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hiv & hepatitis

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**Written by Michael Carter,
revised by Rob Dawson
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hiv & hepatitis

This booklet is aimed at people with HIV who also have hepatitis B or hepatitis C, viruses which can cause serious disease of the liver. The booklet is not intended to replace discussion with your doctor, but should help you to think about questions you would like answering.

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The liver is the largest internal organ in your body. It is located at the upper right hand side of the abdomen. Having a healthy liver is important to everybody, but it is especially important to people with HIV as the liver plays an important part in processing medicines used to treat HIV. Viral infections which affect the liver, such as hepatitis A, hepatitis B and hepatitis C, can make you very ill and also mean that the liver is unable to process medicines properly.

What your liver does

Your liver has four major functions:

- It stores and filters blood, removing unwanted substances.
- It makes bile, which is released into your gut and helps digest fat.
- It processes nutrients from foods, releasing energy into your blood stream, and storing vitamins and minerals.
- It manufactures proteins and certain vitamins.

What can go wrong with your liver

Drinking a lot of alcohol over a long period of time can damage your liver, leaving it permanently scarred and unable to work properly.

Certain recreational drugs, such as heroin, cocaine, and ecstasy can also damage your liver.

Medicines used to treat illnesses and infections, including some HIV drugs, can also damage your liver, causing inflammation, known as hepatitis.

Viruses can also cause disease in the liver. This booklet gives detailed information on these viruses, mainly hepatitis B and hepatitis C, which can cause serious long-term or chronic illness. Information is also included on hepatitis A, which can also make you unwell, but only in the short term.

Fibrosis and cirrhosis

Hepatitis B, hepatitis C, excessive drinking and drug use can all damage the tissue in your liver. Two terms are used to describe this - fibrosis and cirrhosis.

If your liver has fibrosis this means that it has been hardened and scarred. Fibrosis can be reversed if the cause is identified early enough.

Cirrhosis is severe scarring of the liver meaning it can no longer work properly. This can be very serious, causing jaundice, internal bleeding, and swelling of the abdomen. Damage caused by cirrhosis is often permanent.

Liver cancer

Chronic hepatitis B and hepatitis C significantly increase the risk of liver cancer developing.

If you have hepatitis C, liver cancer is most likely to happen when you have cirrhosis, particularly if you are a heavy drinker. Smoking may also speed up the rate of cirrhosis and increase the risk of developing liver cancer.

Liver cancer is difficult to treat and surgery is often the only option, involving the removal of part of the liver. Small tumours can be removed, but the chance of a new tumour developing within five

years is high. Chemotherapy has no proven benefit against liver cancer.

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Vaccinations

Vaccinations are available to protect you from getting infected with hepatitis A and hepatitis B. If you are HIV-positive you are advised to receive these vaccinations as soon as possible. If you are infected with hepatitis C it is crucial that you receive these vaccinations so you are protected against further damage to your liver by hepatitis A or B. Vaccinations for hepatitis A and hepatitis B are safe and effective in people with HIV and available free of charge at your HIV clinic, a sexual health clinic, or from most GPs.

Both vaccinations consist of a course of injections - usually two for hepatitis A and three or four for hepatitis B - given over a number of months. For the vaccine to be

effective, it is very important for you to have all of the injections. Regular tests should be performed to see if you need a booster vaccine to continue your protection. A small number of people are immune to hepatitis A and B due to earlier infection and you will have tests to see if you are immune before any vaccination is given.

There is no vaccine against hepatitis C.

Hepatitis B virus (often known as HBV) is an infection that can cause severe and even fatal damage to your liver.

It is a very common infection around the world, particularly in Africa and the Indian sub-continent. At some London HIV clinics, as many as 6% of gay men, are co-infected with both hepatitis B and HIV. It is also common in people who have shared equipment for injecting drugs.

Transmission

The reason why so many people with HIV also have hepatitis B is because it can be spread in a similar way to HIV, particularly by contact with bodily fluids

like blood, semen and vaginal fluid, and from a mother to her baby whilst pregnant. Hepatitis B is many times more infectious than HIV. Although small amounts of hepatitis B virus can be found in saliva, it is not likely to spread hepatitis B, unless saliva from an infected person gets into a cut or sore, for example, following a bite.

