

Overview of Dementia (Progressive Memory Disorders) (Revised 3/1/06)

Basics of Dementia Session II: Vascular Memory Disorders

Author: Leilani Doty, PhD

Administrator of the University of Florida Memory Disorder Clinic, McKnight Brain Institute. (The UF MDC is part of a system of 15 Memory Disorder Clinics or Centers in the Florida-wide Department of Elder Affairs Alzheimer's Disease Initiative network.)

Purpose of Basics of Dementia

The purpose of the series of educational sessions called **Basics of Dementia** is to describe briefly memory and treatable as well as progressive memory disorders. The focus of the series has two parts: first, a focus on some of the symptoms and behaviors associated with treatable and progressive memory disorders and, second, a focus on helps for the involved family.

Basics of Dementia is divided into three different sessions. The three different sessions cover: 1) **Treatable Memory Disorders**, 2) **Vascular Memory Disorders (Vascular Dementias)**, and 3) **Progressive Memory Disorders**.

This second session discusses *Vascular Memory Disorders*. Vascular memory disorders are a simpler way of saying *vascular dementias*; both terms, vascular memory disorders and *vascular dementias*, will be used to mean the same general condition. Vascular dementias relate to changes in the health and function of the heart and blood circulation systems. These changes may result in weaker function or lost function of the brain cells responsible for memory, thinking and language functions.

Purpose of Session 2

Session 2 covers six points, 1) dementia changes, 2) risks for vascular dementias, 3) multi-infarct dementia, and 4) Binswanger's disease, 5) tips for health, and 6) available resources. These six points are listed in the following Table 1.

Table 1. Major Points of Session 2

1. Dementia changes
2. Risks for vascular dementias
3. Multi-infarct dementia
4. Binswanger's disease
5. Tips for health
6. Available resources

Much of the focus in this Session 2 is on the two types of vascular memory disorders that result from health changes in the heart and in the blood circulation system, especially blood circulation in the brain. These two types of vascular memory disorders are: 1) multi-infarct dementia and 2) Binswanger's disease (note Table 2).

Table 2. Vascular Dementias

- Multi-infarct dementia
- Binswanger's disease

The Term "Dementia"

Dementia is the general term that refers to the decline of mental abilities including memory and other thinking skills while a person is alert and awake (see the following Table 3). In other words, the person is clear-headed. The person does not have fuzzy thinking as a result of fever, other illness, exhaustion, dehydration, medicine, alcohol or overwhelming stress. The person is not drowsy; the person is fully awake. Yet, the person is struggling with memory and other mental activities to the point of being unable now to do tasks or handle interactions (on the job or at home).

Table 3. Dementia (de...mentia)

De = decrease or decline

mentia = thinking

Decline in memory and thinking ability while alert and awake...

Dementia, that is to say, the decline in thinking or cognition, may involve a decrease in memory, particularly short-term memory, such as forgetting they just ate dinner or forgetting the names of people who visited two hours ago. There may be difficulty making decisions such as picking out a pair of shoes in the closet. Conversation skills may suffer such as being unable to follow a topic, especially when there are distracting noises or several people around. The person may struggle to recall a particular word when talking. Skills for routine activities such as driving the car, cooking a meal, or paying bills may suffer. (See the Table 4 summary.)

Table 4. Dementia Changes

1. ↓ Memory
2. ↓ Naming and communication skills
3. ↓ Decision skills
4. ↓ Hand skills
5. ↓ Routine job or task skills
6. Change in personality (more irritable or more quiet/laid back)
7. More restless or sluggish

Dementia is a general term. Just as we say, I have a cold or I have the flu - those are general terms. They do not specify a type of flu or cold. Likewise, dementia is a general term indicating a decline in thinking function. It may be a sudden decline such as a head injury from a car accident or a prolonged progressive decline such as from a Vitamin B12 deficiency, an irregular heartbeat or a series of tiny strokes.

The decline may show up as a change in personality, such as a person with a calm, pleasant personality becoming irritable or withdrawn. People with dementia may have difficulty with activities that were once easy for them to do. For example, they may forget how to fill out a check or the way to the mailbox at the end of the driveway.

