



# Common hepatitis C symptoms and treatment side effects with tips for coping with them

Hepatitis C causes changes to a person's body and these changes can manifest themselves as signs and symptoms of the infection. Some cause discomfort and can be managed. Others are significant medical complications that may require additional treatment. Regardless of their degree, symptoms should be reviewed by a healthcare professional at regular intervals. If symptoms become severe, people should consider visiting a hospital emergency room.

As with all medications, medications for hepatitis C can cause side effects. Most side effects are mild and become easier to tolerate as treatment progresses but, on occasion, side effects can be severe enough to make it necessary to stop treatment.

Once the decision has been made to start treatment, having a doctor monitor and manage side effects becomes a primary concern because it can help maximize a person's chance of completing treatment. All side effects should be reported to healthcare providers, as some may indicate the presence of serious medical conditions. Also, treatment for hepatitis C that includes direct-acting antivirals can sometimes lead to activation of an undiagnosed hepatitis B infection and the appearance of symptoms related to the impact of hepatitis B on the body.

---

This information has been revised from a guide first published by the Canadian Hemophilia Society in 2003 and updated in partnership with CATIE in 2011. In 2016 and 2017, information on direct acting antivirals was added.

Information in this document is not medical advice. Decisions about treatment should always be made with the advice of a doctor who knows about HIV or Hep C. Treatment changes, so talk to a doctor to get the latest information. The opinions in this document may not be the views of CATIE, its partners or funders.

This document is copyrighted. It may be reprinted and distributed in its entirety for non-commercial purposes without prior permission, but permission must be obtained to edit its content. The following credit must appear on any reprint:

*This information was provided by CATIE and the Canadian Hemophilia Society. For more information, contact CATIE at [info@catie.ca](mailto:info@catie.ca) or 1.800.263.1638.*

© 2017. Canadian Hemophilia Society and CATIE. All rights reserved.



Canada's source for  
HIV and hepatitis C  
information

[www.catie.ca](http://www.catie.ca)  
[info@catie.ca](mailto:info@catie.ca)  
1-800-263-1638



Canadian Hemophilia Society  
Help Stop the Bleeding

[www.hemophilia.ca](http://www.hemophilia.ca)  
[chs@hemophilia.ca](mailto:chs@hemophilia.ca)  
1-800-668-2686

## Symptoms and Side Effects Chart (Part 1)

Page	Symptoms of		Side Effects of				
	Chronic hepatitis C	Cirrhosis or Liver Failure	Asunaprevir <sup>a</sup> (Sunvepra)	Daclatasvir <sup>b</sup> (Daklinza)	Epclusa (velpatasvir + sofosbuvir)	Harvoni (ledipasvir + sofosbuvir)	Holkira Pak (dasabuvir + ombitasvir / paritaprevir / ritonavir)
<b>Tiredness and Weakness</b>							
Tiredness (fatigue) and weakness	4	○	○	○	○	○	○
Lowered red blood cell count (anemia)	5						
<b>Pain and Soreness</b>							
Flu-like symptoms	7	○					
Headache	7		○	○	○	○	○
Joint pain (arthralgia)	8	○					
Right upper side discomfort	9	○					
Tingling or burning sensation (paresthesia or peripheral neuropathy)	10	○					
<b>Eating Problems</b>							
Loss of appetite (anorexia)	11	○	○				
Nausea	11	○		○			
Sores (ulcers) in the mouth	12						
Fluid build-up (ascites or edema)	13		○				
Diarrhea	14						
<b>Skin Conditions</b>							
Blisters (porphyria cutanea tarda)	15	○					
Blotchy skin (cryoglobulinemia)	15	○					
Purple or shiny, itchy bumps (lichen planus)	16	○					
Rash and itchy skin (pruritus)	17		○				
Yellowing of the skin (jaundice)	18	○	○				
<b>Bleeding</b>							
Vomiting blood (esophageal varices)	19		○				
Lowered platelet count (thrombocytopenia)	19		○				
<b>Mood Changes</b>							
Depression	20	○					
Low sex drive (loss of libido)	24	○					
Stress (emotional strain or tension)	25	○					
<b>Neurological Changes</b>							
Extreme confusion (hepatic encephalopathy)	27		○				
Problems with thinking ("brain fog")	27	○					
Sleep problems	28		○				

a. studied in combination with daclatasvir b. studied in combination with sofosbuvir