In richer countries, such as the UK, hepatitis B has mainly affected gay and bisexual men, injecting drug users, and people with haemophilia. Increasing numbers of cases are being seen in people from Africa and India.

It is very important that people with HIV are vaccinated against hepatitis B. Using a condom for anal, vaginal and oral sex reduces the chances of hepatitis B being passed on during sex. Similarly, you should never share needles or other injecting drug equipment.

Blood products in the UK are routinely screened for hepatitis B.

Symptoms

The majority of adults who are infected with hepatitis B have no symptoms to suggest that they have the infection, and it is often only diagnosed by routine blood tests. Even if you have no symptoms at all, you can still pass the virus on to others.

However, if symptoms do occur, you may experience a yellowing of the skin and whites of the eyes (jaundice), loss of appetite, pain in the stomach, nausea and vomiting, a high temperature, joint and muscle aches and feeling generally unwell.

These symptoms can be very severe and in some very rare cases can even cause death.

Stages of infection

There are four stages of hepatitis B infection.

- Stage 1 - Immune tolerance: At this stage hepatitis B is able to reproduce freely in the body but does not cause any symptoms or liver damage. In adults, this

stage tends to last for several weeks after infection with hepatitis B. In infants it can last for several years after infection.

- **Stage 2 - Immune response:** During this stage the body's natural defence, the immune system, attacks the hepatitis B-infected cells in the liver and starts to clear the infection from the body. In some people who have been recently infected with hepatitis B, this phase may last for no more than a few weeks. However, in people who cannot clear the infection, it can last for years. Because the immune system attacks liver cells with hepatitis B virus this causes liver damage and many

people develop symptoms and become unwell at this time.

- **Stage 3 - Viral clearance:** This is often also known as 'seroconversion' because the body produces antibodies in response to a substance on the surface of the hepatitis B virus called the 'e' antigen. During this stage, hepatitis B stops reproducing itself.
- **Stage 4 - Immunity to hepatitis B:** This is when the immune system produces a full antibody response to hepatitis B, and clears the body of hepatitis B virus. Hepatitis B genetic material (DNA) usually disappears from the body.

Most adults infected with the hepatitis B virus fully recover and develop life-long immunity to the infection. However, up to 10% of individuals infected as adults do not enter stages two and three described above and so will become chronic carriers of the virus. This means that they will continue to be infectious to others and can develop chronic liver damage. Infected children, especially new-born babies, are much more likely to become chronic carriers.

Infection with the hepatitis B virus that lasts for several years could lead to the following complications:

- Chronic hepatitis.
- Liver cirrhosis.
- Liver cancer.

Monitoring

There are a number of tests to see if you are infected with hepatitis B, or if you have been infected and have managed to clear the infection.

If the tests find fragments of hepatitis B virus called surface antigens for more than six months, then you are a chronic carrier of hepatitis B and continue to be potentially infectious to other people.

People who test positive for these antigens have higher rates of replication of hepatitis B and are also more likely to be infectious.

If you have antibodies but no antigen after six months of infection, then your immune system has cleared hepatitis B infection.

You are also likely to have regular tests to see if your liver has been affected by hepatitis B. These are called liver function tests and they look at levels of certain chemicals, proteins and enzymes which give an indication of how much ongoing damage there is to the liver and how well your liver is working. They should be performed at least every six months.

Ultrasound examinations are also used, particularly if your liver is damaged. In some cases it may be necessary to perform a liver biopsy, when a tiny sample of tissue from the liver is extracted using a hollow needle for examination under a microscope.

Treatments

Treatments are available if you do not clear infection with hepatitis B. The current treatments for hepatitis B are alpha interferon, pegylated alpha interferon, the anti-HIV drug 3TC (lamivudine, *Epivir*, but *Zeffix* when used to treat hepatitis B without HIV therapy), adefovir (*Hepsera*) and entecavir (*Baraclude*).

