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Cholesterol

Cholesterol

Cholesterol is produced in the liver and comes from saturated fats found in food. It is a waxy substance that is found throughout the body. It is necessary for the production of sex hormones, as well as the repairing of cell membranes.

In order to circulate throughout the body, cholesterol connects to special proteins to form 'lipoproteins', which are carried in the blood. There are two types of lipoproteins: low density lipoproteins (LDL) that transport cholesterol from the liver to the cells, and high density lipoproteins (HDL), which return excess cholesterol back to the liver. You may often hear of "good" and "bad" cholesterol. HDL or "good" cholesterol clears cholesterol from the arteries and takes it to the liver where it is eliminated from the body. LDL or "bad" cholesterol is associated with the hardening of the arteries (arteriosclerosis), which can lead to angina, heart attack and stroke.

Fatty substances found in blood, like LDL and HDL cholesterol are often grouped together with triglycerides and called blood lipids. Triglycerides are one of the basic components that make up fats. Lipid abnormalities have been seen in people living with HIV before the introduction of HAART (Highly Active Antiretroviral Therapy), such as elevated raised LDL cholesterol and declining HDL cholesterol in people living with AIDS. People on protease inhibitor therapy (PI) have shown to have higher levels of total cholesterol compared to people not taking a PI.

Measuring your Cholesterol

Cholesterol levels can be measured in two ways: by testing in a laboratory a sample of blood drawn from a vein, or by testing at home a finger-prick blood sample on a desktop analyzer. Fats in the blood are measured in units called millimoles per litre of blood (mmol/l). Like what happens with HIV viral load, cholesterol levels are subject to variation, whether it is day to day or throughout the course of a day. A single test will rarely provide enough information to guide therapeutic decisions. Therefore, taking a series of samples will offer a clearer and more accurate picture of the situation. Food can make a marked difference to blood lipids, which is why it is recommended to measure them before eating. The optimal level of cholesterol in the blood is considered to be less than 5.2 mmol/l.

Diet

Cholesterol levels can be reduced by 5 to 10% by following a diet, for example increasing the intake of starchy foods like bread, pasta, rice and cereals, or reducing fat intake and substituting saturated fats by unsaturated fats. For example, it is recommended to eat less butter and pasteurized cheese, and more polyunsaturated fats. This will help to lower LDL cholesterol, but will lower HDL levels too. Polyunsaturated fats are found in cornflower oil, sunflower seed oil and margarines. Eating more monounsaturated fats like olive oil or avocado, reduces the level of LDL cholesterol but does not lower HDL levels.

To help prevent blood clotting and reduce triglyceride levels, it is good to eat more of a kind of polyunsaturated fats called 'omega-3 fats'. These are found in oily fish like mackerel, herring, salmon and sardines.

Exercise

Some regular daily activities, like swimming, riding a bike or walking, can increase the levels of HDL cholesterol, although they have not been shown to reduce LDL levels.

Medication

Drug therapy to reduce high levels of cholesterol should only been done when diet changes and exercise have failed to produce a significant change. Cholesterol-lowering drugs have been studied and licensed based on the results of clinical trials in HIV-negative people and have shown to reduce levels by approximately 20%. Statins are the main class of drugs of this type, but they are not adequate for people with liver diseases or women who are either pregnant or breastfeeding. Pravastatin seems to be the safest statin to use while taking protease inhibitors. Other drugs used to treat high levels of cholesterol are bile acid binding drugs, and fibrates. Bile acid binding drugs come in powder formulation and have to be mixed with water or fruit juice and be taken with a meal. Since these drugs are not absorbed into the body, they can be prescribed to pregnant women. Fibrates are tablets which reduce triglycerides and a have a lesser effect on cholesterol.

Risk of cardiovascular disease

The risk of suffering a heart attack increases if you smoke, have high blood pressure, diabetes or if you have a heart condition. Age and sex also play an important part: the risk of coronary illnesses in men occurs ten years earlier than in women. A doctor can assess your risk of suffering a heart attack by observing your cholesterol levels along with other risk factors. Stopping smoking reduces the risk of a heart attack and other illnesses.