If any of these changes in thinking or memory occur, a medical evaluation is needed. There are about 100 different kinds of dementias, some of which are treatable, reversible conditions. Treatable conditions were discussed in the first session of **Basics of Dementia**.

Major Types of Vascular Memory Disorders (Vascular Dementia)

This second session considers the changes in thinking and memory as a result of changes in the health of one's heart and blood circulation systems. Changes in the function and health of the heart organ, changes in blood vessels, and changes in blood flow may result in disorders known as **vascular memory disorders (vascular dementias)**. Two of the most commonly occurring vascular dementias are multi-infarct dementia and Binswanger's disease, terms shown in Table 5.

Table 5. Vascular Dementias

- Multi-infarct dementia
- Binswanger's disease

Risks for Vascular Dementias

People who have long-standing heart conditions or blood circulation problems are at higher risk for vascular dementia. Note the risks in Table 6.

Table 6. Risks for Vascular Dementias

1. Uncontrolled diabetes
2. Uncontrolled blood pressure
3. High cholesterol
4. High triglycerides
5. Heart conditions
6. Blood vessel conditions: build-up of plaque, arteriosclerosis or atherosclerosis

The risks listed in Table 6 are conditions that may have a strong effect on the quality of blood circulation to the brain cells or neurons. The neurons are the brain cells that carry the chemical messages from one brain cell to the next. The neuron actions allow people to think and move their body. Neurons allow the body to function in so many ways, for example, thinking about plans for the next day, doing tasks on the job or at home, remembering the scheduled time to pick up someone for an appointment, having a casual talk with friend, or expressing emotion.

One of the conditions that is a risk for vascular dementia is diabetes especially poorly controlled diabetes. Another condition, high blood pressure impacts the health of the blood vessel walls. On the other hand, low blood pressure may lead to scanty circulation in the middle part of the brain that is fed by the tiny blood vessels called capillaries.

Other risks for vascular dementia include high cholesterol or high triglycerides and the build up of plaque which may block areas in the blood vessels. Sometimes these changes weaken blood vessel walls which result in tears or leaks with blood flowing into surrounding cells. When this

change happens, there may be sudden drop in a person's ability to function. The person may show signs of slurred speech, confused thinking, or weakness in the arms or legs. Any sudden changes may be signs of a stroke and need the immediate medical attention of a physician (see Table 7). If the person receives medical treatment within 3 hours (within 2 hours is even better!), chances are higher for a much better recovery.

Table 7. !!! Emergency !!!

Sudden change ⇒ sudden medical help !

Some people suffer from heart conditions such as heart rhythms that may be too fast or too slow. The heart rhythm may be uneven, sometimes speeding up or skipping a few beats. Over the years the resulting unhealthy heart rhythms or uneven pulsations of the blood flow (summed up in Table 8) result in poor or blocked circulation to the brain. As a result there may be changes that weaken or destroy brain cells. Thus these brain cells, in particular the neurons, begin to function poorly or not at all.

Table 8. Heart Rhythm Risks

1. Heart beat - too fast
2. Heart beat - too slow
3. Heart beat - uneven rate

Diagnosing and treating the underlying condition such as diabetes, high blood pressure, or slow heart beat may slow down the changes to the neurons in the brain. Good health care and a healthy lifestyle may slow down the blood flow damage that results in strokes and destroyed neurons. Note the tips in Table 9.

Table 9. Helps for Heart and Circulation Health

1. Good diet
2. 10 to 12 glasses of water daily unless physician advises otherwise
3. Regular exercise, weight control, waist control
4. No tobacco or alcohol
5. Keep it positive. More positive relationships. Less unpleasant stress.
6. Medicines to help blood flow, diabetes or other health conditions such as migraines
7. Aspirin and similar "protective" medicines
8. Pacemaker

A Good Diet

A good diet is necessary to good health. A good diet should limit saturated fats and contain lots of fiber such as cereals (oatmeal) and grains (barley), beans, peas, legumes, fresh fruits and vegetables. Fruit and vegetables with the most intense color seem to offer a better health and protective benefit.

