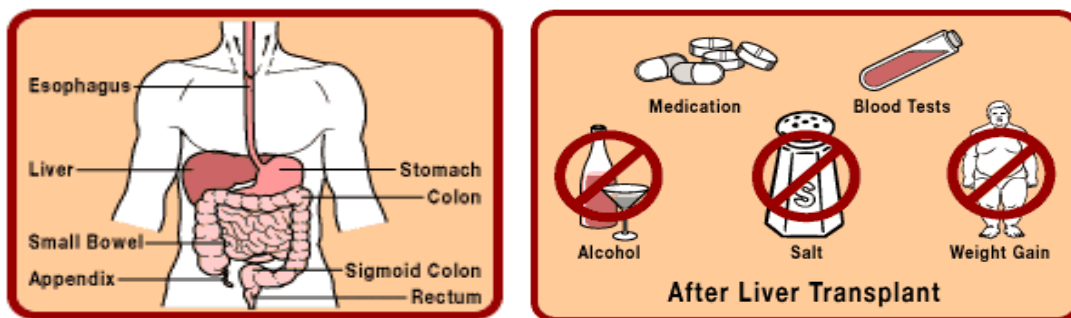


Hepatitis C

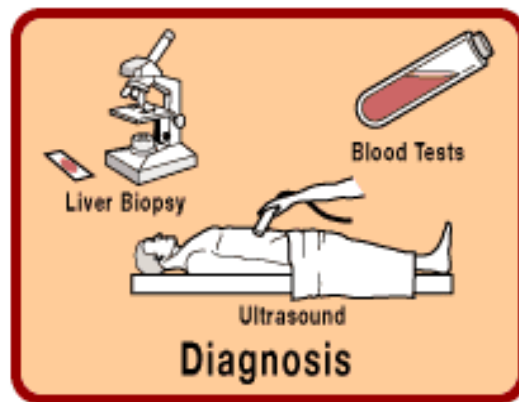
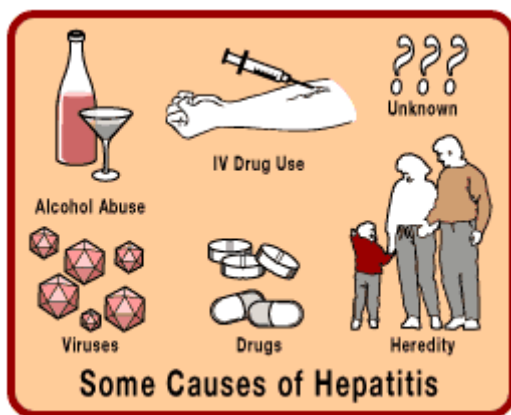
Today four million Americans are infected with the hepatitis C virus and there are thirty thousand new cases of this virus found each year. Hepatitis C takes ten thousand lives each year just in the United States, and without effective treatment the death rate is expected to triple in the next fifteen years. Seventy-five percent of those infected with the virus will develop chronic hepatitis and half of those people will develop cirrhosis of the liver. The hepatitis C virus is sometimes referred to as the “Hidden Epidemic” because an estimated four million people are infected with it and symptoms may not show until twenty years later. It is also the leading cause of liver transplantation in the United States. This virus affects so many people and we should all learn and study more about it to hasten its spread.

Hepatitis is a rather new virus to the science world, but it has been around for a very long time. Before scientists knew about hepatitis C, they had discovered A and B types, so when they found C they called it non-A non-B. The virus was discovered in 1987, but not until after 1990 was blood tested for hepatitis, causing many people to receive and contract the virus. Hepatitis is thought to have originated in the Far East because of the diversity and number of people infected in that location. Strains of hepatitis are found in Thailand, which has led researchers to believe it mutated in Asia to form all its genotypes. There are five types of the hepatitis virus and they are A, B, C, D, and E. Hepatitis C, caused by a single-stranded virus with a core of ribonucleic acid. Hepatitis C has so many genotypes that the virus cannot be detected by the immune system. It has six separate genotypes and each genotype has three to four subtypes. Every genotype of the virus is restricted to different regions of the world. The most common genotypes of hepatitis C in North America are the 1a and 1b genotypes. The genotype 1b is the most severe form of the hepatitis C virus because it is the most aggressive, it responds least to drug therapies, and it recurs the quickest after liver transplantation. There are many tests to determine which genotype the patient has. Genotype tests are not necessary because treatment has nothing to do with the strain of the virus and also these tests are very expensive. Hepatitis C, though it has a wide diversity, is a very deadly virus because it attacks a very important organ, the liver



