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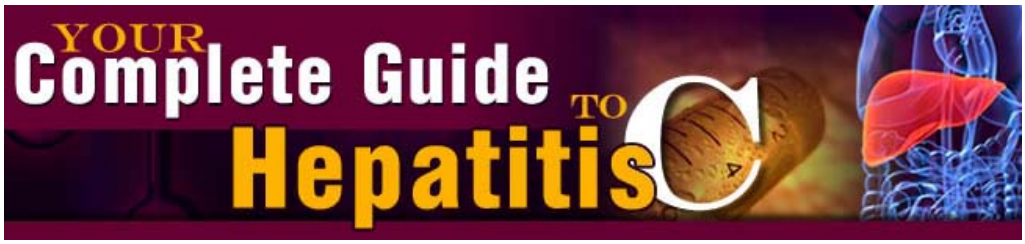

Your Complete Guide to Hepatitis C

By Phil Allard

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About the Author

Phil Allard, a former journalist, was asked by a close friend to find information about hepatitis C when that person was diagnosed with it.

Phil was surprised by the lack of knowledge and amount of hearsay that was circulating about the condition, its treatment and the prospects of anyone that had the disease.

He was particularly alarmed when he heard the mis-information that many people accepted as fact with regard to supposed risks when mixing with people that had the condition.

He’s written this book to pass on what he has found out and hopes that it will help patients, their friends and families and also replace some of the hearsay with up-to-date information.

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Part-I: Introduction

1. Hepatitis C - An Overview

Hepatitis C is a common blood-borne infection. A virus, HCV, is the main cause for this infectious disease. You can contract the disease through contact with the blood of an infected person.

Hepatitis C mainly affects the liver, which is a vital body organ. More than four million people across the world suffer from Hepatitis C.

Hepatitis literally means "inflammation of the liver". The liver is the largest organ in the human body. The most important function of the liver is to remove harmful and unwanted substances from your blood. It helps in conversion of food substances that help your body grow and survive.

However, all is not lost if you develop Hepatitis C. In many detected cases, it is possible to achieve appreciable improvement with regular treatment.

Diagnosis of Hepatitis C often does not occur until after the acute period, as you do not experience serious symptoms during the early stage and, therefore, do not seek any medical treatment.

The chronic stage of Hepatitis C involves serious symptoms with extensive liver damage.

Normally, this stage starts more than six months after infection. Untreated cases could develop into liver cirrhosis after two or three decades.

A major cause for Hepatitis C infection is from contact with the blood of infected person.

Infections may be linked to:

- Extensive intravenous or inhaled drug usage
- Unsafe sex causing exposure to infected blood
- Tattoos and other piercings
- Transfusion of unscreened blood or blood products
- Use of unsterilized injection equipment
- Sharing of personal care items like cuticle scissors, razors, and toothbrushes.

However, it is certain that HCV does not spread through a simple hug, kiss or the sharing of food and cooking utensils.

Children born to HCV infected mothers need not necessarily contract the infection unless of course the mother is HIV positive with HCV.

Hepatitis C does not affect everybody in exactly the same way or always with the same intensity.

Although it mainly affects the liver, the degree of infection varies and the actual progress of the disease in each individual depends on many associated factors.

However, regular and professional treatment with extra care of your health can help you to reduce the effects of the disease. You can live to enjoy a long and happy life.

Doctors adopt simple diagnostic tests, including liver function tests, to determine the presence of HCV and the degree of infection.

Chronic cases could require a liver biopsy to understand the extent of damage. Treatment options differ according to the intensity of the infection and the major cause of infection.

Treatment could be traumatic if you have a history of alcohol or drug abuse. There could be many side effects with serious psychological stress.

Alcoholic beverages and smoking may increase the progress of the disease and restrict beneficial effects of some treatments for Hepatitis C.

Breast-feeding by an infected mother may not cause any problems unless the mother’s nipples develop cracks or bleed.

Presently, there is no vaccination available to protect against Hepatitis C.

There are six major genotypes of Hepatitis C.

If the progress of the disease goes unnoticed until it is into the severe stage, the patient’s liver may be close to malfunctioning and therefore, a liver transplant might be the only currently available treatment option.

In some cases, infection goes unnoticed until serious symptoms are felt.

Some people opt to use Chinese medicine and alternative therapies to try to restore normalcy in liver functioning and reduce further progress of disease. These treatment options are sometimes tried by patients that are unable to bear the physical effects of regular treatments.

Detection of Hepatitis C

Detection of Hepatitis C disease started around 1975. It was found that most post-transfusion hepatitis cases were not due to hepatitis A or B viruses.

In the mid nineteen-seventies, scientists and doctors could detect the presence of the Hepatitis C virus.

It is possible to medically detect the presence of this virus in the blood within two weeks after infection. Detection of antibodies is possible within three months of infection.

Early detection followed by proper treatment may normalize liver functions.

The major hindrance to receiving effective and early treatment is diagnosis of the disease. As the symptoms are common to other diseases as well, it is not always diagnosed, therefore treatment is often delayed.

Part-II: Understanding Hepatitis C

2. What is Hepatitis C?

Hepatitis C is a liver disease. Hepatitis C virus, or HCV, is the main cause of this disease.

Hepatitis C causes liver inflammation with acute swelling and soreness.

The liver is a vital body organ. Its main function is to break down waste products present in the blood. It further helps in the removal of unwanted waste products in the blood.

However, if your liver gets inflamed, it is unable to perform normal functions. This causes a build-up of a special waste product, bilirubin which causes yellowing of skin, nausea, itching, fever and body aches.

The spread, or infection, of hepatitis C is through contact of infected products, like used needles or toothbrushes, with the blood of an infected person, blood transfusion, drug abuse, or other causes.

Symptoms do not generally become prominent until the disease reaches a critical stage.

In some cases kidney dialysis could cause sharing of equipment, which may have infected blood of another person. Healthcare workers could develop infection through contact with infected needles and syringes or blood.

Hepatitis C virus causes small scars in the liver which, over time, combine and restrict the easy flow of blood through liver.

Hepatitis C virus has only been diagnosed since the mid nineteen-seventies, although it has been present for many decades.

Hepatitis C may take many years to develop into a chronic disease. It is possible to carry this virus in your blood. You thereby become a carrier and can transmit the disease to others through infection though not showing symptoms yourself.

Hepatitis C could take the form of **acute hepatitis** or **chronic hepatitis**.

Acute hepatitis

Acute hepatitis causes liver inflammation with severe symptoms of fever, nausea, body aches, and vomiting. Although simple medications may help you to reduce or remove some symptoms, the infection could stay in your blood. This gradually transforms into chronic hepatitis with serious symptoms.

Chronic hepatitis

Chronic hepatitis may, over time, cause serious damage to your liver. This could be liver cirrhosis. Although medications and treatments could prove helpful, liver transplantation could be the only available option in serious cases.

3. What are the Causes of Hepatitis C?

Hepatitis C virus or HCV causes hepatitis C. This is an RNA virus of Flaviviridae family. There are many causes for hepatitis C.

Common causes include:

- Use of contaminated needles for tattooing and piercing could cause spread of infected blood.
- Use of drugs through needles used by others
- Infected mothers could pass on hepatitis C to their babies, although the incidence of such cases is higher if the mother has both HIV and HCV. Infected mothers should avoid breastfeeding if they have cracked nipples.

Sexual transmission of hepatitis C is possible, although rare. It can occur with heterosexual partners and high-risk sexual practices.

Health care workers could be exposed to infected blood through needles due to lack of necessary sanitation procedures.

Blood transfusions in major operations or organ transplantations could lead to hepatitis C infection if transfused blood is not examined thoroughly in advance.

Sharing of personal care items like razors, scissors, toothbrushes, or similar items that could contain or transmit blood could lead to hepatitis C.

Acupuncture is an ancient Chinese form of alternative treatment for many ailments. It involves use of very sharp and thin needles at key pressure points to provide relief from ailments. However, use of contaminated needles could cause hepatitis C infection.

4. How is Hepatitis C Spread?

Hepatitis C affects your liver and can develop into serious liver disease.

An infected person may not be aware of the disease until it reaches chronic stages. People infected with HCV virus are carriers of the hepatitis C disease.

Exposure to such infected blood through accidents or use of contaminated equipment could cause spread of the disease.

Hepatitis virus spreads only through blood-to-blood contact, such as:

Body Piercing and Tattoos

Tattooing, acupuncture, and piercing require insertion of needles. If there are no proper sterilization techniques and you use the same needles used by others, it is possible for you to contract infected blood from other HCV patients.

Drug Injections

If you inject drugs, you have a greater risk of contracting hepatitis C if you share needles and similar injection equipment like cotton, spoons or anything that could carry contaminated HCV-blood. Similarly, nasal intake of drugs may also be responsible for the spread of Hepatitis C. Straws used for nasal inhalation could contain a few traces of mucus and blood that causes the spread of hepatitis C.

Dental exposure

Dental care requires the use of dental equipment like syringes, needles, jet air guns and other oral hygiene instruments. Improper

or inadequate sterilization could cause contaminated blood to spread from one patient to another, spreading hepatitis C.