Protease inhibitor

Some studies have shown thickening of and damage to the arteries in people who are taking protease inhibitors. It has been suggested that these people are exposed to a greater risk of developing a heart illness, although these drugs have not been used long enough to know what the risk will be in the long term. However, it is clear that the additional risk factors described above play an important part.

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The liver

The liver

The liver is the largest organ in the human body and is located in the upper right part of the abdomen (tummy), protected by the ribcage. Even though it is important for everybody to keep a healthy liver, it is especially important for people living with HIV because the liver plays an important and crucial part in the metabolizing of antiretroviral medications (ARV) and other drugs. Viral infections of the liver, like hepatitis A, B and C can not only make you feel ill, but can also affect the capacity of the liver to process medicines, as can liver lesions caused by the use of drugs and alcohol.

The liver functions

The liver has three functions: it stores and filters blood, eliminating toxic substances that come from drugs, food and body waste; it produces bile, which is released into the gut to help digest fats; and it metabolizes nutrients from food, releasing energy into the blood stream and storing vitamins and minerals.

Possible Problems

Many people living with HIV do not have liver problems. However, as happens with other people, heavy and sustained alcohol consumption can cause liver lesions. If this is not controlled, it can lead to a condition called cirrhosis. This is when the liver has permanent scars and lesions that gravely affect one's health. Recreational drugs, such as ecstasy, heroin and cocaine, can also damage the liver if taken to excess.

Hepatitis means inflammation of the liver and is quite common in people living with HIV. The most common causes are the viruses hepatitis A, B and C, which not only have serious effect on the health but can also limit HIV treatment options. Hepatitis A is transmitted through foods or drinks contaminated by human excrement containing the hepatitis A virus; and sexually by oral-anal contact (rimming). Hepatitis B is transmitted from mother to child; by contact with infected blood; or by unprotected anal, oral or vaginal sex. Hepatitis C is a virus found in the blood and is spread through contaminated blood products; sharing of needles or syringes for injecting drug use; from mother to child; and through unprotected vaginal or anal sex, especially when blood is present. At this moment, all blood products are tested for the presence of hepatitis C.

Some ARV drugs, especially ritonavir and nevirapine, and other prescription drugs, can cause liver inflammation. High doses of vitamin A can also cause liver lesions. Severe liver damage can increase the chances of developing liver cancer, which can be fatal.

Symptoms of liver diseases

Typical symptoms of liver problems include extreme tiredness, a feeling of poor health, weight loss, loss of appetite, nausea and vomiting, fever, stomach pains, itchy skin, and an enlarged or tender liver, along with jaundice, which is easily noticeable as the skin and whites of the eyes turn yellow, urine becomes dark and stools pale.

Tests

Generally it is recommended to check up on the health of the liver in people taking ARV drugs. Blood samples may be taken to check on your liver during your routine clinic appointment. Also, your doctor can do a physical examination in order to check whether the liver is swollen or tender.

If liver functions tests show persistent abnormalities and you have symptoms of liver diseases, a liver biopsy can be performed, especially if hepatitis B or C, or liver cancer is suspected. A biopsy is done by taking a small sample of the liver through a simple surgical procedure which is usually done with a local anesthetic.

Treatments

The treatments for liver diseases vary depending on the cause, but can include rest, avoiding the tea, coffee, alcohol and recreational drugs, and possibly a change in prescription medicines. It is possible to use alfa interferons for the treatment of hepatitis A, B and C, along with some antiretroviral drugs. Surgery or liver transplant may be valid options for advanced liver diseases.

