



# DEMENTIA

## and NERVOUS SYSTEM PROBLEMS

### **WHAT ARE NERVOUS SYSTEM PROBLEMS?**

The nervous system has two parts. The brain and spinal cord are the central nervous system (CNS). The nerves and muscles are the peripheral (around the outside) nervous system.

People with HIV disease can have several nerve problems. A common problem is peripheral neuropathy. This causes nerve and muscle pain, especially in the feet, legs, and hands. See Fact Sheet 555 for more information. CNS problems include depression and problems with sleeping, balance, walking, thinking, and memory.

In the early years of AIDS these were all called "AIDS Dementia Complex." However, there is a wide range of AIDS-related nerve troubles. AIDS Dementia means ongoing major problems with thinking, memory, and usually with controlling legs and arms.

Before combination antiretroviral therapy (ART) was available, about 20% of people with AIDS developed dementia. Strong antiretroviral medications (ARVs) have cut the rate of serious dementia. However, with longer survival, more people with AIDS are living with dementia. milder neurologic problems are estimated to affect 40% to 70% of people with HIV. This is true even if people are taking ARVs.

Currently, it is estimated that 20% of people with AIDS suffer from "neuroAIDS". This milder form of brain damage results in physical and mental slowing. Only a few HIV drugs can get into the brain, and it's not known if these help with neuroAIDS. Other treatments are being studied.

Infection with hepatitis C and dependence on methamphetamines increase the risk of mental problems in people with HIV.

### **HOW ARE NEUROLOGIC PROBLEMS DIAGNOSED?**

It is difficult to know what's causing neurologic problems. They can be caused by vitamin deficiencies, opportunistic infections (see Fact Sheet 500), or by ARVs. Others are caused when HIV infects the brain or spinal cord.

Most mental problems don't show up until the later stages of HIV disease. Health care providers will look for other causes. These might include depression or the aging process. However, HIV infection can affect verbal memory, even in patients with no other symptoms of HIV disease.

Tell your health care provider if you have any signs of neurologic problems. These include balance or vision problems, difficulty remembering, concentrating or completing a task; getting lost in places that you know; forgetting telephone numbers that you use a lot; having trouble with simple math like making change at the store, or slowing physical movements

Diagnosis of neuroAIDS is difficult when people with AIDS may be going through normal aging.

Some neurologic problems require urgent medical attention. If you have serious headaches, especially with a fever, stiff neck, vomiting, or vision problems, you should see your health care provider immediately.

### **HOW ARE NERVE PROBLEMS TREATED?**

CNS problems can be caused by medications, swelling, or direct HIV infection of the brain and spinal cord.

If the problems are caused by medications, they usually go away if you stop taking the drugs. This may take as long as 2 months.

Problems caused by swelling, which include toxoplasmosis (See Fact Sheet 517), can be treated with antibiotics.

Unfortunately, the "blood brain barrier" keeps most drugs out of the central nervous system. It's a tight network of blood vessels that protects the brain and spinal cord from most germs or poisons in your blood. Several ARVs get through the blood-brain barrier at fairly high levels:

- zidovudine (AZT, fact Sheet 411)
- stavudine (d4T, fact Sheet 414)
- abacavir (Fact Sheet 416)
- nevirapine (Fact Sheet 431)

However, it is not clear that these drugs can treat or prevent CNS problems.

People with CNS problems may have problems with taking their medications on schedule (adherence, see fact sheet 405.) They may need extra help remembering to take their medications.

Some newer medications are being studied for mental problems. The best results so far are with the drug selegiline and valproic acid. Research in this area is continuing.

Several other neurological problems are emerging in people despite ART. This includes conditions related to immune reconstitution inflammatory syndrome (IRIS, see fact sheet 483).

### **THE BOTTOM LINE**

HIV disease can cause a range of nervous system problems, from forgetfulness and balance problems to serious dementia. These problems usually don't show up until the later stages of HIV disease. However, problems with verbal memory can show up even in people with no other symptoms.

The new combination therapies that fight HIV seem to protect the central nervous system against the worst damage from the virus.

Caring for someone with dementia is very difficult. Caregivers need to take care of themselves, too, to avoid burnout and depression.

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