Occupational Exposure

Many occupations like doctors, healthcare personnel, military combat personnel and others could accidentally contact blood from open wounds. When that blood is HCV-infected, it could cause the spread of hepatitis C.

Sharing of Personal Care Items

Sharing personal care items like scissors, cuticle sharpeners, razors, toothbrushes or other equipment could cause spread of hepatitis C. They often get spotted with blood during use. Sharing the equipment without proper cleansing techniques is likely to spread hepatitis C.

Sexual Transmission

Hepatitis C rarely spreads through sexual relations. More importantly, it does not usually spread through vaginal penetrative sex. Rather, spread of hepatitis C is more possible through the use of sex toys or anal penetrative sex.

Organ Transplantation or Blood Transfusion

Blood transfusion, as required during organ transplantations, could cause injection of infected blood, although such cases are on the decline.

HIV Patients

HIV-positive patients carry the HIV virus. If you are exposed to contaminated HCV-blood, you have a higher risk of contracting

serious liver damage due to the presence of the HIV-virus already in your blood.

However, unless blood is transferred between the people, hepatitis C does not spread through:

- the sharing of cooking utensils or food
- kissing
- hugging
- sharing a swimming pool
- working in the same place
- physical contact such as shaking hands
- coughing
- sneezing
- holding
- or even holding hands.

5. Types of Hepatitis

Hepatitis literally means inflammation of the liver and normally refers to viral hepatitis.

Symptoms of the different viruses are similar:

- yellowing of the eye whites and skin
- lack of appetite
- fatigue
- nausea
- abdominal discomfort and
- dark urine.

There are different types of hepatitis caused by different viruses.

Types of Hepatitis

Hepatitis A: Hepatitis A virus causes this disease. It is believed to develop due to food and water contamination due to insufficient hygiene.

It does not lead to chronic liver disease. There are relevant vaccines and you may recover completely within six months.

Hepatitis B: Hepatitis B virus causes this disease that leads to serious liver complications like liver cancer, cirrhosis, liver failure, and could even prove fatal.

Contraction of hepatitis B is through blood transfer from shared needles, sexual contact and from mother to child during childbirth.

You may prevent hepatitis B through use of a vaccine.

Hepatitis C: Hepatitis C virus causes this disease which is caused by:

- coming in contact with infected blood through use of infected needles
- occupational exposure to infected blood
- sexual activity, especially high-risk sexual practices.

It could cause mild or serious and chronic liver damage, depending on the degree of infection.

Hepatitis D: Hepatitis D virus causes this disease. This hepatitis is same as Delta Hepatitis. However, this virus requires the presence of the hepatitis B virus for it to be active.

Although initial symptoms may not exist, hepatitis D virus causes very rapid progression of the disease and is usually fatal.

A person that recovers from this may run a higher risk of developing serious liver diseases like liver failure and cirrhosis.

Hepatitis E: Hepatitis E virus causes this disease which is most prevalent in Asian countries. It is primarily due to drinking of contaminated water and has a high mortality rate in pregnant women.

Hepatitis G: This type of hepatitis is common among hemodialysis patients. It often occurs soon after blood transfusion.

Autoimmune Hepatitis: This hepatitis attacks the body's immune system causing serious liver damage and, often, death.

It is a chronic and progressive disease with serious liver dysfunctions.

6. What are the Signs and Symptoms of Hepatitis C?

Hepatitis C disease often does not have any noticeable symptoms at all for a long period. You can lead a normal life without any signs of hepatitis C, although you are carrying the virus.

It might take a decade for symptoms to surface. You could even carry hepatitis C virus all through your life without experiencing serious symptoms.

In some cases, mild symptoms may appear and disappear often. These can cause irreparable damage to the liver and could progress into serious liver dysfunction.

Symptoms are the same in women and men. Sometimes, symptoms show up when you undergo blood tests for other reasons.

Hepatitis C shows as an acute stage and a chronic stage.

The acute stage is when symptoms surface and effective remedial steps can help you overcome them and lead an almost normal life.

The chronic stage is when symptoms manifest and cause serious liver damage. It is difficult to get back to your normal life after the chronic stage has shown up.

Acute Stage of Hepatitis C

This stage is normally within five to twelve weeks after detection of infection. The symptoms are similar to influenza symptoms and remain for a few weeks or months.

Symptoms include:

- Lack of appetite

- Nausea
- Diarrhea
- Vomiting
- Dark-colored urine
- Fatigue
- Pain under rib cage in liver region
- Pale stools
- Yellowing of skin and eye whites
- Vague and intermittent stomach pain

Prolonged presence of these symptoms could cause extreme dehydration.

Patients could exhibit various other symptoms like irritability, not urinating, persistent headaches, extreme weakness and difficulty in concentrating.

Chronic Stage of Hepatitis C

The chronic stage sets in when hepatitis C symptoms continue for more than five to six months. Occasionally, this stage could take years to start to develop.

By this time, your liver may no longer be able to function normally and liver cirrhosis is detected.

Cirrhosis of liver causes scar-like hardening of fibrous liver tissue. This causes the liver to gradually lose its ability to carry out normal functions. The liver is primarily responsible for proper ingestion of nutrients from your food and excretion of unwanted materials from your blood.

Therefore, lack of effective liver function could upset your entire system.

This infection is often fatal.

The condition could cause easy bruising of the skin with various discolorations and blisters and extreme sensitivity to light.

Symptoms of the chronic stage include:

- Continual jaundice
- Extreme fatigue and weakness
- Excess fluid retention in different parts of body like the patient’s legs
- Itchy skin
- Weight loss
- Complete loss of appetite
- Vomiting with blood in vomit
- Disturbed sleep
- Hallucinations
- Lack of proper mental coordination causing extreme confusion
- Pain in joints

Part-III: Impact of Hepatitis C

7. Is Hepatitis C a Serious Problem?

Hepatitis C if often, but not always, a very serious problem

In some cases, hepatitis C virus remains in your body all through your life without causing any serious discomfort. You may remain oblivious of its existence in your body.

In other circumstances, hepatitis C could become serious and have complications.

The prolonged existence of hepatitis C virus in your body could cause slow and stealthy damage to your liver, finally erupting as liver cirrhosis that causes scarring of fibrous liver tissue.

This hardens your liver and the liver is unable to carry out its normal functions.

That is why hepatitis C is sometimes called 'The Silent Plague'.

Liver transplantation is the best remedy for liver cirrhosis, which is the major symptom of chronic hepatitis C. There are also medications available that may overcome chronic stages of hepatitis C.

Many times, hepatitis C does not exhibit any specific symptoms for a period after infection. Symptoms could come to the fore while undergoing blood diagnosis for some other problem.

The majority of patients may develop serious symptoms over two or three decades. Although some live with the disease, a small percentage do succumb to it.

Hepatitis C affects different people differently. Treatments also differ according to the progress of the disease.

8. Risk Factors for Hepatitis C

Hepatitis C virus causes hepatitis C disease. The disease does not manifest itself immediately. You may or may not exhibit symptoms after infection.

Often, it exhibits simple flu-like symptoms that disappear after short time.

In some cases, all the symptoms remain dormant. In others, it could cause serious liver inflammation and extensive damage in the early stages.

In some cases, other factors like regular consumption of alcohol, advancing age, co-infection with other hepatitis virus, or being a male could encourage serious progression of disease.

These adverse factors add risk of a sudden, aggressive development of hepatitis C disease.

Other Health Risks due to Hepatitis C

In some cases, hepatitis C aids in development of more health risks. These include:

Development of papules or itchy and scaly skin with numerous inflammations

Your skin becoming oversensitive to sunlight with the appearance of blisters and bruises

Increased amount of blood protein that may cause serious damage to blood vessels, eventually blocking them

Salivary gland inflammation

Damage to kidneys and development of kidney disease

Inflammation of present rheumatoid ailments causing them to progress faster

- Liver cancer or cirrhosis with serious damage to your liver, often causing death
- Serious abdominal pains at intervals with night sweats
- Serious hampering treatments of any other ongoing health problems
- Serious damage to other body organs like kidney and brain causing depression, anxiety and other serious nervous problems
- Development of hyperthyroidism and autoimmune disorders

9. Who Gets Hepatitis C?

Hepatitis C can strike anyone.

Hepatitis C spreads through blood-to-blood contact.

Hepatitis C can affect people of all ages, although it is most prevalent in those between twenty and fifty.

There are certain categories of people who stand a greater risk of contracting hepatitis C.

They include:

People habituated to intravenous or intranasal drugs. Use of unsterilized needles and syringes, or sharing of needles and syringes while injecting drugs could cause infected blood to pass to others. Inhaling drugs together could again cause spread of infected blood through mucous that accompanies nasal inhalation of drugs.

People using various sex toys or indulging in anal penetrative sex develop hepatitis C infection easily. Having unprotected sex with an HCV-infected partner can cause hepatitis to spread.

Some HCV-infected mothers could pass on infection to their babies at childbirth.

Health care workers could contract the infection during their work while treating HCV-infected patients. Accidental injury with needles or other sharp medical instruments may cause the spread of infected blood and hepatitis C.