Tenofovir (*Viread*) and FTC (emtricitabine, *Emtriva*) both have good activity against hepatitis B virus and many HIV physicians will use them to treat both HIV and hepatitis B in patients infected with both viruses.

The aims of hepatitis B treatment are to reduce liver inflammation, reduce the amount of hepatitis B DNA, and ideally, to eradicate hepatitis B antigens from the body and produce antibodies that reduce the risk of progression to cirrhosis and liver damage.

These treatments usually eradicate hepatitis B in about a third of the people who take them.

Alpha interferon

Alpha interferon is recommended as an option for the initial treatment of adults with chronic hepatitis B. It is given by injection, usually three times a week (every other day) for four to six months, and leads to clearance of detectable hepatitis B in between 20 - 40% of people with hepatitis B infection alone. However, it works less well in men, people who have had hepatitis B for a long time, people who have large amounts of hepatitis B DNA, and people who are also infected with HIV.

Alpha interferon can cause unpleasant side-effects, including flu-like symptoms,

aches and pains, and bone marrow suppression.

Severe psychological effects, particularly depression, suicidal ideation and attempted suicide have also been observed in a small number of patients during therapy. This can also occur after treatment has been stopped, mainly during the six-month follow-up period. Some patients have also reported acute allergic reactions to the drug.

Pegylated alpha interferon is a modified version of standard interferon alpha that results in 'longer-action' and has been associated with an improved response rate

compared with conventional interferon. The usual course for pegylated alpha interferon is 48 weeks.

3TC

3TC is better known as a potent anti-HIV drug (lamivudine, *Epivir*), but also works against hepatitis B and so is licensed for the treatment of both infections (with the brand name *Zeffix* for the treatment of hepatitis B). The dose of 3TC for hepatitis B treatment is 100mg taken orally once daily. This is lower than the twice-daily 150mg dose of 3TC used when the drug is included in anti-HIV drug combinations. It is not known how long it is necessary to take 3TC for, and although studies have

generally looked at people taking the drug for a year or two, lifelong therapy with the drug may be needed. One of the major problems with using 3TC as the only anti-HBV drug is the development of drug-resistant hepatitis B. This may occur in 90% of patients on this drug alone after three years.

Some people may be allergic to 3TC and should report the following symptoms immediately: chest pain or tightening, swelling of eyelids, face or lips, skin rash or hives on the body.

Adefovir

Adefovir (*Hepsera*) is used as a treatment for hepatitis B in Europe and the US, usually if treatment with alpha interferon has failed. The standard dose is 10mg and the drug is effective against hepatitis B virus that is resistant to 3TC. Side-effects include headache, stomach pain, feeling sick, and diarrhoea. Adefovir has previously been tested as an anti-HIV drug at 60mg and 120mg doses, but was not licensed because the risk of kidney toxicity was too great at high doses.

You should inform your doctor if you have previously experienced kidney disease or if blood or urine tests indicated that you

have kidney problems. This is particularly important if you are taking other medicines which may damage your kidneys, such as vancomycin and aminoglycosides (for bacterial infections), amphotericin B (for fungal infections), foscarnet (for viral infections) and pentamidine (for infections) or medicines which may interact with adefovir such as cidofovir (for viral infections), or tenofovir (*Viread*) or tenofovir-containing treatment (tenofovir and emtricitabine, *Truvada*) as part of your HIV therapy.

Entecavir

Entecavir (*Baraclude*) is approved for use in adults with chronic hepatitis B infection.

It is a particularly potent anti-hepatitis B drug, although a higher dose is required in patients who have previously used 3TC, since it may be less effective in such patients. Entecavir has recently been shown to have some activity against HIV, and it should not be used if you are not taking anti-HIV treatment as this could lead to the development of drug-resistant HIV.

Hepatitis B and HIV

It was generally thought that having hepatitis B did not increase HIV disease progression and severity. However, because the introduction of effective anti-HIV drugs has extended life expectancy and

decreased illness due to HIV itself, hepatitis B or C have emerged as a significant cause of illness and death in people with HIV.

Anti-HIV treatment and hepatitis B

Potent anti-HIV treatment can be used safely and effectively if you have hepatitis B.