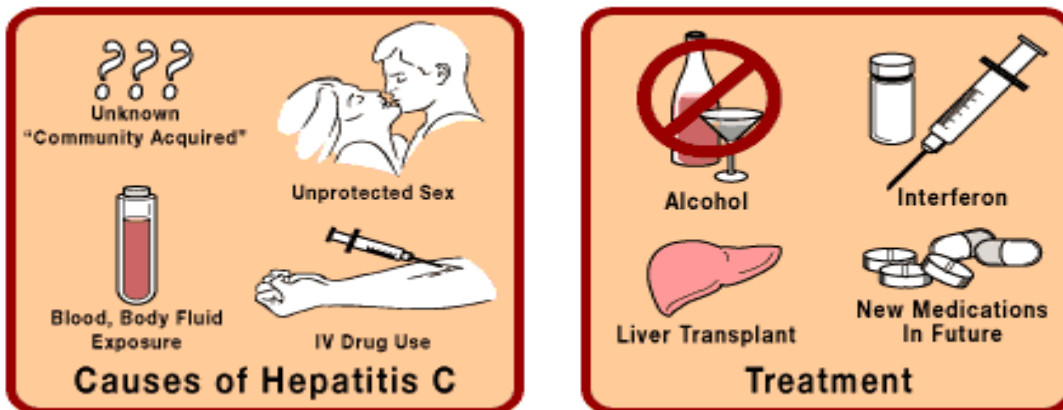
The main target of hepatitis is the liver, which is one of the most important organs in the human body. The liver is the largest internal organ we have, and is located

in the upper right section of the abdomen. The liver has many functions it carries out for our bodies. The liver stores glycogen that is converted into sugar and then releases it into the body for energy. It also stores iron, copper, fat and many other essential vitamins. The liver cleans and purifies blood, activates most medicines, forms nutrients into simpler substances, and manufactures proteins. The proteins the liver produces are albumin, which carries nutrients to certain parts of the body, and others that stop bleeding. The liver can heal and replace its own lost tissues while other cells take over the jobs of the damaged ones. Hepatitis C causes inflammation of the liver's cells and tissues. If the liver is injured and stops functioning, death will always be the outcome. The earliest sign of liver disease is jaundice. Often diseases that are painless, such as hepatitis C, affect the liver, which make detection very difficult. The liver is a very important part of our body so we have to protect it from hepatitis by knowing how we can contract it.