Tattooing and body piercing could cause the spread of infected blood and hepatitis C.

People undergoing organ transplantation who receive a blood transfusion could develop hepatitis infection through transfusion of infected blood. However, such cases are on the decline.

10. Hepatitis C in Children

Hepatitis C infection in children is comparatively limited. The percentage of HCV-infected children is much less than 1%. Often, infected children do not show any symptoms of hepatitis C.

Children that contracted hepatitis C infection through blood and blood products before 1992 are showing up in present-day adolescents and young adults with the disease.

Presently, hepatitis C in children is possible through vertical transmission, from mother to child at childbirth. Horizontal transmission of this disease among children is possible among different family members and children or from child to child. However, such cases are very rare - almost nonexistent.

Lack of any visible symptoms prevents detection of disease in early stages and during adolescence.

Surgery and other complications requiring a blood transfusion could be possible causes for hepatitis C infection among children. Children that develop chronic hepatitis C or acute hepatitis C that becomes liver cancer or serious liver diseases are fortunately very rare.

In these cases, liver disease is mild during their first ten years of childhood. During adolescence, it could develop serious complications due to exposure to drug abuse, piercing, tattooing or similar use of infected needles and syringes.

Factors that should be noted relating to the spread of hepatitis C in children include possible source of infection, time of acquisition, viral genotype, coexistent diseases and other infections.

Although symptoms may not show during childhood, it could develop during adolescence. Sometimes, it could transform into serious liver disease while in other cases may pass off as minor inflammation, which children outgrow.

Hepatitis C Education

Adolescent children should receive education regarding hepatitis C. They should have adequate knowledge and information about the possible ill effects of piercing and tattooing through use of infected needles and that sharing needles and nasal inhalation of drugs could result in contraction of diseases like hepatitis C (this could reach alarming proportions if unchecked).

Further education is also necessary about possible transmission of hepatitis C virus through unprotected sex or other high-risk sexual behaviors.

Overall, the incidence and sufficient supportive information regarding hepatitis C in children is not well researched.

There are no clear treatment options for hepatitis C in children. A combination of **ribavirin** and **interferon-alfa** could yield positive results. It depends on capability of the child to sustain this treatment option.

Children exhibit fewer symptoms due to their growing immunity levels, shorter duration of infection, less fibrosis, mild inflammation, and resultant less viral load.

Further, infected children remain apparently healthy and do not show any signs of serious illness, fatigue, or growth problems.

11. Hepatitis C in Adults

Hepatitis C infections are constantly increasing with just one-fourth of cases being detected in the acute stage.

The major causes for hepatitis infection are sharing of needles and blood transfusions. Increasing use of injected and inhaled drugs, along with a few cases of blood transfusion, are important causes of hepatitis C in adults.

Detection of hepatitis C virus can be within one to three weeks of exposure to the virus. HCV antibodies are present in all HCV-infected patients even in such early stages.

Although it is possible for adults to become clear of the hepatitis C virus, most cases proceed to the chronic stage.

Progress of the disease is not the same everywhere. Sometimes, there are no signs or symptoms even after two decades after contracting the hepatitis C virus which can remain completely dormant.

However, it could surface and proceed to drastic levels even before you are able to get a confirmed diagnosis of the ailment. Often, detection occurs while the patient is undergoing treatment or blood tests for some other ailments.

The disease manifests itself as chronic cirrhosis coupled with liver failure, hypertension and various esophageal diseases.

Common risk factors for hepatitis C virus include being a male, advancing age and liver disease.

Hepatitis C Treatment Options

Treatment for hepatitis C focuses on reducing progress and development of cirrhosis.

Liver biopsy and quantitative assessment of HCV RNA are major options. The latter may offer better information and produce better results.

Another therapy option is through interferon monotherapy. This treatment involves weekly administration of polyethylene glycol (PEG) with interferon for around six months for sustained results.

Interferon and Ribavirin Combination Therapy may also be an effective treatment. Although it does deliver positive results in many cases, discontinuing the treatment may bring symptoms back to pretreatment levels.

It is the same if patients receive individual treatments without any combination therapy.

However, there may be extreme side-effects from the use of interferon either in isolation or in combination with ribavirin.

Fatigue, headaches, gastrointestinal symptoms, and depression are common symptoms with psychological factors sometimes assuming alarming proportions.

Patients often develop suicidal tendencies and could require immediate hospitalization with constant medical care. It can cause serious renal, cardiovascular, endocrine, and rheumatologic effects. However, stopping of therapy may result in cessation of all symptoms.

Major side effects of hepatitis C treatment are fever, nausea, injection site reactions, and resultant hemolytic anemia. Hemoglobin

levels fall drastically during initial four weeks of treatment. This causes serious effects on cardiac functions and other coronary diseases. Cessation of Ribavirin could cause increase in hemoglobin levels.

It is best to rule out any possibility of pregnancy during such therapy periods.

12. Hepatitis C in Women

Hepatitis C in women produces different effects from those in men.

The liver is a vital organ in your body. It regulates hormonal functions and, therefore, women experience different effects from hepatitis C.

Women with hepatitis C could experience more problems if they already have liver problems due to other factors.

Women with hepatitis C may be helped by diverting their attention to creative pursuits. Engaging in hobbies and other activities can reduce the mental stress of hepatitis C.

Acquisition of HCV

Women stand a greater risk of acquiring HCV due to infection from an HCV partner or other forms of transmission like shared needles for intravenous drugs or other forms of drug use.

Consumption of alcohol by women can have more negative effects when associated with hepatitis C than that among men.

Menstruation

Hepatitis C symptoms are responsible for menstrual irregularities like missed periods, shorter periods and other changes in menstrual cycles.

Having sexual relations during menstrual periods can cause transmission of hepatitis C, if their partner has any open wounds, cuts or abrasions.

Simple preventive measures like:

- Hygienic disposal of sanitary pads

- Use of condoms
- Use of dental dams for oral sex, and
- Refraining from sex during menstrual periods

…. can prevent transmission of hepatitis C.

Similarly, menopause problems and hormone-replacement therapy for any menopause problems require close monitoring with your doctor or an endocrinologist.

Pregnancy

Women with hepatitis C may not experience any serious problems or enhanced liver problems due to hepatitis C.

Women with hepatitis C may have successful pregnancies.

Transmission chances may be very low.

But the possibility is higher in women with high levels of hepatitis C. As babies inherit their mother’s antibodies, hepatitis C antibodies could be present in the baby for around fifteen months.

Thereafter, these antibodies will possibly disappear.

Women with hepatitis C can breastfeed their babies safely. Although hepatitis C could be present in breast milk, it may be at levels insufficient for transmission.

However, if you have cracked nipples or cuts, it can cause hepatitis C infection. Infection rates are high if mother is both HCV-carrier and HIV-positive.

Contraception Methods

Oral contraceptives contain high levels of estrogen, which could be beyond tolerable levels for women with hepatitis C.

The liver is the main organ for break-up of hormones and a damaged liver cannot produce a smooth breakdown.

Even other contraceptive techniques like hormone injections and implants could cause serious problems. It is best to seek the advice of your doctor before you start with any specific technique.

However, you should ensure you do not become pregnant while undergoing hepatitis C treatment. Medications like ribavirin and interferon can cause serious birth defects. During treatment, you and your partner should use different contraceptive forms to prevent any possibility of pregnancy.

Part-IV: Diagnosis and Clinical Aspects

13. How is Hepatitis C Diagnosed?

Hepatitis C has very few symptoms and often manifests itself only in the chronic stage. Fewer visible symptoms mean lower chances of an early diagnosis.

Often, detection of hepatitis C is during blood tests for other unrelated causes as those carried out for insurance purposes, during regular blood donations, treatment for any work-related injuries or other general health checkups.

Normally, suspicion of hepatitis C infection arises if a person has had jaundice recently or reports blood contact with an infected person.

Tests may not show presence of a virus in your blood right now; instead, it could show you contracted the infection and report specific levels of disease-causing germs. Regularly rising levels of specific liver enzymes could indicate an increasing rate of hepatitis C infection.

Once your doctor suspects any hepatitis C infection, you have to undergo various prescribed tests. These tests are necessary to confirm diagnosis and prescribe suitable medication according to the extent of liver damage or level of infection.

Usually, a complete diagnosis is not possible until around two to eight weeks after detection of symptoms. In such cases, doctors do not wait for symptoms to establish and turn chronic. Instead, they prescribe diagnosis of genetic material of the present virus to detect infection in early stage and prevent its spreading.

Diagnosis of Hepatitis C

Hepatitis C viruses are microscopic. It is only possible to view them under an electron microscope. Simple diagnostic tests can, however, detect the presence of the hepatitis C virus in your blood.

Blood Test

This is one of the first tests for hepatitis C diagnosis. This test can detect enzymes associated with liver functioning.

High levels of liver enzymes like **aspartate aminotransferases** and **alanine** may signify hepatitis C infection. **ALT enzyme** is normally present in liver cells and blood. Any damage to liver cells causes them to flow into the blood. So, high levels of ALT enzyme in blood can indicate serious liver damage.