## Symptoms and Side Effects Chart (Part 2)

	Page	Side Effects of						
		Maviret (glecaprevir + pibrentasvir)	Ribavirin (Ibavyr, Moderiba)	Simeprevir <sup>c</sup> (Galexos)	Sofosbuvir <sup>c</sup> (Sovaldi)	Technivie <sup>c</sup> (ombitasvir + paritaprevir + ritonavir)	Vosevi (sofosbuvir + velpatasvir + voxilaprevir)	Zepatier (elbasvir + grazoprevir)
<b>Tiredness and Weakness</b>								
Tiredness (fatigue) and weakness	4	○	○		○	○	○	○
Lowered red blood cell count (anemia)	5		○		○			
<b>Pain and Soreness</b>								
Flu-like symptoms	7							
Headache	7	○	○		○	○	○	○
Joint pain (arthralgia)	8							
Right upper side discomfort	9							
Tingling or burning sensation (paresthesia or peripheral neuropathy)	10							
<b>Eating Problems</b>								
Loss of appetite (anorexia)	11							
Nausea	11		○	○			○	○
Sores (ulcers) in the mouth	12		○					
Fluid build-up (ascites or edema)	13							
Diarrhea	14						○	
<b>Skin Conditions</b>								
Blisters (porphyria cutanea tarda)	15							
Blotchy skin (cryoglobulinemia)	15							
Purple or shiny, itchy bumps (lichen planus)	16							
Rash and itchy skin (pruritus)	17		○	○				
Yellowing of the skin (jaundice)	18							
<b>Bleeding</b>								
Vomiting blood (esophageal varices)	19							
Lowered platelet count (thrombocytopenia)	19							
<b>Mood Changes</b>								
Depression	20							
Low sex drive (loss of libido)	24							
Stress (emotional strain or tension)	25							
<b>Neurological Changes</b>								
Extreme confusion (hepatic encephalopathy)	27							
Problems with thinking ("brain fog")	27							
Sleep problems	28		○		○			

*c. studied in combination with ribavirin*

## ● TIREDNESS (FATIGUE) AND WEAKNESS

### Description

Tiredness, especially extreme tiredness, is also called fatigue, where a person may temporarily feel tired, exhausted or a need to rest. Weakness is a lack of physical or muscle strength, and a feeling of extra effort required to move. People often describe them in terms of having “good days and bad days”.

Sometimes a string of good days will be followed by days of feeling totally “wiped out”. For other people, fatigue is a daily companion. They feel tired in the morning and exhausted before the end of an ordinary workday. They experience a lack of energy to the point of feeling unable to make any physical or mental effort. This feeling happens even after a full night’s sleep.

Experiencing pain and discomfort adds to tiredness by causing loss of sleep and sapping energy during the day. Such a state of chronic weariness may cause a lot of negative changes in life. For example, tiredness can ruin your interest in fun activities and cause you to be impatient with others.

### Cause

Fatigue is the most common symptom of hepatitis C. It may even develop in people whose tests show few or no changes in the liver.

Fatigue is also a side effect of some direct-acting antiviral medications. This side effect is usually temporary and often goes away after a few weeks as the person’s body adjusts to treatment.

### Treatment

- **Start a gentle exercise program:** Being physically inactive will eventually cause your muscles to weaken and you will lose strength and stamina. Some people find that they begin to avoid even the simplest of chores because it would require a major effort. Start a gentle exercise program, such as walking, that gradually increases in difficulty as you recover your strength and stamina.