However, when some people infected with HIV and hepatitis B start taking anti-HIV treatment, they may experience a short-term flare-up of hepatitis B. This is usually the consequence of the anti-HIV treatment restoring the immune system, which then becomes better at responding to

infections such as hepatitis B. This improved immune response can lead to active hepatitis B disease.

To try and prevent these flares happening, many doctors recommend that people with chronic hepatitis B infection who are starting anti-HIV treatment should start treatment for hepatitis B infection at the same time.

People with hepatitis B appear to be at greater risk of experiencing the increases in liver enzymes which some anti-HIV drugs can cause. The drugs particularly associated with liver side-effects are ritonavir (*Norvir*), indinavir (*Crixivan*), nevirapine

(*Viramune*), AZT (zidovudine, *Retrovir*) and ddI (didanosine, *Videx*), as well as some drugs used to treat other infections to which people with HIV can be vulnerable, including pentamidine, some sulphur-based antibiotics, and ketaconazole.

Hepatitis B treatment if you have HIV

The British HIV Association, the organisation that sets UK guidelines for the treatment of HIV, recommends that if a person with hepatitis B virus is taking antiretroviral treatment, then this should include an anti-HIV drug that is also effective against hepatitis B. These are 3TC

(lamivudine, *Epivir*) or FTC (emtricitabine, *Emtriva*), and tenofovir (*Viread*). Anti-HIV drugs (and entecavir) should not be used for the treatment of hepatitis B if a person is not taking antiretroviral therapy.

Hepatitis C virus (or HCV) was first identified in 1989 and can affect the liver and lymphatic system. It is not related to hepatitis B, even though it often causes similar symptoms. Over 0.4% of the UK population are chronically infected, representing over 200,000 patients living with hepatitis C. The majority of those infected with hepatitis C are undiagnosed.

In recent years an epidemic of hepatitis C has emerged amongst HIV-positive gay men, and a small study recently found hepatitis C transmission in HIV-negative gay men.

Transmission

Hepatitis C is transmitted mainly via direct blood-to-blood contact. The most common route of transmission in the UK is by sharing equipment for injecting drug use, mainly via blood contaminated needles and syringes. Many people also contracted hepatitis C from blood products before screening and sterilisation was introduced.

Sexual transmission of hepatitis C is thought to be unusual, but probably does occasionally occur. Increasing numbers of gay men are testing positive for hepatitis C and most of these are HIV-positive and some reported unprotected sex as their only risk activity. The most recent evidence

seems to suggest that the hepatitis C virus is found more frequently in the semen of men who are coinfecting with HIV, than in the semen of men who are only infected with hepatitis C. This could be one factor contributing to the rise in infections. Some doctors and researchers think that fisting is the sexual activity that involves the biggest risk of hepatitis C transmission. Cases of hepatitis C transmission from vaginal sex remain rare. Doctors are unsure whether the infection that occurs between heterosexual partners is because of sexual exposure or because of other reasons, for example, sharing personal items which may have traces of blood on them.

Sharing household items that may have tiny amounts of blood on them, such as razors, toothbrushes and nail scissors, should be avoided.

Mother-to-baby transmission of hepatitis C is thought to be uncommon, but the risk is increased if the mother is also infected with HIV. A high hepatitis C viral load also increases the chance that a mother will pass on hepatitis C to her baby. As with HIV, a caesarean delivery reduces the chance of mother-to-child transmission of hepatitis C.

Some studies have found a risk from breastfeeding, but the evidence is

inconclusive. However, in the UK and other countries where safe alternatives are available, mothers with HIV should breastfeed.

Symptoms

Less than 5% of people experience symptoms when they are first infected with hepatitis C. When they do occur, symptoms can include jaundice, diarrhoea, and feeling sick. Even without the presence of symptoms, the virus can still be passed on to others.

In the longer term, about half of people with hepatitis C will experience some symptoms. The most common ones are

feeling generally unwell, extreme tiredness, weight loss, intolerance of alcohol and fatty food, and depression.