Similarly, the level of other enzymes like **bilirubin** and **albumin** in the blood also provides indication of the presence of any liver disease.

Red blood cells have a limited life and produce **bilirubin** after a natural breakdown. Blood passes this yellow pigment to the liver, which then excretes it. However, if the liver is malfunctioning, bilirubin levels increase as the liver is unable to excrete them or there is excess breakdown of red blood cells, not proportionate to their production.

Drastic changes in bilirubin levels indicates the presence of hepatitis C.

Enzyme Immunoassay Test

This test detects the presence of antibodies to hepatitis C popularly known as anti-HCV. Your body produces antibodies to combat any foreign germs or infection. These antibodies often remain in the

bloodstream long after the infection is over. This test can therefore detect if there was any presence of hepatitis C virus and your body had produced antibodies to combat it.

The **EIA-3 anti-HCV** test is the most common test for the detection of HCV. However, test results are not always perfect. Low immunity levels in the body cannot produce sufficient antibodies for detection and so test results cannot be fully dependable. It is necessary to repeat this test after three months to confirm whether you have contracted a hepatitis C infection.

HCV RNA Test

This test can make up for limitations present in the EIA-3 anti-HCV tests. The HCV RNA test confirms the presence of genetic material of the hepatitis C virus. Doctors prescribe this test if you exhibit symptoms of liver disease but your antibodies test proves negative. Further, if you have confirmed liver disease, this test can detect the extent of hepatitis C virus in your body.

This is essential for prescription of suitable medications and treatments. Combination therapy with alpha interferon and ribavirin can combat low levels of the hepatitis C virus. Further regular monitoring of HCV RNA levels can give an idea of how well your hepatitis C treatment is progressing.

Recombinant Immunoblot Assay Test

This test confirms results of the HCV antibody tests. This test requires exposure of blood to strips treated with hepatitis C virus proteins. Color change indicates presence of antibodies. Your immune system is therefore responding to the infection generated by anti-HCV antibodies. However, there should be two or three color

changes for positive results. Single color change may not provide clear indication.

Genotype Tests

There are six distinct genotypes of hepatitis C with fifty more sub-types. There are differences in their response to treatments. If you have genotype 1, you have a high infection and therefore require strong anti-viral treatments.

The liver normally produces albumin protein. Low levels of albumin protein indicate decreasing liver operation. However, this decrease in liver functioning need not necessarily be due to the presence of hepatitis C virus. It could be due to other causes. Doctors prescribe specific tests to confirm hepatitis C infection.

Lowered blood count is another suspicious factor for liver malfunctioning. Excessive scarring of the liver could cause accumulation of blood in the spleen leading to its enlargement, thereby reducing blood count and circulation.

Liver Biopsies

Hepatitis C virus causes serious damage to liver tissue. Often, fibrous liver tissue becomes scarred and several liver cells die. There could be inflammation of liver tissue. Liver biopsy involves study of a small piece of your liver tissue to understand the extent of damage. Doctors assign different levels of damage as none, minimal, mild, moderate, or severe. Scarring of tissue is on a scale of 0 to 4.

However, liver biopsies are not without serious problems. Complications can arise anytime and could cause serious health risks. Risks include bleeding, infection, pain, and damage to other nearby organs.

Liver biopsy proves to be the most accurate diagnostic procedure to detect the presence of hepatitis C virus and infection. It also shows clearly the type and extent of damage. You may have liver biopsies regularly even after successful treatment to monitor any progress or relapse of hepatitis C disease.

Doctors refrain from prescribing liver biopsy tests in elderly patients and those with serious medical ailments and associated problems.

Other Tests

Other tests, like those detecting higher levels of iron and ferritin, low levels of white blood cell and platelets, or the presence of rheumatoid due to severe cirrhosis or fibrosis could indicate the presence of the hepatitis C virus.

14. What to Expect During Hepatitis C Tests?

Hepatitis C tests are not always conclusive or complete. Each of them offers different reports with varying extents of hepatitis C infection. Your doctor prescribes different tests to confirm the presence of hepatitis C virus and thereafter estimates the extent of damage to your liver and the spread of hepatitis C virus in your body.

Hepatitis C antibodies are present only in the later stages of the disease, not in the initial days after infection.

Conclusions from Different Hepatitis C Tests

Anti-HCV tests

This test is primarily to detect the presence of antibodies to the HCV virus. Although this test cannot draw conclusive evidence of active viral infection presently in your blood, it can detect exposure to the virus in the past. Test results could be positive, negative, or weakly positive.

It takes around six months for your body to develop antibodies against the HCV virus. This period is called a 'window' period and any tests during this period may not detect the presence of a virus or how long you have had the HCV infection.

HCV RIBA test

This test confirms the presence of antibodies to the virus. Test results can correctly pinpoint exposure to HCV virus. However, again, this test does not throw any light on current HCV infection. It only shows if you have had any exposure to HCV infection in the past. In some cases, doctors prescribe this test after treatment.

Negative results indicate elimination of HCV virus from your bloodstream.

Viral Load or Quantitative HCV tests

This test detects number of viral RNA particles in your blood. Doctors prescribe these tests before, during and after hepatitis C treatment. If treatment starts during acute stages of hepatitis C infection, it could show low counts, as tests may not be able to detect the viral load present.

However, recent versions of this testing procedure are capable of detecting even meager amounts of hepatitis C virus. Positive HCV RNA shows that you currently have hepatitis C infection.

Viral Genotype tests

These tests determine the genotype, or kind, of the hepatitis C virus in your body for effective treatment. Different genotypes of hepatitis C virus require different types of treatment and duration of treatments also vary.

Genotype 1 of hepatitis C virus requires a longer therapy time, as responses to therapy are little and prolonged.

These tests determine the necessity of any specific type of treatment and their success ratios.

Qualitative HCV Assays

If your ELISA test results show exposure to hepatitis C virus, doctors prescribe HCV Polymerase Chain Reaction (PCR) test. This test delivers accurate results if ELISA results prove ambiguous or unreliable. Although this test does not indicate how much hepatitis C virus is present in your body, it confirms the presence of hepatitis C virus.

Liver Biopsy

Presently liver biopsies are outpatient procedures and produce accurate results about the extent of liver damage. Doctors remove a small sample piece of your liver tissue for examination in the laboratory. It provides correct diagnosis of specific liver disease. Further, doctors prescribe a liver biopsy every three to five years to keep track of hepatitis C disease or any other liver disease.

Doctors advise liver biopsy if test readings and results do not match with present symptoms. It could even take decades for symptoms to come out in the open.

Blood Diagnostic Tests

These tests comprise of various types of blood tests and non-invasive liver imaging tests. These detect the progress of hepatitis C. Imaging tests include CT scans and ultrasounds while blood tests include platelet counts, blood chemistry panels and prothrombins. None of these tests alone or taken together can always deliver accurate results of the extent of liver damage.

Overall, hepatitis C testing could yield varied results according to the degree of infection with the hepatitis C virus, duration of infection, present symptoms, and occurrence of other diseases or liver damage.

No single test produces conclusive evidence of the existence of hepatitis C virus nor is any sufficient to prescribe remedial treatment. Doctors arrive at the necessary course of treatment after careful analysis of all symptoms and results of different tests. Doctors refer for specialized tests through hepatologists or gastroenterologists.

15. Myths and Facts about Hepatitis C

1. Myth: People infected with Hepatitis C will ultimately die of hepatitis C.

Fact: One of the difficult characteristics of counseling people regarding Hepatitis C is the different course that it takes from one person to another. The reason could be mainly due to one's lifestyle, and for example, alcohol consumption, the health conditions, the suppressed immune system, the time taken for virus infection, etc.

2. Myth: Medical treatment is always difficult for the person with hepatitis C.

Fact: Interferon with Ribavirin or Interferon alone is the standard hepatitis C treatment. They adjust the immune system and help in attacking the virus and further suppress liver inflammation and restrain fibrosis.

One point of concern regarding treatment of hepatitis C is the considerable amount of side effects that may range from symptoms that are very much like flu, (joint aches, fevers, depression, fatigue, and occasional psychosis). Therefore, keeping close watch over the side effects is essential and treatment should follow what is observed.

3. Myth: Hepatitis C can be easily transmitted through sex.

Fact: It is difficult to transmit hepatitis C through sexual intercourse. People with sexually transmitted disease and a history of multiple partners in sex have the highest chance of transmitting hepatitis C. On the other hand, the chances of transmission of the virus are almost negligible in a monogamous couple.

4. Myth: Hepatitis C symptoms will not bother me if I take care of myself.

Fact: It is generally seen that people with unhealthy life style, such as consuming alcohol in large quantities and with health problems have hepatitis C that is aggressive. However, this is not true for everyone.

Even if the person abstains from drinking and maintains a good lifestyle, the disease may further advance and cause death.

5. Myth: Hepatitis C is curable through alternative medications and natural herbs

Fact: The studies in the field of natural herbs and alternative medicine are not adequate to prove it is the right sort of treatment. It is possible that a few of the tonics will have antioxidants like vitamin E, which may be beneficial. This is the reason why they are recommended. But, one needs to be careful and cautious about believing in them one hundred percent. A few of the tonics may be harmful for individuals.

