



Information Exchange

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What is HIV?

HIV stands for **Human Immunodeficiency Virus**. Isolated in 1983 it belongs to a family of viruses known as retroviruses. Although the syndrome of illnesses associated with HIV infection was only recognised in the early '80's, analysis of stored blood samples reveals it was present as long ago as 1959.

A virus is a very simple organism, consisting of an outer coating enclosing genetic material. When a person becomes infected with HIV, the virus enters the cell and the viral genetic material is copied into the gene of the infected cell. These cells will remain infected for the rest of their lives, as HIV uses them as factories to produce more copies, which can then go on to infect more cells. Although many different cells within the body are infected with HIV, it particularly damages cells which are part of the body's defences against infection (the immune system). This is why people with advanced HIV infection are much more susceptible to certain infections (and types of cancer) since the function of the immune system is progressively weakened by the damage done by HIV.

Transmission of HIV

HIV is transmitted from one person to another through certain body fluids. World-wide, the most common transmission is through sexual intercourse. People are normally infected through sex without condoms or through sharing needles when injecting drugs. It is also possible for a mother to infect her child before or during birth and through breast-feeding.

Reduction of transmission of HIV

Mother to child transmission is greatly reduced by taking antiretroviral drugs. These reduce your viral load so that your child is exposed to less of the virus while in the womb or during childbirth. They may cross the placenta and enter the baby's body, where they can prevent the virus from taking hold.

It is important to advise your partner of your status and use condoms during sex (including oral sex despite the small risk). If the condom breaks during sex post exposure prophylaxis (PEP) is now available to people no more than 24 to 48 hours after possible exposure to HIV. Seek help immediately if this happens. Unprotected sex, a high viral load and sexually transmitted infection all increase the risk of transmission.

What is AIDS?

AIDS is the name given to the collection of illnesses (or syndrome) which someone can get if their immune system has been severely damaged by HIV. AIDS stands for Acquired Immune Deficiency Syndrome.

What is an HIV Test?

The standard test looks for antibodies and an antigen to the virus. These are the specific chemical flags that are produced by infection. They may take several weeks or even months to appear, therefore it is common to speak of a "window period" of twelve weeks after exposure before the test can be considered to be of full value.

The new test can detect infection as early as 2-3 weeks after exposure, but the 12 week test is needed to exclude infection.

What is Seroconversion illness?

Many people who are infected with HIV have an illness during the first weeks or months, which can include rash, fever, and enlarged glands. This is due to the response of the body to infection. Some doctors believe that treatment started at this time may be of benefit but there is not yet any clear evidence.

What is an Opportunistic Infection (OI)?

This is an infection that does is normally not serious for someone with a normal immune system. In someone with HIV infection, especially as the immune system becomes weaker, the risk of these infections becomes greater.

How can HIV infection be monitored?

The two most commonly used tests are the CD4 cell count and the Viral Load test. The CD4 cell count gives an idea of how the immune system is currently functioning, while the Viral Load test measures how much free virus is detectable in the blood. A higher viral load occurs at seroconversion and then settles. When it increases again it indicates the likelihood of more rapid weakening of the immune system.

What treatments are available?

There are drugs (called anti-retrovirals) licensed in the UK for the treatment of HIV, with more under investigation. Other treatments are used to prevent Opportunistic Infections (OI's) from developing (such as Co-Trimoxazole, Dapsone, Trimethoprim) and/or to prevent the recurrences of OI's (e.g. Gancyclovir, Foscarnet, Rifabutin, Azithromycin, Aciclovir, etc). As a result of these advances, the outlook (doctors talk about prognosis) for people infected with HIV is very much better than it used to be.

The drugs used for the treatment of are from five different chemical groups – Nucleoside Analogues (NAs), Protease Inhibitors (PIs), NNRTIs (Non-nucleoside Reverse Transcriptase inhibitors), Nucleotide Reverse Transcriptase Inhibitors (NtRTIs) and Fusion Inhibitors. The precise combination of drugs for any particular individual needs to be carefully tailored taking many factors into account, but it is generally agreed that a combination of at least three drugs is best, including at least two from differing chemical groups. A full list of the drugs is available.

What problems are there with anti-HIV drugs?

Taking pills regularly, maybe more than twice every day, and for very long periods of time, can be a problem for some people, especially if they do not feel unwell. Side effects can also be a problem, some may be temporary and minor, and others may be more severe and mean a change of treatment. Resistance to the drugs someone is taking can occur if the pills are not taken as directed. In such cases a new combination of drugs will be necessary, chosen based on resistance testing and a regime that best suits you.

When should treatment be started?

By taking into account factors such as time since infection, medical history, lifestyle and measurements of CD4 cell count and viral load, doctors will advise on the best time to start treatment. Since we know that the progress/speed of HIV infection can vary enormously between individual cases, this needs to be carefully considered.

This information was produced by the Information Exchange of the HIV/GU Medicine Directorate of the Chelsea and Westminster Hospital. For more information please contact 020 8746 5929

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