Researchers are finding that blueberries are high in anti-oxidants and flavonoids, which have an anti-inflammatory effect on the body. The physician, nutritionist and nurse should provide guidance regarding a diet because individuals differ. Scientists have found complex interactions between nutrition and the genes we inherit. Our diet and our genes affect various conditions such as diabetes and levels of cholesterol and triglycerides. Research indicates that the approach “one diet fits all” is wrong. People differ. For example, some people with a Pattern B type of bad cholesterol (LDL or low density lipoprotein) benefit from a low fat diet. However, some people with a Pattern A type of LDL may actually increase their risk for heart disease on a low fat diet.

Water Daily

Water is so important to good health. Unless a physician or other health professional says otherwise, daily water intake should be 10 to 12 glasses a day though many people recommend 8 to 10 glasses a day. Keeping enough water going into the body is critical to keep all the systems functioning well and especially to avoid infection, for example bladder infections. Sometimes people develop a dementia over a few hours or days when they do not have enough liquids going into their body. Building the water supply of the body back up to its needed level may require admission to the hospital and intravenous therapy. Whether a person is sweating because of the summer sun or a bit dry during the cooler weather, taking in enough water or other appropriate liquids every day are critical to a healthy brain in a healthy body.

Weight Control

Stable weight is much better than great gains or losses. Good muscle tone throughout the body puts less stress on the heart. Not only is weight control important, but also waistline control is very important. In general, a woman’s waistline should not be greater than 35 inches and a man’s waistline should not be greater than 40 inches.

Exercise

In addition to good nutrition, helps for the heart and blood circulation include daily exercise for 20 to 30 minutes. Whether walking on a treadmill or in the neighborhood, whether scrubbing the car or the house, whether digging in the garden or at the beach, whether doing aerobics or chair exercises (exercise while sitting), whether swimming or wheelchair dancing (dancing while sitting in a wheelchair), exercise every day is important for the heart, the blood circulation, and for the neurons in the brain.

Keep It Positive

It is important to keep relationships and activities as positive as possible. Relationships that are too demanding and overwhelming contribute to stress, depression and general health problems, including decline in memory and thinking functions. Relationships and activities that are stressful burdens need work to reduce the negative impact of the stress. Relationships with family and friends, activities at work or at home, and volunteer activities should be as pleasant and as positive as possible.

Avoid Tobacco or Alcohol

Avoiding tobacco or chemicals such as alcohol reduces stress to the cells of the body, especially neurons. There have been many reports about the value of grapes and wine for the heart and blood circulation. It should be emphasized that alcohol, such as in liquor, beer, wine or wine coolers, is toxic to the neurons. The resveratrol, that is so healthy for the blood circulation system, is present in many foods such as peanuts (eat the unsalted peanuts). As Table 10 points out, one of the best sources of resveratrol is the red grape which has an especially high level of resveratrol in its skin.

<p>Table 10. Resveratrol - eat red grapes especially with the grape skin on !</p>
--

Medicines

Medicines that widen the blood vessels or improve metabolism improve circulation to the brain. When appropriate, physicians will recommend medicines such as children's aspirin or aspirin 81 to decrease the tendency for blood cells to stick together. This medicine guards against clumps of blood getting stuck in tiny capillaries and causing strokes.

Pacemaker

Sometimes a pacemaker is necessary for a heart with an irregular beat or for a heart that beats too slowly. With such treatments and changes for a healthier lifestyle, the rate of neuron decline slows down resulting in a slowing down of the decline in mental functions.

Signs Needing Emergency Treatment

A sudden appearance of difficulty (see Table 11) may appear as trouble with short-term memory, sudden problems with speech such as slurred speech, difficulty finding words to express a response, confused thinking, clumsy walking, feeling lightheaded, a tingling sensation in ones hands, arms or legs, or struggles to move one's hands, arms or legs. Any of these symptoms need a medical evaluation as soon as possible. This change needs emergency attention (see Table 7, repeated after Table 11.)

Table 11. Signs to watch for:

1. Decrease in memory
2. Struggle with speech
3. Confusion
4. Tingling in or difficulty moving any part of the body (one or both hands, arms or legs)

Table 7. !!! Emergency !!!