How to keep a healthy liver

There are simple steps that can protect the liver from possible damage. When traveling to certain areas, especially to countries with little poor sanitation, it is important to know that hepatitis A can be spread in shellfish, salads, raw vegetables, water and ice cubes. It is helpful to inform yourself in a HIV treatment center about vaccinations for hepatitis A and B, even more so if you are sexually active. The use of condoms will reduce the risk of contracting hepatitis viruses during anal, vaginal or oral sex. If using injecting drugs, it is crucial to assure that you are not sharing injecting equipment. It is recommended not to drink alcohol in excess and to allow for the body to recover when you have drunk heavily. In the same way, be aware that the use of recreational drugs can damage your liver.

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Hepatitis C

Hepatitis C

Hepatitis C virus (HCV) was first identified in the 1980s. Although it is not related to other hepatitis viruses it can cause similar symptoms. It is mainly transmitted through blood, and for this reason the principal groups affected have been injecting drug users and people who need blood products, for example hemophiliacs. People in this situation may also be co-infected with HIV.

There is more and more evidence that hepatitis C can be transmitted through sexual contact. Although it is not totally clear, it is thought that the risk could be related to sexual practices where there is contact with blood, mainly fisting (the introduction of the fist in the anus) and rimming (oral-anal contacts), as well as unprotected anal sex. The relative studies with heterosexual couples have shown that the risk of sexual transmission is low. However, this is still being discussed and studies continue. On the other hand, people living with HIV and HCV have a higher possibility of transmitting hepatitis C through sexual contact, maybe because they have on average higher levels of the virus in their genital fluids than people who are HIV-negative.

At this moment it is estimated that 10% of the children born from mothers with hepatitis C will contract the virus. This percentage increases to 25% in children whose mothers are also HIV-positive.

Symptoms and illness

The effects of hepatitis C may vary. Less than 5% of people who contract the virus develop symptoms when they are first infected with hepatitis C. These can include jaundice, diarrhea and nauseas. An even smaller group may never experience symptoms at any stage. For those who do have them, the most common are extreme tiredness and depression.

It is not known what percentage of people with hepatitis C will develop liver disease. A small proportion of people with hepatitis C are able to eliminate the infection. Approximately 85% of people will develop a chronic or continuous disease. The patterns of progression to disease seem to vary considerably from person to person. Some may never suffer from any of the symptoms, others may start to suffer from extreme tiredness or nauseas between 10 and 15 years after getting the infection, and a significant minority develop a hazardous liver disease. The variations in severity of hepatitis C could reflect the differences between the diverse strains of HCV. Other factors, such as being a man, a large consumption of alcohol, being older, or having HIV, may also accelerate the progression of HCV.

It is believed to take between 30 and 40 years for hepatitis C to progress from the moment of infection to cirrhosis in people who only have HCV.

The prognostic for people co-infected with HIV and HCV is not completely clear. Recent studies suggest that HIV can accelerate liver damage in people co-infected, which can speed up progression to AIDS.

Diagnosing hepatitis C

A blood test can reveal if you have been exposed to hepatitis C and have antibodies to it. You can use a PCR to measure hepatitis C viral load and confirm or not that you are infected with HCV. Liver function tests can show if hepatitis C has damaged your liver. Yet, the only way to know with absolute certainty is to have a biopsy done, which requires that a piece of liver be taken out to be analyzed.

HIV can make the diagnosing of hepatitis C more difficult, since the infection may not appear in antibodies tests performed in a person living with HIV.

Treatment

It is normal not to start treatment for hepatitis C until there is evidence that the liver has been altered in ways that affect its functions. The objectives of the treatment are to stabilize the level of liver enzymes (an indicator of liver health), to reduce HCV viral load, to improve the inflammation of the liver, and to prevent the progression of cirrhosis or liver cancer.

Treatment of hepatitis C is not a life-long treatment, but usually consists of a 24 or 48 week course of treatment. Currently there are three approved drugs for the treatment of HCV: alpha interferon (by injections), with or without another antiviral drug called ribavirin; and a new formula of interferon called pegylated interferon, which is taken together with ribavirin. The Spanish AIDS Study Group GeSIDA, recommends treating hepatitis C with a combination of pegylated interferon and ribavirin. Side affects can be very strong, although they tend to lessen as the treatment continues. They included fever, pain in the joints, depression and a low count of leukocytes. Ribavirin should not be taken along with AZT, and never during pregnancy.