### Tips

- **Plan ahead:** Plan your day so that you have time to rest. Take several breaks or short naps rather than one long rest period.
- **Save your energy:** It is important to remain physically active if you are able. However, there may be times, particularly if you are on treatment or have advanced liver failure, where you may need to conserve your energy. Look around your home or workplace and see if you can reorganize the environment so you spend less time in energy-sapping positions like bending, reaching or pulling. For example, lower your shelves, use an assistive device, such as an electric can opener, or keep equipment all in one area. Your kitchen is a good place to start your reorganization. Other tips to try: use a cart with wheels for transporting heavy items like groceries and laundry; use delivery services; double your recipes when you cook so you’ll have leftovers to freeze; and have a homemaker service (if you can afford it) deal with heavy household chores.
- **Ration energy by pacing yourself:** On days that you feel well, you’re probably tempted to do all you can to catch up. Try not to overdo it. It is a much better strategy to balance activity with rest or to alternate between a heavy and a light chore. Making to-do lists, in which you write tasks under headings such as must do, heavy chore and light chore may help to clarify which jobs are high priorities. As you go through your day, take a moment to estimate the energy you have left and match it with an activity or chore remaining on your to-do lists.

## Tiredness and Weakness

- **Be aware of your “windows of energy”:** Take notice of any pattern to the changes in your energy level over the course of the day. Do you feel strongest during the morning or mid-afternoon? Take advantage of this pattern by saving the hardest things to do for the time when you are most energetic. Try an easier or shorter version of an activity you enjoy rather than give up because you cannot do it for as long as you would normally like.
- **Ask for help:** Try not to let feelings of pride or guilt stand in the way of getting help with an exhausting task. Inviting others to share your difficulties often eases the burden of extreme tiredness. A support group is an excellent place to learn coping tips from other people going through a similar experience.

### ● LOWERED RED BLOOD CELL COUNT (ANEMIA)

#### Description

Red blood cells (erythrocytes) transport oxygen to body tissues. If your body’s tissues don’t get enough oxygen, your body won’t be able to stay healthy. A low red blood cell count is called anemia. This condition may cause extreme tiredness and weakness, shortness of breath, which may cause a person to feel faint or dizzy, dry cough, and rapid heart rate.

#### Cause

Ribavirin interferes with the production of red blood cells. About one in five people on ribavirin will experience anemia.

#### Treatment

- Your doctor may reduce the dose of ribavirin.
- Your doctor may add epoetin, which is a man-made version of erythropoietin (EPO). EPO occurs naturally in the body and boosts production of red blood cells. The use of epoetin allows for a higher dosage of ribavirin and in studies this has led to a higher rate of people achieving a sustained virologic response. There are two different products available in Canada for epoetin known by the brand names Eprex and Aranesp.
- Severe anemia is sometimes treated with a blood transfusion.

#### Tips

- Regularly see your health care provider to get a blood test called a complete blood count (CBC), which measures red cells, white cells and platelets.

## Tiredness and Weakness

- Your doctor may send you to a laboratory for a blood test to check if you are deficient in any of the following red cell production factors. If so, taking the appropriate supplement may help with anemia.
  - a) Folic acid.
  - b) Vitamin B12.
  - c) Iron (absorption of iron may be enhanced by taking vitamin C). However, an iron supplement should be avoided if you have cirrhosis.
- Changes to your diet may help:
  - a) Eating beets will help red blood cells take up oxygen.
  - b) Seeds (for example, sunflower, pumpkin and sesame) are a high source of energy and will help with the tiredness caused by anemia.
  - c) Your doctor may advise you to eat more red meat, especially beef and liver, because it is rich in iron. Eating shellfish and the dark meat of poultry (for example, turkey and chicken) will also raise your iron levels. Other foods that are good sources of iron include dark green leafy vegetables (for example, spinach or kale), peanuts, eggs, beans and dried fruits (for example, raisins).

