# Nervous System Problems and Dementia

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### *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 (PNS).

People with HIV can have several problems with the nervous system. CNS problems include depression and problems with sleeping, balance, walking, thinking, and memory. A common PNS problem is peripheral neuropathy, which can cause damage to the nerves controlling sensation. Symptoms may include altered sensation, numbness, tingling, pain, or weakness, especially in the feet and legs.

In the early years of AIDS, CNS problems were all called HIV-Associated Dementia. However, a broader range of problems is showing up at present. HIV-Associated Dementia 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 40-70% of people with HIV. This is true even among people taking ART.

The body has a mechanism to protect the brain from foreign substances 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 NERVOUS SYSTEM 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 healthcare 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 or having trouble with simple math like making change at the store. People with nervous system problems may have difficulty taking their medications on schedule.
- **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 virus (HCV), inflammation, and normal aging.

In addition, nervous system problems seem to be more common in people with CD4 cell counts below 200 cells/$mm^3$, 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 NERVOUS SYSTEM 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 nervous system problems may have problems with taking their medications on schedule. They may need extra help remembering to take their medications.

Several other neurologic problems are emerging in people with HIV, even those taking ARVs. These include conditions related to

immune reconstitution inflammatory syndrome (IRIS).

### *THE BOTTOM LINE*

HIV 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 treat 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.

### *MORE INFORMATION*

NIH: Neurological Complications of HIV and AIDS Information Page

The BodyPro: Neurological Complications of HIV/AIDS

POZ: HIV and Your Brain (HIV-Associated Neurocognitive Disorders)

**Reviewed July 2025**