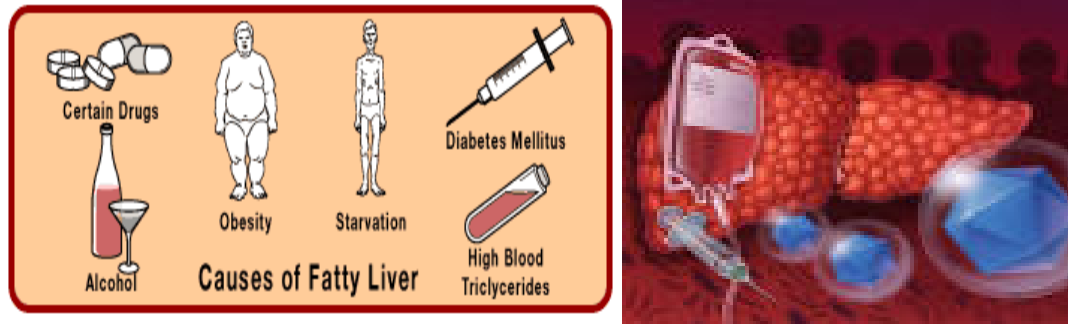
There are many ways to contract hepatitis C and there are also many types of people who are more prone to it than others. Hepatitis C is a blood-borne virus, meaning it grows and reproduces in your blood. That also means that it is transmitted through blood. The hepatitis C virus has been known to survive up to three months in a single drop of dried blood. Most common form of contracting hepatitis C is through shared needles that are used during body piercing, injecting illegal drugs, and tattooing. Another common way is through blood transfusions. Since labs did not start testing blood for the hepatitis C virus until 1990 many people received contaminated blood. Everyone who has received blood before 1992 should have their blood tested to see if they have this disease or any other blood related disease. Where most people think they are safe, they can sometimes catch this virus. In developing countries many people receive the hepatitis C virus from getting acupuncture or even vaccinations against other diseases. Even in the United States there have been a few cases of people contracting hepatitis C from tiny traces of blood on anesthesia masks. Luckily, hepatitis cannot be transmitted through sexual intercourse, and mothers, who are carrying a child, cannot give the virus to their children. The only way the virus can be transmitted through saliva is if the infected person has a cut in their mouth that is bleeding. Hepatitis C cannot be transmitted through mosquitoes, air, food, or water. People who are at risk are hemophiliacs and drug abusers. Eighty

percent of all drug abusers acquire hepatitis C in their lifetime. Hepatitis C can affect all races, but it is most common in minority groups. People who have received blood anywhere in the world, people with multiple sex partners, and people who have lived with an infected person are all at risk for hepatitis C. Over the years, scientists have come up with ways to reduce the risk of infection. If someone uses intravenous drugs, they should never share needles with another person. People should stay away from illegal drugs and practice sexual abstinence or a relationship with an uninfected partner. If you are undergoing surgery, just to be safe, you should donate your own blood instead of using donated blood. Once you are infected with the hepatitis C virus, it enters your bloodstream and passes through the liver where it reproduces in the liver cells. The immune system attempts to fight it off which causes the inflammation of the liver. After one to three weeks it can be detected in the blood and in six to twelve weeks you can start to undergo the first symptoms. Hepatitis C is a very dangerous disease and that is why we all must follow certain precautions to keep ourselves safe.



There are a wide variety of symptoms that one, who is infected with hepatitis C, can experience while in the different stages of the virus. The first symptoms occur between six to twelve weeks of contact with the virus. The most common symptoms are those of flu. They are fatigue, nausea, poor appetite, fever, chills, headaches, sore throat, and joint pain. These symptoms last only for about a week so many people ignore them and go back to their normal lives. If not treated at first symptoms, the patient will develop chronic hepatitis. Chronic hepatitis is where the disease becomes persistent. Chronic hepatitis can lead to cirrhosis of the liver or even major cancer in the liver. If the chronic hepatitis does not reverse itself, the liver will have to be replaced. If the liver is not replaced, the kidneys will fail, the liver will shrink, and the patient will lapse into a coma. There are many symptoms of chronic hepatitis. The main symptom is jaundice. Jaundice occurs when the blood contains an excess amount of the pigment bilirubin. The result is the yellowish appearance of the skin and eyes and the urine will become a brownish color. Also many people have complained of a red itchy rash on their bodies and a pain in their lung and abdominal areas. The

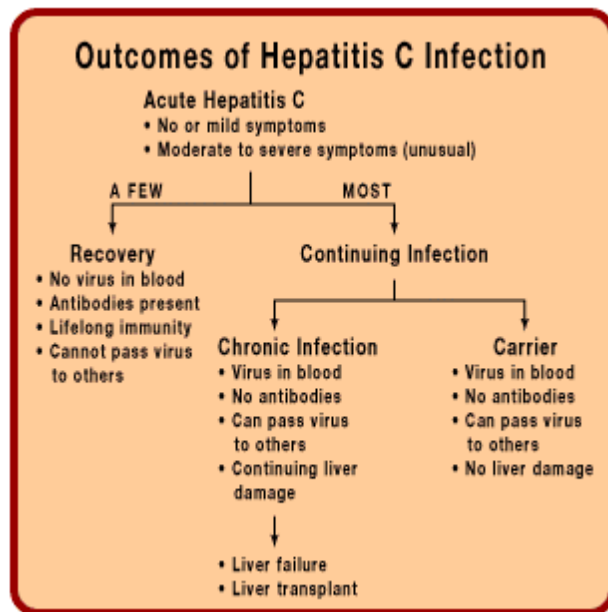
limbs often swell, and many experience brain fogs, where they forget what is happening around them. There are many symptoms that hepatitis C shares with other viruses, so many people just forget about it and go on with their lives. If you are having these symptoms you may have hepatitis C and it would be safe to go see your doctor.