# Pain and Soreness

## ● FLU-LIKE SYMPTOMS

### Description

With flu-like symptoms, your muscles may feel sore and your joints may ache. Fever, swollen glands and chills often follow. There may also be excessive sweating at night during sleep.

### Cause

Flu-like symptoms are common with hepatitis C.

### Treatment

- Ask your doctor about painkillers such as Tylenol (acetaminophen) or Advil (ibuprofen). Carefully follow dosage directions because even over-the-counter medications can damage your liver if you use them too much.

### Tips

- Drink plenty of water.
- Apply heat or ice packs (wrapped in a towel) to areas where you ache.

## ● HEADACHE

### Description

Some people will experience headache ranging from mild to severe, but for most people it is a mild headache that comes and goes.

### Cause

Headaches are a side effect of many direct acting antiviral drugs.

### Treatment

- Ask your doctor about painkillers such as Tylenol (acetaminophen) and Advil (ibuprofen). Carefully follow dosage directions because even over-the-counter medications can damage your liver if you use them too often.

### Tips

- Drink water frequently.
- Avoid bright lights and loud noises by sitting or lying down in a quiet, darkened room.
- Avoid dehydrating drinks such as alcohol or liquids with caffeine in them.
- Put a damp, cool cloth on the back of your neck or forehead.
- Alternatively, you may find a warm compress works better for you.

## ● JOINT PAIN (ARTHRALGIA)

### Description

Joint pain is common in people with hepatitis C. Many people do not think of joint pain as a symptom of the infection. The pain may be in one joint or multiple joints. It often affects the small joints, such as the wrists but it can also affect medium or large joints, such as the hip.

The joint pain seen with hepatitis C can sometimes seem like another form of joint disease called rheumatoid arthritis. Having hepatitis C has also been linked to an increased chance of having rheumatoid arthritis. Several treatments for rheumatoid arthritis can injure the liver, so it is important to know the cause of the pain to determine the best treatment.

### Cause

It is unclear exactly how hepatitis C triggers joint pain. One perspective is that when a person gets hepatitis C their immune system responds to fight the virus. The way the immune system activates itself in the joints can cause inflammation and swelling.

### Treatment

- Being treated for and cured of hepatitis C can decrease joint pain or make it go away in some people.
- If the joint pain is mild your healthcare provider may recommend pain medication to decrease pain and inflammation, like ibuprofen or acetaminophen.
- Some people find creams with the pain killer capsaicin are helpful when applied to the skin over the sore joint.

- If the joint pain does not respond to the pain medication, your healthcare provider may recommend other medication. However some treatments for arthritis can injure the liver and so they should be used with caution in people with hepatitis C.

### Tips

- Heat can loosen stiff muscles and joints, bringing relief; cold can reduce swelling and alleviate pain.
- Try to do some gentle exercise regularly. Exercises that are easy on your body include walking, swimming or cycling.
- Try to move your body by shifting positions or going for short walks throughout the day.
- Avoid smoking as it can lead to more joint pain.



### RIGHT UPPER SIDE DISCOMFORT

#### Description

Some people may feel a dull ache on their right side, just below the rib cage. In fewer cases, an ache or pain may travel up to the right shoulder, or be experienced as a sharp stabbing feeling.

#### Cause

Right upper side discomfort can be a symptom of hepatitis C. It is believed to be due to swelling of the liver, causing the thick membrane surrounding the liver to stretch. However, in most people, right upper side discomfort is from muscle spasm.

#### Treatment

- Ask your doctor on how best to manage the pain. You may be prescribed pain medication or, if it is available in your community, you may be referred to a pain clinic where pain specialists will teach you a variety of ways to cope with the discomfort.

#### Tips

- Try a pain management technique at home. Methods to help you relax, such as guided imagery and visualization, can also give you an immediate, if temporary, pause from pain.
- Biofeedback is an approach to pain management in which you are given immediate information (feedback) about bodily processes, such as heart rate, that are usually beyond your conscious mind. Over time, you learn to consciously control or regulate conditions like high blood pressure or muscle tension that may be contributing factors to your heightened sensation of pain.

