



# IMMUNE RECONSTITUTION SYNDROME

## WHAT IS IMMUNE RECONSTITUTION SYNDROME?

Some people who start antiretroviral therapy (ART) get health problems even though their HIV comes under control. An infection that they previously had might return. In other cases, they develop a new disease. This is linked to improvements in the patients' immune systems. The problems usually occur in the first two months after starting HIV therapy. This condition is sometimes called Immune Reconstitution Inflammatory Syndrome or IRIS. It may occur in about 20% of people starting ART.

## HOW WAS THE SYNDROME IDENTIFIED?

Several patients developed cytomegalovirus (CMV) disease **after** they started HIV treatment. See Fact Sheet 504 for more information on CMV. In some cases, these patients had not been diagnosed with CMV before they started HIV treatments.

Doctors concluded that these patients were infected with CMV before their HIV treatment. However, their immune systems had been too weak to react to the CMV. When they started HIV treatment, their immune systems got stronger and then responded to the CMV. That's when the patients developed what looked like a new case of CMV disease.

There were similar cases in other patients and with different infections. It was called "immune recovery syndrome." Some patients developed fever and swollen lymph nodes. Others had inflammation in various parts of their bodies. Nearly all started ART with very low CD4 (<100) cell counts. These problems showed up **after** the patients had a large increase in their CD4 counts (see Fact Sheet 124) and a large decrease in viral load (see Fact Sheet 125).

## BAD NEWS – OR GOOD?

No one wants to develop inflammation or an infection. However, most cases of

immune restoration syndrome go away with continued HIV treatment.

Probably more important is fact that the immune system is getting stronger. It also shows that the immune system is responding to specific germs. Before HIV treatment, there might have been no response to these germs because the immune system was too weak.

Even in patients who develop immune reconstitution syndrome, **antiretroviral therapy should be continued.**

## WHAT PROBLEMS CAN OCCUR WITH IRIS?

IRIS has been linked with the several types of infections or inflammation including:

**Cytomegalovirus:** CMV IRIS can affect different organs, including the brain, eye and colon.

**Cognitive (memory and thinking) problems:** Some people develop what is now called minor cognitive motor disorder when they first start ART. See fact sheet 505 for more information on nervous system problems.

**Cryptococcal Meningitis:** See fact sheet 503 for more information. The first symptoms are headaches and fever.

**Hepatitis B and C:** Some of these were cases of hepatitis C that had not previously been diagnosed. Fact Sheets 506 and 507 have more information about hepatitis.

**Herpes Zoster (Shingles) and Herpes Simplex outbreaks.** Fact Sheet 509 has more information on shingles. Fact Sheet 508 discusses herpes simplex (cold sores and genital herpes.)

**Molluscum contagiosum** (a viral skin infection. See fact sheet 513).

**Mycobacterium Avium Complex (MAC):** This opportunistic infection is caused by a bacteria related to tuberculosis. MAC IRIS during immune recovery may show unusual symptoms, including fever, fatigue and night sweats.

Fact Sheet 514 has more information on MAC.

**Progressive multifocal leucoencephalopathy (PML):** See Fact Sheet 516 for a description of this viral brain infection. Immune recovery can cause a serious worsening of PML symptoms.

**Tuberculosis (TB):** See Fact sheet 518 for more information on tuberculosis. TB IRIS is common in many developing countries.

## HOW IS THE SYNDROME TREATED?

There is no specific treatment for immune restoration syndrome. Continued HIV treatment strengthens the immune system. This normally takes care of any infections that emerge.

However, in some cases, doctors slowed down the recovery of the immune system. By gradually increasing its strength, they avoided some of the immune restoration responses..

IRIS can be treated by using a steroid drug like prednisone. This can lessen the inflammation while still allowing immune system to recover.

## THE BOTTOM LINE

Immune reconstitution inflammatory syndrome can occur when people with very weak immune systems start HIV treatment. If their immune system recovers quickly (higher CD4 cell counts and lower viral load), it might have a strong response to some germs that were already in the body. This usually shows up as some type of inflammation.

Several different opportunistic infections have been linked to immune restoration.

IRIS is a sign of improving immune health. Normally it is not treated. Continuing HIV therapy takes care of any problems. In rare cases, the immune system can be suppressed with steroids to ease inflammation.

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