Sudden change ⇒ sudden medical help !

Any sudden change in function may indicate a stroke. If the person receives medical treatment within 3 hours (within 2 hours is even better!), chances are higher for a much better recovery.

Medical Evaluation

Any signs of a sudden difficulty with memory, language skills, other thinking skills, or moving any part of the body indicate the need for a complete medical evaluation (see Table 12).

Table 12. Medical Evaluation

1. Details of symptoms
2. Full medical history and exam
3. Neurology exam
4. Tests and pictures

The medical evaluation should involve: details of the symptoms (exactly what happened, when it happened and where it happened), a medical history, a family health history, a medical and neurological exam, a mental status exam, tests of the blood, the heart, and perhaps the brain including a CT (computer tomography) or MRI (magnetic resonance imaging) scan of the actual brain tissue. A full evaluation is essential in order to help the physician to understand the nature of the dementia.

Blood Vessel Involvement

One or more than one blood vessel in the brain may be responsible for the change in thinking skills that are taking place (see Table 13). A sudden short term, memory problem or ability to communicate or a sudden small change in sensation such as tingling in the hands or arms may indicate that only one blood vessel is involved. A slight change in body function such as being unable to move one's arm or leg may indicate also that only one blood vessel is involved.

Table 13. One blood vessel involved:

1. Sudden short-term memory problems
2. Sudden difficulty in talking or other communication skills
3. Sudden tingling in fingers, arm(s) or leg(s)
4. Sudden change in ability to move a limb

Several different symptoms may indicate that blood vessels to the front, center, back and top of the brain are involved (note Table 14).

Table 14. Many blood vessels involved (front, center, back and top of brain):

- 1.↓ Memory
- 2.↓ Math skills (counting \$\$, change)
- 3.↓ Reading & writing
- 4.↓ Interest in activities or social events

If there is a sudden change in ability, such as sudden memory problems, slurred speech, or weakness in any part of the body, it is critical for the person to see a physician as soon as possible. This is a symptom of stroke and is an emergency! The person needs immediate treatment. When going to the emergency room of a hospital, the family should tell the admissions staff about the sudden changes, what time the changes occurred and insist that a physician see the ill person immediately in case it is a stroke. Quick treatment within 2 hours is critical to allow the best recovery. As mentioned before, clot busters work best for a stroke due to blocked circulation or an embolism if given within 2 hours. A medical evaluation is critical because if there is any bleeding in the brain, clot busters must be avoided! Note that Table 7 is repeated below once again.

Table 7. !!! Emergency !!!

Sudden change ⇒ sudden medical help !

Binswanger's Disease

When there are many blood vessels in the brain involved in changes to the circulation of neurons in the front and central part of the brain, people often present with a group of symptoms that fall into the category of Binswanger's disease (Table 15). People with Binswanger's disease usually show changes in motivation and personality first, then later, difficulty with short-term memory. Much later, problems in other thinking functions occur. For example, their ability to communicate may remain strong for quite a while. They may be able to remember details better than the caregiver. At the same time, they may struggle when making simple decisions such as picking an item from a restaurant menu or clothing for getting dressed.

Table 15. Binswanger's Disease

1. ↓ Motivation
2. Personality change
3. ↓ Memory
4. ↓ Thinking skills

People with Binswanger's disease may have sudden changes in mood, for example they may seem quiet and pleasant for an afternoon and then have a sudden burst of restlessness or anger. Or, after a relaxed pleasant day, they may become restless and irritable for the evening. Sometimes the person may be in an irritable mood all day, then when a neighbor visits, the person switches and becomes relaxed, pleasant company. Over time (see Table 16) there is a loss in communication skills, memory and the ability to manage personal care tasks such as bathing, dressing, and feeding oneself.

**Table 16. As Binswanger's disease progresses:,
Surprise changes in mood.**

**Much later, as Binswanger's disease progresses:
↓communication skills and ↓short-term memory**

Tips for Help

With good medical management and careful following of the physician's instructions, the person with vascular dementia may experience a slowing down in the rate of decline. In other words, the rate of losing skills may slow down.