- Acupuncture is a traditional Chinese system of healing in which pain is relieved by thin metal needles inserted into acupressure points beneath the skin. Because the needles enter the skin, it's important that they be sterile. See a practitioner who has been trained in acupuncture. Acupuncture Canada ([www.acupuncturecanada.org](http://www.acupuncturecanada.org)) has more information.
- Massage therapy from a registered massage therapist or a shiatsu massage therapist involves the manipulation of the soft tissues of the body (or, in the case of shiatsu, acupressure points on the surface of the skin) with the hands. Massage improves blood circulation and muscle tone and reduces muscle spasm that may be a contributing factor to pain. Other healing traditions that use therapeutic touch include chiropractic, osteopathy, reflexology and reiki.

### **TINGLING OR BURNING SENSATION (PARESTHESIA OR PERIPHERAL NEUROPATHY)**

#### **Description**

Sensations of tingling, pins and needles, sharp pain or cramps, burning and numbness may be caused by conditions known as paresthesia and peripheral neuropathy. Usually, the pain is felt in the toes, feet and legs, although sometimes it is in the hands and arms. These sensations are often worse at night.

#### **Cause**

The exact cause of hepatitis C-related peripheral neuropathy is not known, although possible explanations include hepatitis C infection of the nerves or a swelling process in the nerves triggered by a hepatitis C-related immune disorder.

#### **Treatment**

- Your doctor may try a number of measures to treat the symptoms, including topical creams, pain killers, antidepressants and non-steroidal anti-inflammatory drugs.

#### **Tips**

You can try the following tips to help soothe the pain and relieve the pressure on your hypersensitive feet or hands.

- Limit your walking distances and the length of time you spend standing.
- Wear loose-fitting socks and shoes.
- Keep heavy bed covers off painful areas and use a small pillow to raise your feet or hands off the mattress while sleeping.

- Regularly soak your feet or hands in ice water.
- Exercise regularly to try and improve circulation to the nerves

## ● LOSS OF APPETITE (ANOREXIA)

### Description

Many people with hepatitis C lose the desire to eat. The result of feeling like not eating is that you may not eat enough to maintain your health. Poor nutrition may cause weight loss, including a reduction in muscle mass.

Improper absorption of digested food due to cirrhosis of the liver may result in too little or too much of one or more vitamins, minerals or other substances that are necessary for your body to function normally.

### Cause

Loss of appetite can be caused by hepatitis C. Flu-like symptoms such as nausea and vomiting may also affect your eating habits. Your appetite may worsen if you have cirrhosis or liver failure.

### Treatment

- It is very important to give your body the nutrients it needs to function. Ask your doctor about nutritional supplements designed to help you gain and keep a healthy weight.

### Tips

- Eat smaller but more frequent meals throughout the day.
- Drink clear fruit juices for the extra calories.
- Try ginger root or drinks or candy with ginger in them.
- Try simple foods (not spicy, acidic, deep-fried or greasy) such as crackers or dry toast.

## ● NAUSEA

### Description

Nausea is a word used to describe the very unpleasant feeling of sickness and wanting to vomit.

### Cause

Nausea is one of the most common symptoms of hepatitis C infection. It is also a common side effect of ribavirin and some direct acting antiviral drugs.

### Treatment

- If nausea leads to frequent vomiting, take many sips of water over short intervals. Your intake of water should add up to about two litres per day in order to avoid dehydration.
- Ask your doctor about anti-nausea medication.
- If your nausea gets better after you eat, ask your doctor to check for an ulcer caused by the bacterium *H. pylori*. The symptoms will go away within a few days if you take the medication as prescribed to get rid of *H. pylori*.

### Tips

- Eat soup as it is easier for your body to digest. However, be careful the soup is not high in salt content as high sodium can lead to high blood pressure.
- Avoid carbonated (fizzy), sugary or alcoholic drinks.