There are many tests that doctors can perform to see if you have hepatitis C. The first test your doctor will perform is called the Enzyme Linked Immunosorbent Assay better know as EIA, which was developed in 1991. The EIA test looks for antibodies to the hepatitis C virus in the blood. Another antibody detection test is the Recombinant Immunoblat Assay better known as the RIBA. The RIBA test was developed to help give positive or negative readings and it is very accurate, but expensive. The Matrix test also detects antibodies, and is given to patients with no symptoms, such as a person who has been living with a family member with the virus. If the hepatitis C virus' antibodies are found, the next goal is to find the nucleic acid associated with the virus, which is RNA, in the blood and body tissues. The test most would administer would be the PCR test, which is the most sensitive. The hepatitis C's RNA is amplified to detectable levels in the blood and is pulled by electric current through a gel composed of seaweed compounds. The size is compared to the hepatitis C infected tissue and if they match it is positive that the patient has hepatitis C. The PCR test is measured in viral load, which is the amount of virus in blood per millimeter. RNA material is measured in a weight unit called the picogram. One picogram equals one million viruses. Once the tests have been administered they can prove if you are infected with the virus and then can start treating you with drug therapies.

There are two different drugs that doctors will prescribe to people with hepatitis C. The first drug is called interferon and was discovered in England by Scottish virologist Alick Isaacs and Swiss virologist Jean Lindenmann in 1957. Interferons are proteins made by the body to fight infections. They interfere with viral reproduction and they stimulate the immune system. They also stop the damage of liver cells, but cannot reverse the damage already done to the liver. There are three types of interferon and they are Alpha, Beta, and Gamma. Alpha and Beta are produced by many types of cells in the body and are released within a few hours after a viral infection starts. Gamma is also called the "Immune Interferon" and is produced by white blood cells called lymphocytes. The gamma interferon acts as a signal molecule, which triggers the release of antibodies in the immune system. Interferon is most effective when the disease is detected early, but if treatment is discontinued then there is a severe chance of a relapse. Interferon

does have a few drawbacks though. “Interferon must be self-administered twice a day through shots, “ says McCarthy. Also, the patient experiences vomiting and flu-like symptoms. It can also decrease white blood cells and platelets in the blood. Schering-Plough, the Drug Company that produces interferon in the US, has combined interferon with an antiviral drug called ribavirin, to form rebetron. Rebetron is known to reduce the virus to undetectable levels in about twice as many patients as interferon by itself. The side effects are depression, anemia, severe flu-like symptoms and suicidal thoughts. Rebetron costs \$6,400 to \$8,600 for a six-month treatment. Your doctor will prescribe which drug he feels is best for you, but after you start your drug therapy it is best to get on with your life. If you have hepatitis C, do not let it get you down, and live while you still are living, but you should still follow some guidelines. The number one priority is to eat a healthy diet. Plenty of fresh fruits, vegetables, grain, and fish are good for your body. Try to avoid eating fried or spicy foods and foods high in refined sugar, alcohol, or caffeine. Do not drink alcohol, since everything goes through your liver and that will greatly affect it. Also you should avoid smoking and doing illegal drugs. You should drink plenty of water to keep your body hydrated and working well. Get vaccinations for all the other types of hepatitis; you do not need anymore than you have already. Finally, you should maintain your normal level of activity so your body does not use more or less energy fighting the hepatitis C virus than it already has been using. Follow these guidelines and live a healthy life while doing the best you can to fight this debilitating disease.



By: Nabi Raza Khan