Partnering for Care at Home

Managing care at home works better with a partnership approach (see Table 17). The partnership should involve the person with the health condition teaming up with family members and close friends. Health professional members should include, as appropriate: the physician, the dentist, nurses, social workers, a psychologist, health respite aides and occupational/physical therapists among others. Also important are programs and resources in the community. For example, educational resources, support services, and therapies to steady the health of the patient can provide the family caregivers major help with adjustments and long-term care issues.

Table 17. Partners – Team Approach

1. Person with health condition
2. Family or significant others (including close friends)
3. Physician & other health professional(s)
4. Available resource programs, community services and volunteers

Planning Ahead

Vascular dementia may progress over many, many years and may involve unexpected events. Thus, planning ahead is important for future needs so that family affairs are organized and back up plans are available quickly when there is an emergency. Planning ahead should include financial, legal, and health decisions that help the whole family unit be prepared ahead of time for the normal events and surprises that come with daily life. Some examples of such normal events are a bout of flu, family reunions, and changes in the cost of living; some examples of surprises are a car accident or a tree falling on a house. Early education and planning will help the person with the diagnosis of vascular dementia and the family caregivers to be prepared for the unexpected.

Table 18. Plan Ahead

1. Money
2. Legal issues
3. Long-term health team
4. Care programs and services including alternative transportation
5. Information & support (including support groups)
6. Preferences expressed and written down about personal health & care decisions

Support groups provide excellent assistance and common sense suggestions to family caregivers dealing with persons having any kind of memory disorder. Adult day (health) care centers and in-home respite provide stimulating, supervised activities for the person and a break for the family caregiver. It is not only important for the person receiving the care but also important for the person(s) providing the care to keep up with responsibilities and live a healthy lifestyle. Major points for a healthy lifestyle are summed up in Table 19. Recommendations from health professionals for promoting good health with protective measures are summed up in Table 20.

Table 19. Health Helps

1. Good diet and water intake
2. Regular exercise
3. No chemical abuse
4. Decrease stress; positive relationships; fun activities; interesting hobbies
5. Medicines or treatments to keep blood flow and heart healthy
6. Good control of diabetes and other health conditions

Table 20. The Physician may suggest:

1. Good diet, water (10 -12 glasses a day unless physician does not allow)
2. Exercise: physical, emotional, spiritual, mental (brain exercise)
3. No chemical abuse
4. Decrease stress
5. Change in medicine or dose or therapy for a chronic condition
6. Medicines or treatments to keep blood flow and heart healthy
7. Aspirin and similar medicines, when indicated
8. Homocysteine lowering medicines (neuroprotective/anti-oxidant vitamins)
9. Memory booster medicines (cholinergic medicines); neuroprotective medicines

Remember to tell your physician or nurse as well as the local pharmacist when using over the counter medicines, vitamins, minerals, herbal remedies, special skin lotions, and other supplements.

Table 21 sums up the major points of this Session 2 on Vascular Dementias.

Table 21. Summary

- ◆ **Dementia changes**
- ◆ **Vascular dementia risks**
- ◆ **Sudden change → immediate, emergency medical care !**
- ◆ **Two common vascular dementias: Multi-infarct dementia & Binswanger's disease**
- ◆ **Health helps & available resources**

Available Resources

The last Table 22 lists important resources and toll free phone numbers to keep handy. These national resources and two Florida resources provide educational information including having questions from families answered and educational materials, many of them at no cost. Experts at these resource sites provide referrals to local services including support groups. Adding ones name to the mailing list of these resources provides the benefit of receiving free newsletters and invitations to community lectures and workshops.

Table 22. Available Resources	
National Resources:	AlzOnline (866)260-2466
	Alzheimer's Association (800)272-3900
	ElderLocator (800)677-1116
	* * * * *
Florida Resources:	Florida Department of Elder Affairs (DOEA) (850)414-2000
	Florida Elder Helpline (800)963-5337

This is the end of **Session 2, Vascular Memory Disorders or Vascular Dementias**. The next session in this series **Basics of Dementia** is Session 3, *Progressive Memory Disorders*.