So, it advisable that people with hepatitis C make their physicians aware of the alternative treatment they are seeking.

6. Myth: When under treatment of Ribavirin and Interferon it is acceptable for a man to impregnate a woman.

Fact: Ribavirin and Interferon carry precautions that state that people should use two types of contraception for six months while on treatment and after treatment. People must be cautious while using contraceptives because the drug that they are using may cause birth defects and may cause fetal loss. If a woman gets

pregnant while on Ribavirin, the chances of damage to her fetus are very high.

However, the impact on men is difficult to describe. Trails of Ribavirin were detected in the semen of men who were on the medicine.

7. Myth: Once cirrhosis of liver has set in, there is no use taking Ribavirin and Interferon.

Fact: The rate of response may be lower in patients with advanced liver cirrhosis. However, the medicine helps prevent further failure of the liver and delays the process. It is sensible to treat the person with scarring of liver with Interferon and Ribavirin. However, the decision to treat or postpone the therapy is for the individual and their doctor.

8. Myth: One must continue with Interferon for years even if one is not free of the virus.

Fact: People with the virus react in different ways, however, the Interferon treatment is not advised for everyone because of potential toxicities and side effects. Some people benefit from the treatment in six to twelve months and can suppress the virus.

However, studies are ongoing to look further into the matter.

9. Myth: After the diagnosis of hepatitis C, one needs to put all affairs in order and take for granted the worse to follow.

Fact: It is true that the disease can be devastating and may lead to death.

But, for many, it is like any other disease such as diabetes and blood pressure. However, one must be prepared that the outcome may not always be devastating. So, one can be positive about it.

10. Myth: Depression is a part of hepatitis C.

Fact: Not everyone with hepatitis C is depressed. The person with the chronic illness may feel low. Treatment of Interferon causes depression or anxiety.

But, if one is aware of the risk of anxiety, one can treat it accordingly.

Part-V: Treatment for Hepatitis C

16. Is Hepatitis C Curable?

Hepatitis C is not only treatable but curable too. More than fifty percent of people with hepatitis C are cured with proper treatment. Many people are unaware of this fact.

Nearly 17% of hepatitis C sufferers in America are unaware that proper medication is available for hepatitis C. Moreover, 15% of physicians may not be aware that the treatment is available to cure hepatitis C.

The new combination treatment that is believed to have the capacity to cure the disease needs to continue for around a year.

However, one has to keep in mind that there are serious side effects that come with this medication. The side effects are fatigue, anemia, depression, and symptoms that resemble flu.

The combination treatment may be capable of erasing the virus from more than half of the people infected with the disease.

SVR or 'sustained virologic response' is a treatment where 54% of patients are successfully free of the virus after 6 months of their treatment. It is a sign of a possible greater rate of cure to come.

There is no vaccine available for hepatitis C, but many experts feel that hepatitis C is curable for many patients.

Hepatitis is a virus that infects a person's liver. It is stated that 15% of the patients can get rid of their virus and recover

17. How is Hepatitis C Treated?

Detection of Hepatitis C does not necessarily mean you require treatment for it. If you have minimal liver abnormalities, doctors may not prescribe any treatment, as side effects of treatment could be very severe although there is little indication of any advancement in your symptoms.

Treatment is essential only if hepatitis C virus continues to circulate within your bloodstream, if you have severe liver damage as indicated by liver biopsy, or if you have high concentration of the liver enzyme **alanine aminotransferases**.

However, it is not always possible to predict the course that hepatitis C infection might take in the early stages.

Treatment for Hepatitis C

Treatment for hepatitis C concentrates on eradication of hepatitis C virus from your bloodstream. A combination therapy of **pegylated interferon alfa** and **ribavirin** is the most common treatment procedure for Hepatitis C.

It involves weekly injections of pegylated interferon alfa coupled with twice-a-day oral dosage of ribavirin. Ribavirin is an antiviral agent.

This therapy may prove successful in most cases. The level of success depends on the genotype of HCV. HCV could be genotype 1, which is the most common, genotype 2 or 3.

Pegylated interferon is a synthetic drug. Your body's immune system produces alpha interferon in response to viral infections.

Scientific researchers use special techniques to synthesize alpha interferon by adding a molecule of polyethylene glycol through a pegylation process. This pegylated interferon stays longer in blood and is better at inhibiting hepatitis C virus.

Ribavirin, in pill form, is used in hepatitis C treatments as an antiviral drug. Although it is an effective drug against herpes and influenza, it cannot, alone, bring any improvement in hepatitis C patients.

However, it works wonderfully in combination with pegylated interferon. Normal dosage is 200-mg twice a day although dosage depends on the body weight of the patient.

Treatment Duration

Doctors normally recommend strong dosage for genotype HCV 1. They prescribe high-dose medications for 48 weeks for genotype 1 and comparatively low-dose medications for 24 weeks if you have genotype 2 or 3.

Doctors check your HCV count after the course of treatment.

If your HCV count falls during the first course of treatment, doctors may recommend a second course for thorough eradication of hepatitis C virus from your body.

Even if there was no major change in viral load during first course of treatment, the second course can lower liver damage due to hepatitis C virus significantly.

Side Effects

Side effects of combination therapy may be very severe in the early days of the treatment. In some cases, reduction of interferon

dosage can bring relief while, in others, complete cessation of treatment could be required.

Interferon causes extreme irritability, ‘flu-like symptoms with muscular pain and headaches, memory problems, concentration lapses, depression, vomiting, nausea, fatigue, fever, skin irritation and insomnia.

Ribavirin causes nasal congestion, asthma-like symptoms, cough, itchiness, fatigue, anemic conditions, birth defects, weight loss, temporary hair loss, and skin irritation.

Very rare side effects include bacterial infections, auto-immune diseases, loss of blood cells, loss of blood platelets, damage to tiny blood vessels in the retina, kidney failure, heart failure, loss of hearing with ringing noise in the ears and seizures.

However, benefits from treatment may far outweigh all such side-effects and inherent risks of combination therapy treatment for Hepatitis C.

You may eliminate simple side-effects of combination therapy. Relief from fever, headaches, and muscle aches is possible with **acetaminophen**.

Reduced dosage of ribavirin can lower the asthma-like symptoms.

However, most side effects go away during the first few weeks of treatment. Doctors monitor your red blood cell count minutely all through your HCV treatment.

Treatment for Severe Liver Disease Patients

Liver transplantation may prove to be the best course of treatment for patients with severe liver diseases due to HCV.

However, transplantations prove difficult due to few liver donors becoming available. Recent advancements in medical science have made it possible for splitting a donated liver between two recipients, or using liver segments from living relatives. Further, recent progressive approaches to liver transplantations with new organ allocation policies have made the liver transplantation process for HCV patients easier and more effective.

Earlier, HCV infected livers proved useless. Now, HCV-infected patients receiving livers from HCV-positive donors can function normally. However, liver transplantation of any kind does not provide complete relief from HCV, as there is every possibility of the reoccurrence of HCV.

Further, it could accelerate development of liver cirrhosis, which necessitates medications for appropriate treatment. The effectiveness of treatment may remain unclear, even after liver transplantation.

Limitations of Combination Therapy

Combination therapy of pegylated interferon and ribavirin could induce suicidal behavior. Doctors will therefore not prescribe this treatment for:

- Depression patients
- Alcoholics
- Pregnant women
- Those with untreated thyroid diseases
- People with renal or heart diseases

- Those with autoimmune hepatitis or liver disease and having a failing liver
- Those who were allergic to alfa interferon in the past

While on combination therapy for hepatitis C treatment, it is essential for sexual partners to exercise extreme caution. Pregnant women should avoid this treatment.

Female partners of men on such treatment and male partners of females on this treatment should not take these drugs.

Pregnancy should be avoided during, and even for six months after completion of treatment.

Necessity for Emergency Help

Sometimes, there could be a need for emergency medical help while undergoing combination therapy treatment for hepatitis C.

Such cases include the occurrence of:

- Severe chest pain or breathlessness
- Depression with suicidal thoughts
- Unusual aggressiveness or uncontrollable mood changes
- Throat constrictions
- Severe allergic reactions like swelling of lips, face, or tongue
- Intense dizziness and nervousness

Success of Combination Therapy Treatment

Combination therapy treatment may be successful in more than seven out of every ten cases with blood tests taken after completion

of treatment do not show any presence of HCV and liver enzyme levels become normal.

However, in less than half of the cases, HCV could start multiplying once you stop treatment or the virus might remain undetectable for around six months after stopping treatment.

Occasionally, patients receiving only alpha interferon show sustained response.

Other Treatment Options for Hepatitis C

Other treatment options for hepatitis C include:

- standard interferon and amantadine,
- standard interferon and ribavirin, or
- interferon alone.

These treatment options are most applicable for people with a relapse into hepatitis C infection or those not responding to combination therapy.

