



NERVOUS SYSTEM PROBLEMS and DEMENTIA

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 problems with the nervous system. A common problem is peripheral neuropathy. This can cause damage to nerves controlling sensation. Symptoms may include altered sensation, numbness, tingling, pain, or weakness, especially in the feet and legs. See fact sheet 555 for more information. Central nervous system (CNS) problems include depression and problems with sleeping, balance, walking, thinking, and memory.

In the early years of AIDS these were all called "HIV-Associated Dementia." However, a broader range of problems is showing up at present. This is now called HIV-associated Neurological Disturbances (HAND), which includes less severe symptoms referred to as Minor Cognitive Motor Disorder.

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

The body has a mechanism to protect the brain from foreign substances. This is called the blood-brain barrier. It keeps most HIV medications from getting into the brain. However, when the viral load in blood goes down, it also goes down in the brain. It is not known whether using HIV drugs that get into the brain helps reduce symptoms of milder neurological problems. Research studies have had mixed results.

WHAT ARE THE SIGNS OF CNS PROBLEMS?

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

The main symptoms of nervous system problems are with thinking, behavior, and movement.

- **Thinking:** memory loss, trouble concentrating, mental slowing, trouble understanding. This can include forgetting telephone numbers that you use a lot, having trouble with simple math like making change at the store. People with CNS problems may have difficulty taking their medications on schedule (adherence, see fact sheet 405.)
- **Behavior:** Depression, agitation, lack of caring, irritability
- **Movement:** Balance problems, unsteady walking, slower movement, poor coordination, tremor

A **physical examination** may show reduced reflexes in the ankles, especially when compared to reflexes in the knees.

Magnetic Resonance Imaging (MRI), a radiologic procedure, may show abnormalities in brain tissue.

WHAT MAKES NERVOUS SYSTEM PROBLEMS WORSE?

Many factors can contribute to nervous system problems. These include severe depression, drug and alcohol use, infection with hepatitis C (see fact sheet 507), inflammation and normal aging.

In addition, CNS problems seem to be more common in people with CD4 cell counts (see fact sheet 124) below 200, either currently or when they were at their lowest.

As people with HIV are living longer, aging is also contributing to nervous

system problems. Some of the problems of aging may show up faster in people with HIV.

HOW ARE CNS PROBLEMS TREATED?

If the side effects of medications include nervous system problems, they usually go away if you stop taking the drugs. This may take as long as several months.

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.

Several other neurological problems are emerging in people, even those taking antiviral medications. This includes conditions related to immune reconstitution inflammatory syndrome (IRIS, see fact sheet 483).

THE BOTTOM LINE

HIV disease can cause a wide 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 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. However, because so many more people with HIV are living longer, and getting older, more nervous system problems are showing up.

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

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