Disease progression

Current evidence suggests that only about 20% of individuals who have been infected with the hepatitis C virus appear to clear the virus naturally from the blood, whilst about 80% will develop chronic hepatitis C. Those with chronic infection will continue to be infections and can pass on the virus to others. If a person continues to be infected over a number of years with

the hepatitis C virus, they could develop the following complications:

- Chronic hepatitis.
- Liver cirrhosis.
- Liver cancer.

Patterns of disease vary from person to person. Some people never experience any of these complications but about a third of those with chronic infection will develop serious liver disease after 15 to 25 years of infection.

The severity of disease can be affected by a number of factors. It is thought that it may take between 30 and 40 years for

hepatitis C to cause cirrhosis - serious scarring to the liver. But men, people who drink alcohol, older people, and people who also have HIV, seem to have faster hepatitis C disease progression.

Diagnosing and monitoring hepatitis C

A blood test can tell if you have been exposed to hepatitis C and have antibodies to it. The British HIV Association recommend that people with HIV are tested for hepatitis C at least once a year, and have more frequent tests if there is a risk of hepatitis C.

A test is also available to measure hepatitis C viral load (PCR). This can show if you are one of the small numbers of people who clear hepatitis C from the body naturally. Unlike HIV viral load testing, a hepatitis C viral load is not an indicator of when to start treatment. However, it can be used to show how long you should continue to take treatment against hepatitis C. If you have a very high hepatitis C viral load (above 2 million copies) you may require a longer course of treatment.

Tests on levels of enzymes produced by your liver, called 'liver function tests', can give an indication of whether or not hepatitis C has

damaged your liver. However, some people with hepatitis C can have normal liver function tests, even though they have suffered significant liver damage.

If the degree of liver damage you have suffered is unclear, then you may need to have a liver biopsy. This involves using a hollow needle to remove a small sample of the liver, which is checked under the microscope for signs of liver damage.

Liver biopsies can also be used to help decide what kind of hepatitis C treatment you need and how long it should last for. However, liver biopsies can be uncomfortable for some patients and very

rarely can cause bleeding. If you have haemophilia you may need to receive extra clotting factor before and after the biopsy, and a very small number of people with haemophilia may not be able to have a biopsy at all because of very low clotting factor levels.

Because of these issues, some doctors are exploring the possibility of using a number of different blood tests that, viewed together, can give an accurate impression of liver function and damage, rather than using biopsies. Another method for assessing liver damage is 'elastography' or fibroscan which is a measure of liver stiffness assessed by a vibration probe.

This is a test very much like an ultrasound scan of the liver. Many clinics are now offering this as an alternative or an addition to a liver biopsy.

How does HIV affect hepatitis C?

In the past few years several studies have confirmed the link between HIV and hepatitis C co-infection and faster progression of liver disease. It seems that people coinfecting with HIV and hepatitis C are more likely to develop liver disease than people infected only with hepatitis C. This seems to be the case even if you have a high CD4 count. More severe liver damage is seen in people who have advanced HIV.

The effect of hepatitis C on HIV

In countries like the UK, where potent anti-HIV treatment is widely available and people are living longer healthier lives with HIV, liver disease is now a major cause of hospital admission and death among HIV-infected people because of hepatitis B and C liver-related problems.

Hepatitis C does not appear to significantly alter your chances of becoming ill due to HIV, developing AIDS, dying of an AIDS-defining illness, or responding poorly to anti-HIV treatments.

Anti-HIV treatment if you have HIV and hepatitis C

Potent anti-HIV treatment can be used safely and effectively if you are coinfecting with HIV and hepatitis C. However, you may be at greater risk of side-effects affecting the liver, which some anti-HIV drugs can cause.

For instance, research indicates that coinfecting patients should use the anti-HIV drugs ddI (didanosine, *Videx*) and d4T (stavudine, *Zerit*) with caution, due to the increased risk of developing a coinfection called hepatic steatosis, or fatty liver - which is the accumulation of fat in the liver.

You may also be at greater risk of developing some of the metabolic disorders that can be a side-effect of potent anti-HIV treatment, such as insulin resistance and diabetes.