### ● SORES (ULCERS) IN THE MOUTH

#### Description

Sores (ulcers) in the mouth can be extremely painful and will interfere with eating and your quality of life in general.

#### Cause

Mouth sores are a side effect of ribavirin. They may develop at any time during treatment.

#### Treatment

- Discuss with your doctor the possibility that you're not getting enough vitamin B12 in your diet.
- If the home remedies below don't work, talk to your doctor about a medication (a mouth rinse) that forms a protective barrier over the mouth sore.

#### Tips

- Avoid really hot drinks or food.
- Eat simple food that is not spicy, salty or acidic.
- Avoid food that is crunchy or hard.
- Soothe mouth sores with ice or frozen juice bars.
- Rinse your mouth for one minute with a solution of one teaspoon of salt in a cup of warm water.
- Use an over-the-counter antimicrobial mouthwash like Listerine.

- It may provide temporary pain relief by numbing the mouth sore.
- Put a used black tea bag on the mouth sore (a well-known alternative therapy). Black tea is high in tannin, which may give you some pain relief.

### ● **FLUID BUILD-UP (ASCITES OR EDEMA)**

#### **Description**

The build-up of fluid in the abdomen is called ascites. You may not feel hungry due to the pressure of the fluid on your stomach. Fluid build-up may also put pressure on your lungs, causing you to be short of breath. The build-up of fluid in the tissues of the feet and legs is called edema.

#### **Cause**

Ascites and edema are two of the most common major complications of cirrhosis. If abdominal tenderness and fever are present, the cause may be an infection called spontaneous bacterial peritonitis.

#### **Treatment**

You can make a plan with your doctor to treat fluid build-up. One change that may be suggested is a low-salt diet. Too much salt intake can contribute to the fluid retention seen in ascites and edema.

#### **Tips**

- Avoid canned soups and vegetables, cold cuts, dairy products and condiments such as ketchup and mayonnaise.
- Check the labels on food packages; many prepared foods contain large amounts of salt.
- Substitute lemon juice for salt.

### ● DIARRHEA

#### Description

Diarrhea is an increase in the frequency and decrease in the consistency of stools.

#### Cause

Diarrhea can be caused by some direct-acting antivirals used to treat hepatitis C.

#### Treatment

- An over-the-counter anti-diarrheal agent, such as Imodium (loperamide), Kaopectate or Pepto-Bismol may help relieve symptoms. Check with your pharmacist to ensure they will not interfere with any other medications you take.
- Natural therapy options include gut friendly bacteria, such as *L. acidophilus* or *S. boulardii* and ground flax seeds.
- Talk to your doctor if diarrhea lasts for more than a few days.

#### Tips

- Foods and liquids to avoid when you have diarrhea include coffee and other caffeinated beverages, alcohol, chocolate, fried and fatty foods, spicy foods and high-sugar foods or liquids.
- Foods that contain soluble fibre, such as apples, peaches, pears and bananas, grains such as oatmeal and white rice and psyllium-containing supplements like Metamucil, can help with diarrhea.

- It is important to prevent dehydration when you are suffering from serious diarrhea. As long as diarrhea continues, drink plenty of healthy fluids, such as water, juices, herbal teas and broth. This can also help restore electrolytes (sodium, potassium and chloride) that can be lost through diarrhea.

### ● BLISTERS (PORPHYRIA CUTANEA TARDA)

#### Description

Fluid-filled blisters on the hands or on any area of the body exposed to sunlight may be caused by a disorder called porphyria cutanea tarda. This condition may also cause darkening or lightening of the skin, hair loss and thickening of the skin.

#### Cause

Porphyria cutanea tarda is a symptom of hepatitis C. It is caused by an overproduction of the protein uroporphyrinogen when hepatitis C blocks the removal of waste products (porphyrins) from the blood.

#### Treatment

- Although not curable, symptoms can be managed. Ask your doctor about low dose chloroquine or hydroxychloroquine (anti-malarial drugs).