Doctors are continuously evolving newer techniques and modes of HCV treatments. There are new medications coming along and various improvements on existing drugs are being implemented. Therefore, care for hepatitis C is undergoing constant change. It is beneficial to remain informed so that you can adopt the necessary mode of treatment according to individual factors and new developments.

Adopting healthy habits with complete abstinence from alcohol and drugs, higher consumption of nutritious food, sufficient rest and regular six monthly checkups by your doctors can yield positive

results even if you have a mild and non-progressive hepatitis C infection.

18. Prognosis of Hepatitis C

Prognosis of hepatitis C will provide you with only a vague idea of what could be the future course of the disease and cannot be specific about any particular patient.

Hepatitis C affects different persons differently according to their existing medical conditions and other circumstances.

Around one-fifth of patients developing hepatitis C would recover completely within four to eight weeks. Acute infection may subside within this period.

The majority of patients carry forward hepatitis C virus and could transmit it to others. They could also develop chronic liver infection, which proceeds into liver cancer and associated medical complications.

Liver cirrhosis, or liver scarring, could occur for around fifteen percent of HCV patients.

Liver failure among hepatitis C patients is not as common as that among patients with other forms of hepatitis.

Some patients could carry hepatitis C virus for more than two decades and experience no symptoms.

Some of them could develop severe cirrhosis in their old age while some may not experience anything at all.

Major factors influencing the spread of hepatitis C include:

- its genotype,
- the level of the virus in the body,
- the extent of liver damage that has already occurred,

- the patient’s age,
- their gender,
- ethnicity,
- response to treatment, and
- existing medical conditions.

More than half of the patients with hepatitis C respond favorably to combination treatment. However, everything is individualistic.

19. Management of Hepatitis C

Hepatitis C infection is among the most common infection that occurs through blood-to-blood contact.

It ranks among the leading cause for chronic liver disease.

Often, diagnosis and treatment may involve liver transplantation.

Some cases lead to liver cancer, cirrhosis of liver, renal disease, diabetes mellitus, neuropathy, lymphoma, cryoglobulinemia and eventual death.

Start of Hepatitis C Infection

Hepatitis C infection could be acute or chronic. Acute cases are from two to eight weeks after detection of symptoms while chronic cases settle around eight weeks to two years from detection of symptoms.

Often, hepatitis C symptoms remain dormant for many decades and may become chronic later.

Accurate detection of hepatitis C in acute stage is very rare. In such cases, effective treatment might deliver a cure.

Chronic cases require prolonged treatment with the possibility of relapse.

Common symptoms include fatigue, nausea, and loss of appetite, lethargy, depression, psychological disorders, nervous disorders, and overall lack of interest in anything.

These symptoms are not unique to hepatitis C infection and could indicate various diseases.

Possible Causes of Hepatitis C Infection

Hepatitis C infection is predominantly due to contact with HCV-infected blood.

This blood-to-blood contact is possible through sharing of needles in tattooing, piercing, intravenous drugs or, as happens with health care workers, through accidental contact.

Intake of intranasal drugs can cause inhalation of mucous and blood through shared straws.

Blood transfusions, as required during organ transplantation, could also cause hepatitis C infection through transfusion of infected blood.

The incidence of HCV infection is higher in men, mostly those over forty years old, and among habitual drinkers.

Treating and Managing Hepatitis C Infection Conditions

Thorough diagnosis with numerous blood tests, liver biopsies or imaging tests may be needed to confirm a patient’s symptoms as hepatitis C.

Different tests for detection of HCV infection could produce varied and opposite results. False results could be due to suppressed symptoms.

The best results currently available might come through the HCV RNA test.

While choosing any specific treatment, you should focus on the severity of symptoms and impact on patient’s condition.

If needed, proper psychiatric counseling may also be recommended.

Once doctors establish the presence of the hepatitis C virus, you must closely follow the proper treatment plan.

Treatment involves combination therapy of alpha interferon and ribavirin for acute cases, while chronic cases may require detailed and prolonged treatment schedules.

Treatment options are specific to individual cases and there cannot be a general one for all HCV patients.

Choice of treatment plan depends on physical examination, laboratory tests, medical history, and social conditions.

Further HCV treatment may involve extensive side effects, which require adequate backup at home and through medical personnel around the clock.

Various auto-immune conditions, like rheumatoid arthritis, psoriatic arthritis and autoimmune hepatitis could pose problems for successful implementation of combination drug therapy for HCV infection.

In some cases, it might be necessary for a gastroenterologist, liver transplant team, hepatologist, and other physicians to come together and discuss a treatment plan.

Pharmacologic therapy for HCV infection is sometimes very effective but it is also expensive and it requires a good support system.

This treatment plan is very debilitating and it could necessitate complete absence from work.

Hepatitis C Infection Awareness

HCV infection is the primary cause for most liver diseases, gastrointestinal diseases, and liver transplantations.

The incidence, prevalence, and consequently awareness of this disease is on the increase. It is now the subject of reviews and regular statements from National Institutes of Health.

Sexual relations with more than one sexual partner is one of the main causes for HCV infection. Monogamous couples do not face risks of HCV transmission unless there are open wounds or cuts that could cause transmission of infected blood. An HCV-infected mother rarely transmits disease to her child except where the mother is also HIV-positive.

HCV transmission does not take place through hugging, kissing, sharing of food or cooking utensils, sharing the same pool, or through breastfeeding.

HCV-infected patients should avoid sharing of sharp objects like razors, scissors, or toothbrushes because there is a possibility of transmission of infected blood.

It is best to stop consumption of alcohol or, at least, reduce it to 30 grams per day.

Part-VI: Alternative and Complementary Therapies

20. Alternative Treatments for Hepatitis C

Hepatitis C, a chronic liver disease, is believed to affect about 3 million Americans, many of whom may be hardly aware of it.

Hepatitis C is a viral disease. The organism that causes it is commonly known as HCV.

The disease has been recently identified and research is continuing into treatment options.

Patients carrying HCV may not show any clear sign of the infection for 20 to 30 years, even though the virus might be slowly damaging their liver.

Hepatitis C is a contagious disease. A healthy person may catch Hepatitis C infection if they are exposed to the blood of an already-infected person. The immune system of the human body is not efficient in combating HCV successfully.

People suffering from chronic Hepatitis C often develop complicated liver diseases, which debilitates proper liver functioning. Cirrhosis or scarring of the liver and liver cancer are some common diseases from Hepatitis C that may eventually cause death.

Conventional drugs, like interferon, are not always effective in treating Hepatitis C. They have been successful in treating the virus in about 30 to 40 percent of cases.

Also, they may have serious side effects. Scientifically, no alternative treatment has yet been established but some people are trying herbal medication, either to try to cure the disease or treat the side effects produced by regular medicines.

Herbs like ginseng, licorice root, St. John Wort and milk thistle are claimed to be effective in treating side effects such as headache, sudden hearing loss, kidney, heart or eye problems, anemia and mental disorders.

Milk thistle is said by some to be helpful in protecting the liver from the damage caused by drugs, radiation, alcohol, and poisonous mushrooms. Milk thistle does not cure liver disease, it may improve liver functioning of cirrhosis patients but this is not proven. No evidence of milk thistle directly acting on HCV has been found yet.

Licorice root is claimed to help in managing the ill effects caused by hepatitis. It is said to have anti-inflammatory and antiviral properties that might be useful in treating the symptoms of hepatitis. The herb should be used with discretion and only after consultation with your doctor, as its use may lead to high blood pressure, low potassium levels in the blood and sodium retention, etc.

Yet another herb, Glycyrrhizin has been used for over 20 years and is claimed to sometimes improve the condition of liver affected with hepatitis.

None of these preparations should be bought or used without first having a thorough discussion about them with your doctor.

21. Will Hepatitis C Herbal Remedies Work for You?

Hepatitis C is a relatively new disease, recently identified by researchers. Consequently, only limited progress has been made so far in combating the disease.

The herbs used by HCV patients are claimed to improve liver conditions and deter the side effects produced by regular medicines like interferon.

It is necessary for your doctor to know if you are using any herbal remedy because of the possibility of any toxic effect or affecting your regular treatment.

Herbal medication can also have side effects. Some herbal teas adversely affect the liver and thus can worsen the suffering.

Overdose of any herbal medicine can be very harmful. This becomes even more significant when your liver is not functioning properly.

Part-VII: Preventing and Coping with Hepatitis C

22. How do I Prevent Hepatitis C?

There is no known cure for Hepatitis C and there is, currently, no vaccine against Hepatitis C, so it is best to try to avoid contracting this disease.

Always use screened blood for Hepatitis C virus if you need a blood transfusion.

Wear gloves if you are a health care worker and do not share instruments.

Get proper training in the standard procedure on how to handle patients with the hepatitis C infection.

Keep a separate set of equipment for your personal use or sterilize a common set of instruments thoroughly before using them to reduce the possibility of infection.

Stop using drugs intravenously as sharing needles spreads the Hepatitis C virus.

Do not use the same cotton, syringes, or other things that encounter the body fluids of another person carrying the Hepatitis C virus.

Wash your hands with soap and water before and after contacting an infected person.

Do not share razors, nail cutters, toothbrushes, and nail grooming equipment.