You and your doctor should bear these factors in mind when selecting which anti-HIV drugs you are going to take, and careful monitoring of your liver after you start taking anti-HIV treatment is strongly recommended. More information on HIV and hepatitis C treatment interactions can be found later in this booklet.

Your decision when to start anti-HIV treatment should be based on your CD4

cell count and HIV viral load, as it is in people who have HIV alone.

Some people with hepatitis C have a lower CD4 count rise on anti-HIV treatment than those without hepatitis C.

Treatments for hepatitis C

Treatments are available for hepatitis C.

The British HIV Association recommends that before you start treatment for hepatitis C, doctors who are expert in the treatment of hepatitis C and HIV assess you.

Before treatment is started it is important to have a test to show which strain, or genotype, of hepatitis C you

have been infected with, as hepatitis C genotype can predict your response to treatment. There are at least six types of hepatitis C genotype. Type 1 is the most common in the UK and Europe.

Unfortunately, type 1 responds least well to the currently available treatments for hepatitis C. Those with genotypes 2 or 3 respond better to treatment.

Factors such as age, gender, duration of infection, degree of liver damage and whether cirrhosis has developed are also important factors in deciding if treatment is likely to be effective.

Unlike antiretroviral therapy, treatment for hepatitis C is not indefinite. It consists of a

24- or 48-week course of treatment, and the length of treatment you receive depends on the genotype you are infected with and your response to treatment. A test after twelve weeks can predict if you are not going to respond to treatment.

The current treatments for hepatitis C are ribavirin, alpha interferon, and pegylated interferon or peg-interferon (*Pegasys*, *PegIntron*, *ViraferonPeg*).

Alpha interferon can be used by itself or in combination with ribavirin. Pegylated interferon can also be used either by itself or in combination with ribavirin. While a combination of drugs improves response rates, for the few people unable to tolerate

combination anti-hepatitis C therapy, alpha interferon on its own is sometimes beneficial. Ribavirin should never be used as a treatment for hepatitis C by itself. Improved response rates are also seen when ribavirin is dosed according to a patient's weight and some studies suggest that kidney function should also be considered.

Treatment with pegylated interferon and ribavirin is now the standard of care recommended by the British HIV Association. It is recommended that patients receive regular eye checks as it is thought that treatment can cause serious eye problems, such as retinal haemorrhage, cotton wool spots and decreased colour vision, in some patients.

Some people with chronic hepatitis C virus infection do not clear the virus with their first attempt at treatment, whilst others relapse after an initial response. This is especially true if originally treated with the older conventional interferon or if their regimens did not include adequate doses of ribavirin.

A second attempt at treatment may be advised and studies have shown that some people responded well to this. On occasion treatment may need to be prolonged to 72 weeks to achieve viral clearance.

Aims of hepatitis C treatment

The aim of treatment should be to eradicate hepatitis C completely. Although 50-80% of HIV-negative individuals respond to treatment with pegylated interferon and ribavirin, the response rate in people coinfecting with HIV and hepatitis C is much lower.

If clearance of hepatitis C is not possible, then treatment should have the aim of normalising liver function, reducing the inflammation in your liver caused by hepatitis C, and the prevention of further damage to the liver.

If you have very advanced HIV disease the aim of hepatitis C treatment is likely to be

different and focus on improving your tolerance of anti-HIV drugs, improving liver function, reducing your risk of death from liver problems, and improving your quality of life.

Side-effects of hepatitis C treatment

The side-effects of hepatitis C treatment can be very severe, though they tend to lessen as treatment goes on.

Side-effects include high temperatures, joint pain, weight loss, feeling sick, and depression. Depression is particularly common in people taking alpha or pegylated interferon and you may be

offered antidepressants if you are taking this drug.

Other major side-effects of alpha interferon include blood abnormalities such as low haemoglobin (anaemia), a low white blood cell (neutropenia), and/or a low platelet count (thrombocytopenia).

Anaemia is a common side-effect and can lead to fatigue and shortness of breath. Doctors will often use injections of erythropoietin (EPO) to increase red cells and haemoglobin to counter this. Injections of G-CSF (filgrastim) can also be used to increase white cell counts.