It is not clear which approach is the best to treat people who are co-infected with HIV and HCV. Most experts suggest treating first the infection which is most life-threatening (usually HIV). However, some ARV drugs, like protease inhibitors, may cause problems to people with a damaged liver and require a strict follow-up. There is evidence that the reestablishing of the immune system which takes place while taking successful ARV regimens, may increase the risk of liver damage in people with hepatitis C.

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Condoms

Condoms

Condoms are used during sex as a barrier to prevent the transmission of potentially harmful viruses and bacteria, including HIV, which are present in the genital fluids of both men and women. They also stop the transmission of viruses present on the skin, like the ones that cause herpes and genital warts, also spread through sexual intercourse. When condoms are used during vaginal penetration, they also protect against pregnancy by stopping the semen from entering the woman's body.

Choosing Condoms

The condoms need to have received homologation from the Ministry of Health and Consumption and bear the EC mark, which is the European Community equivalent. These two marks will show that they are good quality condoms. Condoms also need to be marked with an expiration date. If this date has passed, they need to be thrown away.

Condoms come in a wide variety of shapes, sizes, thicknesses, textures, flavors and colors. Although the stander size will fit most men, smaller and larger condoms are also available. It is important to use a brand that fits well. Some condoms are only designed with the idea of enhancing sexual pleasure, and for this reason they will not function as an effective, protective barrier.

Condoms and anal sex

Normally it is recommended to use extra-strong condoms (for example, Durex Extra Strong) for anal penetration. However, a recent study has shown that standard condoms are just as effective as extra-strong ones, always and when they are used correctly.

Using condoms correctly

Condoms come rolled up in a plastic or foil wrapper. When opening the wrapper, it is good to make sure that you do not damage the condom. Put the condom on after the penis is hard, but before starting penetration. Once the penis is hard, unroll the condom from the top of the head of the penis down to its bottom, pushing out all the air from the tip of the condom as you go.

The end of the condom may be very flat or shaped like a nipple. In either case, it is important to leave enough space at the end so that the semen gets trapped there. If air is left in the end of the condom, it may break during ejaculation.

It is necessary to be careful, given that if not used correctly the condom may come off or break during penetration.

After ejaculating, withdraw the penis right away before it goes soft. Hold on to the base of the condom when withdrawing the penis. Condoms must never be used more than once.

Choosing a lubricant

Lubricants are used to ease both vaginal and anal penetration. The vagina usually lubricates itself when a woman becomes sexually aroused. For this reason you may not need to use additional lubricants, unless the vagina feels dry. However, lubricants should always be used for anal sex.

Most condoms come pre-lubricated, but probably not sufficiently for anal penetration or for vaginal.

Condoms should be used with water-based lubricants such as KY, Lubric, Brushaway, Silk, Liquid Silk, Maximus, Forplay or Wet Stuff. Oil-based lubricants such as body lotions, massage oils or Vaseline should never be used with condoms because they can weaken the latex and cause the condom to break. Lubricants must be applied to the outside of the condom (once it has been put on), and to the entrance of the rectum or vagina, but never inside the condom for this may cause it to slip off during penetration.

Spermicides

Some condoms are coated with a spermicide to help prevent pregnancy. However, some spermicides can cause irritation in the rectum or vagina and increase the chance of a possible transmission of any infections which might be present. The excessive use of a spermicide called nonoxynol-9 (found in Durex Extra Safe, Mates Natural, Mates Conform and Mates Ultra, as well as in some lubricants), is not recommended for this reason and is best avoided.

Latex allergies

Most condoms are made of latex. If you are allergic to this substance, you may use Durex Avanti instead, which is made of plastic rather than latex and can therefore be used with oil-based lubricants.

Where to buy condoms?