Get vaccinated against Hepatitis A and B for optimum protection.

People who indulge in high-risk behavior with multiple partners must use condoms to avoid infection with the Hepatitis C virus.

There is a risk of getting Hepatitis C infection through body piercing and tattooing procedures. To ensure that this does not happen, insist on a new needle for the procedure and make sure that the operator uses only sterilized equipment.

People in a high-risk category such as drug users should educate themselves about ways to prevent contracting the Hepatitis C virus.

The government runs educational programs targeting partners of infected persons as well as healthcare workers dealing with infected patients. Such programs deal with the modes of transmission and related complications arising from Hepatitis C infections.

The government is also putting greater emphasis on training doctors in early detection and prevention of Hepatitis C in medical colleges.

If you get the Hepatitis C infection, here is what you must do to stop infecting others.

- Do not share personal use items with others
- Use bleach to disinfect areas contaminated with body fluids
- Always use gloves or paper napkins to clean blood or body fluids
- Cover any cuts or bruises with a bandage
- Avoid risky sexual behavior

The positive side of the story is that the number of Hepatitis C infections is on the decline due to stringent screening of blood for transfusion since 1992. But, those who underwent blood transfusions or organ transplants before 1992 and children born of

mothers infected with Hepatitis C must still undergo screening for the virus.

There is good news on treatment of Hepatitis C where Interferon therapy may help suppress the infection. Doctors are optimistic about Hepatitis C treatment over a longer duration with a stronger combination of drugs.

However, active awareness among those most at risk, along with the efforts of the government and the press alone may help to reduce the spread of Hepatitis C in the population.

23. Handling Your Emotions after Hepatitis C Diagnosis

People react in different ways upon receiving a diagnosis of Hepatitis C. Some seek information and facts, while others want the support of their family and doctor in coping with the implications of getting a Hepatitis C infection.

If you are a very practical person, you may want the answers to a lot of questions related to the treatments, success rates, and latest research related to Hepatitis C.

You can get these answers from web sites, medical journals, and your healthcare providers. Ensure that you get facts from a reliable source, based on proper clinical trials recognized by the government.

Compare notes with other patients undergoing treatment to get an idea of the efficacy of the treatment.

Share your feelings and observations with the doctor so that he can monitor the medication and change it depending on your response. This can help with the success of the treatment, since most medicines can cause hormonal changes in your body.

Alternately, you may get some relief by reaching out to others in a similar state and start attending support groups with them. You may share advice and sources of education and effective treatment.

Only use guidance from reliable sources and refer people to professional doctors and counselors if needed.

However, keep your well-being in mind and do not strain yourself mentally or physically.

If the prospect of fighting the Hepatitis C infection alone daunts you, take the help of family members and close friends. They can give you tremendous moral support and help cope with the treatment plan, until you adjust to it.

You can talk to the doctor or nurse to help you face the challenges of living with the infection and seek out support groups in your locality.

Keep a diary of treatment and record your emotions as well as the treatment regimen. This helps in better disease management as you overcome the common feeling of helplessness.

If you are an independent person, you may want to feel in control and be optimistic about life. However, it is advisable to share the burden of treatment and follow up with your doctor or a close friend. The treatment may be long-term and you need to seek out support to share the highs and lows of life during this time.

It is perfectly normal to feel low when you test positive with Hepatitis C, but remember you can fight it with help from your medical team and family members.

24. Coping with Hepatitis C Related Stress

Dealing with a diagnosis of Hepatitis C can cause a lot of stress in most patients. Some feel helpless; others feel angry and sink into depression.

However, learn to recognize the symptoms of stress and deal with them. Learn to battle the uncertainty of the disease, its treatment, and costs and retain a grip on your life.

Research proves that stress reduces the immunity of the body and makes you liable to heart disease and high blood pressure. So, it is important to deal with stress for your overall physical and mental well-being. Stress also can result in headaches, body aches, lack of sleep, tiredness, a lack of focus and irritation.

You may increase consumption of cigarettes or alcohol to escape the effects of stress.

Do not bottle up your emotions; instead, engage in relaxing techniques like meditation for a few minutes every day. This has a calming effect on the mind and makes you feel like you are in control.

Take some form of physical exercise like walking for thirty minutes three to four times a day. This improves blood circulation and clears your mind of negative thoughts. It reduces the blood pressure and brings more peaceful sleep at night.

Concentrate on your breathing while focusing on a positive image and imagine the stress escaping from the body with each breath. Think positive and happy thoughts and laugh heartily. This reduces

the stress levels and improves the body’s immunity by reducing the levels of stress-causing hormones in the body.

Develop a hobby like painting, reading or music that lets you escape from the seriousness of life for some time daily. Play with children or pets or do a bit of gardening for a change of scene.

These activities take your mind off the disease and its management at least temporarily and increase your stamina to fight it.

Create a disease management plan along with your family. Take their help to tackle chores in and outside the home. This will reduce your burden and lift weight off your shoulders.

In this way, you can cope better with stress and take back charge of your life.

25. Simple Cures and Lifestyle Changes

1. Your Immune System

Your immune system matters a lot with chronic hepatitis C. The immune system is responsible for clearing the hepatitis C virus from the body.

Anything that can enhance your immune system is very helpful to you. Do not fall prey of thinking that, when little is good, why not consume more. An excess of something might be harmful.

2. Your Food Will Decide Your Health

Our liver is responsible for transforming the food we eat into the required substance of our body. What we eat and drink makes a lot of difference to our biological system. Therefore, think before you eat.

3. Your Stress Management

Stress plays a vital role in controlling the immune system. As already mentioned, whatever hinders the immune function is not good for chronic hepatitis C. So, it is necessary that you recognize your stressor and take steps to manage it.

4. Take Care of Your Liver

The liver plays a crucial role in food processing, and it is the organ that the hepatitis C virus targets. Therefore, taking care of your liver is very important.

Avoid toxins such as pollutants and smoke, eliminate alcohol from your diet. Also, avoid supplements and medications and maintain a healthy eating habit.

5. Time is on Your Side

Hepatitis C is a slow, progressive chronic disease; there is no immediate threat unless you are diagnosed with advanced cirrhosis. You have enough time to change your lifestyle and regain a level of healthy living.

Therefore, do not start considering hepatitis C as a death sentence.

6. Your Thoughts Will Make You

No one wants to be infected with the hepatitis C virus but, once you are infected, your reaction matters a lot.

Initially, there is fear, shame, helplessness and other emotional surges. It is how you choose to live that matters. If you wear a positive attitude, things will tend to be more manageable and easier.

7. Hand in Hand with Body and Mind

Your mind and body interact and what affects one causes equal reactions within the other.

Your physical problems disturb your mental setup. Therefore, following practices that maintain a healthy balance between the two is essential. You must do some exercise meditation, visualization, prayer, etc.

8. Information Helps Healing

Hepatitis C causes a person to fear and look for the worst outcome. However, fear would not help you. Search for facts and plan a way of approaching the illness. Gather information, and plan the next step. Be very certain about the authenticity of the information; misleading information can be harmful.

9. Support Helps

When under stress, recognize your stress busters; turn to your friends and family.

You should learn how to utilize all your support resources. Search across the Net, go for individual counseling, remain strong and do not give in to the illness.

Your input to support groups in person and online may have great value to someone who is in need of a guide.

10. Do Not Wait for a Magic Bullet

There is no one form of medicine for hepatitis C. The recommended medicine depends largely on individual body analysis. However, the good point is, once you know your responsibilities, things can improve after that.

26. Your Diet for Hepatitis C

People with Hepatitis C must be careful about their diet.

If you have Hepatitis C, ensure that you have wholesome, organic food that does not put too much pressure on an already burdened liver.

Do not opt for fad diets that can play havoc with your system. Instead, choose a diet in consultation with your doctor that benefits you and does not make you feel deprived.

You must focus on consuming a well-balanced diet of all-important food groups, along with micronutrients. This will help you retain vitality and overcome the fatigue associated with Hepatitis C.

Select a diet based on your food habits and tastes. Try to incorporate fresh fruits, vegetables and whole grains in your diet. Fresh fruits contain antioxidants that neutralize the free radicals in the body.

You must do some light exercise a few times a week to increase your stamina and immunity.

If necessary, take six small meals throughout the day, instead of three large meals, as you may suffer from queasiness at the thought of eating food. If the sickness is overpowering, take the help of a friend or family member in cooking meals sometimes.

Maintain a food diary to identify food groups that you can have and to cut out nausea-inducing food.

Here is what you should do to reduce the pressure on your liver and to have balanced nourishment simultaneously:

- ✓ Eat slowly and chew food properly.
- ✓ Minimize the intake of processed foods, as the liver has to work harder to break them down.
- ✓ Add ginger and fennel to your diet - they help overcome queasiness.
- ✓ Avoid chili and pepper
- ✓ Drink a lot of water to flush out toxins from the body.

Some people may develop an inability to digest milk products resulting in gas, constipation, fatigue and skin rashes. To reduce this, abstain from dairy products and see how your body reacts. Then, resume their consumption, based on your body’s response.