Most HIV-positive patients will experience a slight decrease in their CD4

counts whilst on treatment with interferon. This is an interferon effect rather than a HIV effect. Once treatment is complete the CD4 counts will return to the level they were when anti-hepatitis C treatment was started.

Ribavirin must not be given to pregnant women because this could lead to the loss of the baby, birth defects or to problems in the baby after birth. Ribavirin can enter the sperm. It is important that sperm that contains ribavirin is not allowed to start a pregnancy and that ribavirin is not allowed to reach an unborn child. Couples who have been treated with ribavirin should avoid pregnancy for at least six months after the completion of treatment.

Which infection to treat first - HIV or hepatitis C?

The British HIV Association recommends that the infection that is the greatest threat to your health should be treated first.

If you have a good CD4 cell count and are not becoming ill because of HIV, then you should be offered the choice of receiving treatment for hepatitis C before you start anti-HIV treatments.

However, if your CD4 cell count is low (below 200), falling rapidly, or you are becoming ill because of HIV, then you should start antiretroviral therapy first.

Hepatitis C drugs in the pipeline

Many doctors are optimistic that much better drugs will be available for hepatitis C in the future. These include hepatitis C protease inhibitors and polymerase inhibitors. However, it could be a few years before these drugs are available.

If you are going to take treatment for hepatitis C, then you might want to consider joining a clinical trial, if there's one available. This means that you will be monitored more frequently and may receive newer treatments as and when they become available on clinical trial.

Liver transplants can be successful in people with HIV. An increasing number have been performed on people who are coinfecting with HIV and hepatitis B or C.

You are most likely to have a successful liver transplant if you have cirrhosis and HIV has not done too much damage to your immune system or you have responded well to antiretroviral therapy.

Hepatitis A can cause a short-term (or acute) illness, which normally lasts ten to 14 days. It has no long-term, or chronic phase. You can normally expect to get better without any special treatment, and once you have had hepatitis A you cannot get it again.

Hepatitis A is spread by contact with infected human faeces (stools, excrement). Contamination of food, drinking water and ice cubes is a common route of transmission, but it can also be passed on during sex, particularly by rimming (oral-anal contact).

You might be sick because of hepatitis A for longer if you have HIV, and having

hepatitis A may also mean that you have to stop taking your HIV drugs or other medicines for a period of time. This is because many medicines are broken down by the liver, and when the liver is inflamed because of hepatitis A, it is unable to process medicines properly, meaning that your risk of side-effects is increased.

Many people with hepatitis use complementary or alternative therapies, either as a treatment for their liver disease or to help relieve the symptoms or treatment side-effects.

As Chinese medicine becomes increasingly popular in the UK, more people with liver disease use herbal treatments such as milk thistle. It's important to be cautious. The use of complementary and alternative medicines can involve risks. Always inform your HIV/hepatitis doctor and pharmacist about any other treatments you are taking.

There is no evidence from clinical trials to show that complementary and alternative treatments work. Some popular herbal

treatments, such as the herbal antidepressant St John's wort can stop anti-HIV drugs working properly. Large doses of garlic supplements stop the protease inhibitors saquinavir working properly and large doses of vitamin C have the same effect on the protease inhibitor indinavir (*Crixivan*).

The British HIV Association recommends that your treatment for HIV and hepatitis B or C should involve a network of specialist doctors.

As well as your HIV consultant this should include the local hepatology team (doctors who are specialists in treating liver disease), virologists, and if appropriate, the regional transplant centre.

This may mean that you have to see several different doctors and nurses in different hospital departments (or even in different hospitals) for your HIV and hepatitis treatment and care.

There should be good communication between the doctors and departments looking after you, but if you are concerned that important information is not being passed on make sure that you tell a member of your healthcare team.

Remember, if you are not happy with the standard of HIV care you are receiving, you can change and receive your treatment and care from another HIV clinic.

Your HIV clinic should be able to offer you information and support about hepatitis.