#### Tips

- Reduce your intake of foods that contain iron.
- Reduce your consumption of alcohol.
- Avoid the sun or use sun block.

### ● BLOTCHY SKIN (CRYOGLOBULINEMIA)

#### Description

When a person develops a blotchy skin rash on his or her legs, it may be caused by a condition called **cryoglobulinemia**.

#### Cause

Cryoglobulinemia is one of the most common disorders associated with hepatitis C. It is caused by the production of cryoglobulin (an abnormal blood protein). These proteins clump together in blood vessels, restricting the flow of blood. It can lead to vasculitis (inflammation of blood and lymphatic vessels) as well as other conditions that affect the kidneys, joints and skin.

#### Treatment

- Medications may be used to suppress the immune system.
- A medical procedure called plasmapheresis may be used. In this routine, blood is taken, filtered and then returned to the body.

#### Tips

- If you experience blotchy skin, get it examined by your doctor because it is often the first and possibly only sign of chronic hepatitis C.

### **PURPLE OR SHINY ITCHY BUMPS (LICHEN PLANUS)**

#### **Description**

Extremely itchy purple pimples or white patches on the skin may appear on the inside of the wrists and ankles, the lower legs, back, nails and genitals. This rash may be caused by a condition called lichen planus. This condition may also cause painful sores on mucous membranes, including the mouth.

#### **Cause**

The exact cause of lichen planus is unknown. It seems to be triggered by stress or viral infections such as hepatitis C. Studies show that anywhere from 3.5 percent to 60 percent of people with lichen planus have hepatitis C.

#### **Treatment**

- Your health care provider may suggest medications such as topical steroids and antihistamines to help stop the itching.
- Photochemotherapy light treatment may be recommended.

#### **Tips**

- Avoid alcohol, tobacco, spicy foods, peppermint, cinnamon and citrus foods as these appear to trigger lichen planus in the mouth.
- Drink lots of water.
- Wrap a cold pack in a towel and apply it to the rash.
- Take an oatmeal bath.
- Use unscented skin moisturizers or body lotions.

- Use soap that contains a moisturizer or has high oil content.
- Use laundry detergents that are formulated to be mild on the skin.
- Wear loose-fitting clothing.
- Avoid taking long hot showers or baths.



### RASH OR ITCHY SKIN (PRURITUS)

#### Description

Skin rash is a common and sometimes serious side effect of hepatitis C treatment. A rash is a change in the colour and texture of the skin that shows up as an outbreak of red patches or bumps. Mild rashes may be red, small and flat. Moderate or severe rashes may cover larger areas of the body and include lesions, blisters, or ulcers.

An itchy skin rash (pruritus) may appear on the feet and hands. Some people may feel itchy all over their bodies. These rashes are not dangerous unless they become infected.

#### Cause

Dry, itchy skin is a side effect of ribavirin and simeprevir. Pruritus may also occur with cirrhosis or liver failure.

Simeprevir can also rarely cause photosensitivity, where a person's skin is highly sensitive to sunlight, leading to sunburns or rash on exposed skin.

However, a rash can also be due to an allergic reaction to a medication. It's important to tell your doctor or pharmacist about any rash that appears when you first start a drug. A mild rash caused by an allergic reaction can get worse over time, and potentially even fatal.

- If a rash develops when you first start a medication, let your pharmacist or doctor know to make sure it isn't an allergic reaction to then medication.
- If you must deal with the itch, rub your skin instead of scratching it.

- Keep your fingernails short so that if you accidentally scratch yourself, you don't risk infection by tearing the skin.
- Talk to your doctor about antihistamines and anti-itch cortisone creams.

#### Tips

- Drink lots of water.
- Wrap a cold pack in a towel and apply it to the rash.
- Take an oatmeal bath.
- Use unscented skin moisturizers or body lotions.
- Use soap that contains a moisturizer or has high oil content.
- Use laundry detergents that are formulated to be mild on the skin.
- Wear loose-fitting clothing.
- Avoid taking long hot showers or baths.

