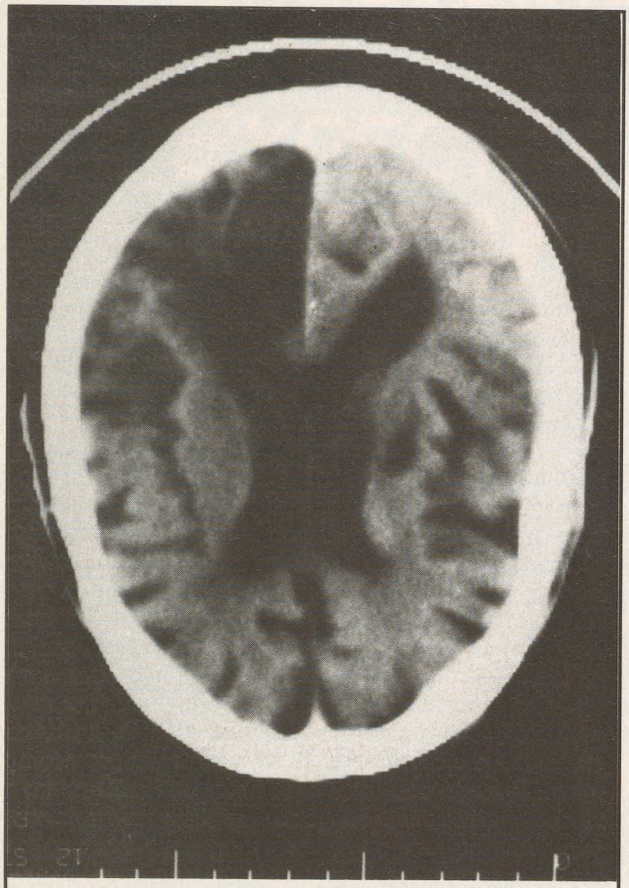

Figure 1. Computed tomographic scan indicates large area of diminished attenuation in right parieto-occipital area. Note also other areas of decreased attentuation within brain tissue

it has not improved since her admission two months ago.

DR. COLL: Mrs. M. continues to demonstrate marked emotional lability with episodes of crying and agitation. She is reluctant to leave her room and is reported by the nursing staff to waken frequently at night. Her appetite has been poor, and she has lost 12 pounds since admission. She was started on nortriptyline a week ago for depression associated with a stroke. So far there has been no improvement in her depressed affect, but she is sleeping better at night.

DR. ROY ZAGIEBOYLO (*Medical Director, Riverside Nursing Home*): Has her nephew stayed in close contact with her since her admission to the nursing home?

DR. COLL: Yes. Her nephew is very devoted to her and comes in to visit her almost every day. He has indicated that he would like her to live with him if she should reach a suitable functional level and if her wandering and episodes of agitation were less prominent.

DEPRESSION AND OTHER MOOD DISORDERS FOLLOWING STROKE

I would like to review mood disorders, particularly depression, following stroke. Mrs. M. demonstrates a common sequela of stroke by having depression. Mood disorders in general occur frequently following strokes. Dr. Robert Robinson of Johns Hopkins University has done much work in this field. He reported on 103 post-stroke patients who attended a stroke clinic; he discovered that almost one third were depressed, two thirds of whom were depressed seven to eight months later.[1] By looking at another 103 patients in the acute post-stroke period, he found 50 percent with clinically significant depression.[2] Depression is more common with left hemispheric than with right hemispheric stroke,[1] and based on CT localization, patients with stroke in the left frontal brain have higher prevalence and severity of depression than patients with lesions in other locations.[3] It is hypothesized that the high correlation between location of stroke and the onset of depression is due to disruption of a neurochemical pathway.[4] Some premorbid characteristics that are associated with a high likelihood of post-stroke depression are poor social connections, poor intellectual function, low socioeconomic status, and age, with younger patients exhibiting more severe degrees of depression than older patients.[2] In addition, patients with nonfluent aphasia have been found to be more depressed than those with fluent aphasia.[3]

Depression is not the only mood disorder associated with stroke. The catastrophic reaction is exemplified by tears or aggression that appear only when the patient is requested to perform a task beyond his or her capacity.[5] Damage to the right hemisphere is associated with neglect and inattention, which may lead to apathy.[5,6] Irritability is also commonly associated with brain injury following stroke.[7] These mood disorders associated with stroke can significantly hamper efforts at rehabilitation, prolonging time to discharge and impacting on a family's ability to cope with the stroke victim at home.[8]

It is important for the physician to diagnose and treat appropriately mood disorders in the stroke patient. Diagnosis can be difficult, with the most important physician attribute being an awareness of the high incidence of these disorders and an appreciation of their various presentations. Many commonly used depression scales that may have to be self-administered have questionable validity in the post-stroke setting, but the Center for Epidemiologic Studies Depression Scale was found to be reliable and valid as a screening tool for assessing depression following

a stroke.[9] The dexamethasone suppression test has been shown to be a reasonably specific but insensitive measure of depression in post-stroke patients.[10] It has also been suggested that the dexamethasone suppression test may have potential as an index of recovery from mood or vegetative disturbances after stroke.[11] Failure to progress or reluctance to participate in rehabilitation, vegetative symptoms, including poor appetite and nighttime waking, and emotional lability should raise the suspicion of depression for caregivers dealing with stroke victims.

Treatment of depression in a stroke patient is particularly difficult if complicated by aphasia, as in this case. An attempt should be made to have the patient express his or her feelings about what has happened. It should be emphasized that there is a period of grieving associated with the realization of losses following a stroke. Assistance for this grieving should be aimed at supportive care, techniques for reentry, and counseling.[12] Fears about loss of self-worth, incontinence, inability to care for oneself, and the issues of sexuality should be addressed. The physician should engage the family to facilitate their expression of similar issues. A speech therapist can help define methods of communication for the patient with dysphasia or aphasia. Pharmacologic intervention may be useful, as demonstrated by the use of nortriptyline in post-stroke patients, but should be considered only when the depression is prolonged and associated with strong vegetative symptoms and the rehabilitation process is being significantly compromised.[13] If tricyclic antidepressants are used, the patient should be monitored closely for anticholinergic side effects.[14] Postural hypotension is not uncommon after stroke, and it may be exacerbated by tricyclic antidepressants. A small, highly selected group of post-stroke depression patients have been shown to respond to electroconvulsive therapy.[15]

Stroke is one of the leading causes of morbidity and decreased functional ability among elderly patients. Mood disorders are a common sequela of stroke, and it is important that they are recognized and addressed by all the caregivers.

SUMMARY

DR. SCHMIDT: The incidence of stroke has been decreasing over the last 30 years,[16] but in spite of this we can anticipate an increase in the number of new stroke cases. This is because the incidence of stroke increases with age, and the demographic trends are such that there will be an increasing proportion of the elderly in our population. The stroke patient is an excellent example of the multidisciplinary approach to geriatric care. Physical, psychological, and social factors all need to be addressed from a functional point of view if maximum benefit is to be achieved. I would be interested to hear feedback on this patient's progress and particularly if she improves to the level where she can leave the nursing home. I feel sure that the prognosis for her returning home will be improved by having an interested family member as well as a family physician coordinating the care.

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