Reduce the intake of sugar and give up alcohol altogether as it leads to cirrhosis of the liver.

Drink fresh cucumber or celery vegetable juices, but avoid carrot and spinach juice, as you may be unable to digest them.

Fruit juices that you probably can drink include melon juice, mango juice, and lemon and apple juice.

Eating more vegetables and less meat may be an option, as red meat is very heavy and takes hours to digest.

Read food labels carefully for details of nutritional value before buying them.

Try to cut out excess fat, sodium, and processed foods and buy products after careful comparison.

Proteins are necessary to build and maintain the body cells, so eat a portion of protein in the form of legumes, eggs, fish, milk, or chicken daily.

Proteins also give you calcium and vitamins A, B and D and add fiber to the diet.

Eat some portion of essential fats in the form of polyunsaturated and monounsaturated fats while leaving out hydrogenated fats present in junk food.

The essential monounsaturated fats come from safflower oil, sunflower oil, pecans, and cashews and are good for the heart.

Polyunsaturated fats boost immunity and are found in fish oil, linseed oil, and sunflower oil among others.

You may eat a small amount of saturated fats that provide fuel for the body cells, in the form of butter.

There are two types of carbohydrates; simple and complex. Eat more complex carbohydrates as the body takes time to break them down into sugar, while simple carbohydrates are easily broken into sugar, leading to a rise in blood sugar levels. This sugar adds to the abdominal fat, if taken in large quantities and saps you of energy.

Complex carbohydrates also provide zinc, iron, and Vitamin B, so eat complex carbohydrates in moderate quantities.

You need to eat food groups that provide vital micronutrients like vitamins and minerals, like Vitamin A, B, C, magnesium, and selenium required for the growth and maintenance of the body cells.

Eat nominal amounts of cod-liver oil, and milk to get a supply of Vitamin A, necessary for the immune system of the body.

Wheat germ and brown rice are sources of Vitamin B, needed for stimulation of your appetite.

Citrus fruits are a good source of Vitamin C, needed for production of interferon, an antiviral compound.

Vitamin E, found in green vegetables, is a powerful antioxidant that minimizes the chance of cirrhosis of the liver.

It is best to take these vitamins from natural sources or in the form of supplements for optimum results.

You must also take proper amounts of calcium for healthy bones and muscles, in the form of milk or dairy products.

Take sufficient Magnesium as it regulates blood pressure and maintains bone strength along with Vitamin D and calcium.

Take small amounts of nuts and oysters for your supply of zinc, needed for proper enzyme and hormone functioning.

Iron is also essential. However, take a very small amount of this element as it collects in the liver and can cause irreversible damage.

Restrict the amount of sodium too, as excessive consumption can lead to fluid accumulation in the body.

Proper attention to diet can help you lead a healthy life without further compromising the functioning of the liver.

27. Nutrition and Exercise

Nutrition and exercise are important aspects of hepatitis C management. Good, nutritional intake coupled with regular exercise can boost your body’s system and help in combating hepatitis C infection and help you to wellness.

Good food can build up energy levels and lower some common symptoms of hepatitis C infection such as tiredness, and the feeling of being unwell.

Nutritious Food and Hepatitis C

Eating proper food can yield beneficial effects. Try eating different varieties of food so that your body gets all necessary nutritive elements.

Some foods may induce nausea. Avoid such foods.

Eat small, healthy meals many times in a day. This lowers pressure on your liver and simplifies the digestion process.

Stay away from fatty and greasy foods.

Prefer baked foods to fried food.

Restrain from stocking canned and other unhealthy food at home.

Eat fresh meals with lots of vegetables and fruits.

Scarring of the liver could reduce your appetite drastically. Yet, continue eating regularly and follow your doctor’s guidelines of food with less salt or protein.

Nutritious food can heal wounded tissues and maintain normal electrolyte and fluid balances in your body.

Although there is no single beneficial diet for combating hepatitis C, overall good eating habits with lots of healthy fluids can prove helpful.

Total abstinence from alcohol is probably essential.

Exercise and Hepatitis C

Excess body weight can cause or increase liver problems. Exercising is the best way to lose body weight. Follow a regular schedule of simple exercises like walking, yoga, swimming, or other aerobic exercises to reduce your overall body weight.

A sedentary lifestyle is harmful to normal liver functioning. Although physical exercise cannot reduce hepatitis C infection, it can bring relief from habitual tiredness, any feeling of lethargy, depression and stress.

It also improves your appetite and builds up your body’s immune system.

However, do not become overenthusiastic and indulge in a rigorous exercise regimen, as this could prove debilitating.

A moderate exercise regimen can improve body lean mass, circulation of fluids, and help valuable nutrients reach all body parts. Try doing exercises that can easily fit within your regular schedule. Start with a simple schedule and short time periods, slowly increasing intensity and duration.

Walking and swimming are very low-impact forms of exercise.

You can increase their duration as soon as you feel ready to do so.

Sufficient rest is essential to maintain body weight and good health. Sound sleep gives enough time for your body to energize and rebuild tired body tissues. It helps you to overcome fatigue.

A short nap during the day can be a power booster. It helps you stay active and energetic all through the day.

Simple adjustments to your home life, family and professional life can help you maintain good health with hepatitis C.

Part-VIII: Hepatitis C FAQ

28. Hepatitis C – Frequently Asked Questions

What is hepatitis C?

Hepatitis C is a blood-borne infection of the hepatitis C virus (HCV). It causes serious harm to the liver and has long-lasting health consequences.

What causes hepatitis C infection?

Hepatitis C virus causes hepatitis C infection. This virus is present in the blood of affected persons. This virus attacks your liver first and thereafter causes serious harm to all body functions.

What are the first symptoms of HCV infection?

There are very few first symptoms of HCV infection. Some people could have HCV in their blood for many years without exhibiting any major symptoms. Fatigue, lack of appetite, and overall weakness are among the first symptoms. In some cases, symptoms might not come to the fore but HCV could be harming your liver extensively.

How can people get infected with HCV?

Hepatitis C infection is possible through:

- ✓ Sharing of needles for intravenous drugs or through use of intranasal drugs
- ✓ Contracting of infected blood through sharing of sharp instruments like scissors and razors
- ✓ Through blood transfusion as needed during organ transplantation or other major operations
- ✓ Through accidental transfer of infected blood on equipment used during dialysis

- ✓ Having frequent occupational contact with infected blood or people with HCV as in the case of health workers

What are the main symptoms of hepatitis C?

The most common symptom of hepatitis C is extreme and constant tiredness. However, this symptom is common among many ailments. Further signs of hepatitis C include stomach pain, nausea, yellowing of eyes and skin as in jaundice. Later, blood tests can confirm hepatitis C through abnormalities in blood tests.

What medical complications can Hepatitis C cause?

Hepatitis C does not cause the same complications for all patients. It hardly affects some people while it causes serious complications for others. Some cases could require specialized medical treatment while some cases heal to some degree by themselves without any serious medical treatment.

Medical complications that could arise due to hepatitis C infection are liver diseases, liver cirrhosis and liver failure. These complications do not develop immediately; they may take many years, even decades to surface after HCV infection.

Who can get hepatitis C infection?

Hepatitis C infection does not have any age or gender bar. Normally, the incidence is higher in males between thirty and forty-nine years old.

Is there any vaccination for Hepatitis C?

No, there is no vaccine for hepatitis C infection.

What are the treatment options for hepatitis C?

There is no single and universal treatment option for hepatitis C, that can be proven to be beneficial for all. Antiviral drugs used in specific combination could bring effective results.

However, doctors consider many factors like existing medical conditions, age, gender, extent of infection, and allergy to drugs before prescribing suitable medication.

What are preventive measures for hepatitis C infection?

Simple preventive techniques for hepatitis C infection include:

- ✓ Abstinence from alcohol consumption
- ✓ Refraining from sharing of needles for drugs
- ✓ Do not use same needles on different people for tattooing, piercing, or acupuncture
- ✓ Be careful to avoid any contact with infected blood through sharing of personal care equipment like razors, scissors etc.
- ✓ Practice safe sex through use of different contraceptive techniques
- ✓ Eat nutritious food

Can an HCV-infected mother pass on virus at childbirth?

Yes, it is possible for an HCV-infected mother to pass HCV at childbirth, although the cases are very few.

It may be more likely if the mother is also HIV-positive. Even if the mother passes on HCV at childbirth, it is not necessarily certain that the baby will develop the infection. The virus might go away from

baby’s blood after twelve to fifteen months. Therefore, HCV-infected mother can have babies without HCV infection.

Can hepatitis C spread through sexual contact?

Yes, hepatitis C can spread through sexual contact but it is rare. Having multiple heterosexual partners is an HCV risk. Further, if you are exposed to open wounds or other cuts during sexual relations with an infected partner, it is possible to develop HCV infection.

Can an HCV-infected person donate blood?

No, an HCV-infected person should not donate blood. Doctors conduct blood tests before collecting blood from donors. Most often, a person gets to know of the HCV infection through such routine blood test.

Different levels of enzymes and red blood cells in blood indicate infection which, on further detailed culture, could yield the exact cause and type of blood infection.