You may also find the following organisations useful:

The British Liver Trust

British Liver Trust, 2 Southampton Road,
Ringwood BH24 1HY

tel: 0870 770 8028

www.britishlivertrust.org.uk

UK Hepatitis C Resource Centre

195 Old Kent Road, London SE1 4AG and
276 Bath St, Glasgow G2 4JR

tel: 0870 242 2467 and 0141 353 1308

www.hepccentre.org.uk

Haemophilia Society

First Floor, Petersham House, 57a Hatton
Garden, London EC1N 8JG

Freephone helpline 0800 018 6068

www.haemophilia.org.uk

Birchgrove Group

(for people with haemophilia and HIV)

www.birchgrovegroup.org

34 Summary

- The liver is a human organ that plays an important part in processing drugs.
- Hepatitis B and hepatitis C are serious viral infections that affect the liver.
- You should be tested for hepatitis B and hepatitis C.
- Coinfection with HIV and hepatitis B or hepatitis C (or both) is quite common.
- Hepatitis B can make you ill in both the short and long term.
- Treatments are available for hepatitis B, some of which also work against HIV.
- Hepatitis C can cause serious long-term health problems and is a major cause of illness and death in people with HIV.
- Treatments are available for hepatitis C, and treatment decisions should be made on an individual basis.
- Vaccinations are available for hepatitis A and B and everybody who is HIV-positive should receive them.

acute A recently developed condition

anaemia A shortage or change in the function of red blood cells. These carry oxygen to the cells in the body.

antibody Protein substance produced by the immune system in response to a foreign organism.

antigen Something the immune system can recognise as foreign and attack.

antiretroviral A substance that acts against retroviruses such as HIV.

antiviral A drug that acts against viruses

biopsy A small sample of tissue that can be examined for signs of disease.

CD4 A molecule on the surface of some cells onto which HIV can bind. The CD4 cell count roughly reflects the state of the immune system.

cholesterol A waxy substance, mostly made by the body and used to produce steroid hormones.

chronic A long-term condition.

clinical trial A research study involving participants, usually to find out how well a new drug or treatment works in people and how safe it is.

diabetes A condition characterised by raised concentrations of sugar in the blood, due to problems with the production or action of insulin.

genotype The genetic make-up of an organism.

haemophilia An inherited condition, characterised by an inability of the blood to clot and to bleed profusely from even minor cuts and injuries.

hepatitis Inflammation of the liver

insulin A hormone produced by the pancreas that tends to lower blood sugar levels.

jaundice A yellowing of the skin and whites of the eyes associated with liver and gall bladder problems.

liver The organ involved in digestion of food and excretion of waste products from the body.

metabolism The mechanisms which sustain life, turning sugar and fat into energy.

nausea Feeling sick.

neutropenia A shortage of neutrophils, immune cells in the blood which can attack bacteria and fungal infections.

NRTI Nucleoside analogue reverse transcriptase inhibitor, the family of antiretrovirals that includes AZRT, ddl, 3TC, d4T, ddC, abacavir, and FTC.

pancreas A glandular organ situated behind the stomach that secretes insulin and digestive enzymes.

pancreatitis A condition of the pancreas causing severe abdominal pain, shock and collapse, which can be fatal.

protease inhibitor Family of antiretrovirals which targets the protease enzyme.

seroconversion The time when a person's antibody status changes from negative to positive.

strain A variant characterised by a specific genotype.

toxicity The extent of ways in which a drug poisons the body.

transaminase An enzyme that can be measured in a blood sample that indicates the health of the liver.

tumour Uncontrolled new tissue growth, in which cells multiply rapidly.

undetectable viral load A level of viral load that is too low to be picked up by the particular viral load test being used.

vaccine A substance that contains components from an infectious organism. By stimulating an immune response (but not disease), it protects from subsequent infection by that organism.

viral load Measurement of the amount of virus in the sample.

virus A microscopic germ that reproduces within the living cells of an organism it infects.

Notes



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NAM

Lincoln House
1 Brixton Road
London
SW9 6DE
UK

tel +44 (0) 20 7840 0050

fax +44 (0) 20 7735 5351

email info@nam.org.uk

website www.aidsmap.com

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