Condoms are sold in pharmacies, shops, supermarkets and also on the Internet. They can be obtained freely at non-governmental organizations which work in the field of HIV prevention. Also, many gay bars or clubs distribute condoms, although not all. For this reason it is better to always carry condoms on you.

Tips on using condoms

If you have difficulties using condoms, like breakages, irritation of the genital region, or you find it difficult to negotiate their use with your partner, you can talk to a doctor or ask for an appointment with the sexual health unit of your health center. Health processionals are trained to give tips and support on sexual health.

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Prognosis

Prognosis

When you know you have a serious illness, it is normal to wonder how long you will stay in good health and what your health will be like in the future. The word used to forecast the probable course of an illness is "prognosis", which comes from an ancient Greek word that means to 'know in advance'.

The prognosis for people living with HIV has changed greatly since the first cases were diagnosed in the early 1980s. When AIDS was first discovered it was believed that most people would most likely die after a few months of being diagnosed with the condition. This situation has improved in part because it was recognized that HIV was the cause of AIDS and it took a few years for the immune system to be gradually destroyed, and also because doctors were learning more and more on how to recognize and treat infections and cancers commonly seen in people living with HIV. By the mid 90s (before the introduction of HAART, Highly Active Antiretroviral Therapy), it was believed that in rich countries such as Spain it would take between 8 and 15 years after infection for HIV to cause serious opportunistic infections or death. A small group of people (sometimes called 'slow progressors') may stay healthy for a much longer period of time, including without taking any antiretroviral treatment (ARV).

How is prognosis predicted in HIV?

The key tests to form a prognosis are CD4 cell counts, which gives an indication on the health of the immune system, and viral load tests that measure the amount of HIV in the blood. On average, as the CD4 count drops and the viral load increases, the risk of becoming ill or dying because of HIV goes higher in the short term.

When discussing HIV prognosis, doctors often refer to research involving the Multicenter AIDS Cohort Study (MACS), which has established a relationship between viral load, CD4 count and the risk of developing AIDS or dying within the next three years. This information is used to help make decisions related to treatment initiation.

HIV treatment and prognosis

Since the mid-1990s, the use of HAART (drugs which slow down the replication rate of HIV), has greatly improved the prognosis of people living with HIV.

For example, the number of deaths by AIDS in Spain went down from 5,848 in 1995 to 1,717 in 2000. AIDS deaths that still happen in this country normally affect people who were diagnosed in a very late stage of the infection, when their immune system is already quite damaged.

Research into the prognosis of people who have started HAART indicates that the risk of getting a serious illness or death from HIV within the next three years is related to the following five key factors: having a CD4 count below 200 or a viral load above 100,000 at the time of starting treatment, being over 50-year old, being an injecting drug user; or having had a prior AIDS-defining illness.

In Spain it is recommended to start an ARV treatment when your CD4 count goes below 200, which indicates that HIV has damaged the immune system to such an extent that you are vulnerable to serious illness, and in many cases this count goes below 350. It is also recommended to initiate ARV treatment if you are experiencing any illnesses related to HIV. Starting treatment in these circumstances has shown to improve the prognosis compared to delaying the treatment until later.

Other factors to consider

Despite the effectiveness of HAART, some non AIDS-related illnesses are been observed with regular frequency in people with HIV. These include liver disease caused by hepatitis B or C; certain cancers (such as lung, testicular and anal cancers); and mental illnesses such as depression. In addition, HIV treatment can cause long-term side effects that can seriously affect one's health or quality of life.

Clearly, there are many other things that cause health deterioration other than HIV. For this reason it is important for people who are living with HIV to get advice on how to maintain their overall health (such as stopping smoking, doing regular exercise, having a balanced diet).

Access to medical care

The prognosis for people with little or no access to specialized HIV services or health care is much less optimistic, with HIV usually causing illness or death within five to ten years. However, even where there is no access to HIV drugs, the use of treatments against infections such as TB can considerably improve prognosis.

Including in wealthy countries, it is still important that people living with HIV receive care from doctors experienced in managing HIV infection, for this has shown to significantly improve prognosis.

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