## **YELLOWING OF THE SKIN (JAUNDICE)**

### **Description**

The yellowing of the skin and whites of the eyes is called jaundice. This condition may also cause itchy skin. The itch may occur on a particular part of the body or it may occur all over the body. Constant scratching (even when asleep) can damage skin, particularly if the fingernails are long.

### **Cause**

Jaundice is caused by the build-up of bile (bilirubin) in the blood. A small percentage of people will appear jaundiced during the acute phase of hepatitis CC infection. Jaundice is also a condition associated with cirrhosis and liver failure.

Jaundice may appear with hepatitis A or hepatitis B infection. In rare situations, jaundice can be caused by a harmful build-up of certain drugs (drug toxicity) in your system.

### **Tips**

- Drink lots of water.
- Wrap a cold pack in a towel and apply it to the rash.
- Take an oatmeal bath.
- Use unscented skin moisturizers or body lotions.
- Use soap that contains a moisturizer or has high oil content.
- Use laundry detergents that are formulated to be mild on the skin.

- Wear loose-fitting clothing.
- Avoid taking long hot showers or baths.

## ● VOMITING BLOOD (ESOPHAGEAL VARICES)

### Description

Bleeding from the esophagus (food tube) may cause one to vomit blood and/or to have bloody, runny, black bowel movements.

### Cause

Blood going through a damaged liver may back up into the veins (varices) in the stomach and esophagus, causing these veins to enlarge. Sometimes this swelling will cause the veins to bleed (hemorrhage). Bleeding of the esophageal varices is linked to cirrhosis and liver failure.

### Treatment

- You may be prescribed antibiotics or a medication that constricts the varices.
- Endoscopic surgery may be used to tie up the bleeding varices.
- In an emergency situation, doctors will use a device called TIPS (transjugular intrahepatic portosystemic shunt) to control bleeding.
- Recent research recommends TIPS be considered early if a person is at risk for not responding to the above-mentioned standard treatments.

### Tip

- See your health care provider if you experience any of the above symptoms.

## ● LOWERED PLATELET COUNT (THROMBOCYTOPENIA)

### Description

Platelets are cells containing proteins that help clot blood. They have a role in stopping bleeding. Having a low platelet count is called thrombocytopenia. When severe, this condition increases the risk for bruising and bleeding. This condition may be very serious in those with bleeding disorders.

### Cause

Research studies have found a link between the amount of scarring on the liver and thrombocytopenia.

### Treatment

- If you vomit blood or have runny, black bowel movements, see your doctor immediately for treatment.

### Tip

- See your health care provider regularly to get a blood test called a complete blood count (CBC), which measures red cells, white cells and platelets.

## DEPRESSION

### Description

Depression is a word used to describe an emotional state in which you feel terribly sad for a couple of weeks or even months at a time. It's far worse than a case of general sadness because you also get a feeling of hopelessness and you take hardly any pleasure in things that previously made you happy. Your energy level may go way down to the point where even simple tasks like getting dressed in the morning seem like too much effort.

Sometimes depression is hard to recognize because it can sneak up over weeks or months. You may not even realize your mood has changed until someone close to you says something like, "You don't seem like yourself these days," or asks, "How come you're so quiet?"

### Changes Related to Depression

This chart is meant as a guide only to help you figure out if depression is going unnoticed by you. The changes are ones that commonly occur when people sink into depression.

#### Changes to your **physical** self

- More or less appetite or a gain/loss in weight.
- More or less sleep.
- More or less activity.
- More alcohol, cigarettes or drugs.
- Less energy.

#### Changes to your **social** self

- More time spent alone or feeling lonely.
- More thoughts that nobody understands you or even cares how you're doing.
- More time spent arguing with people.
- Less time spent with friends or family members.
- Less interest in sex.

#### Changes to your **thinking** self

- More difficulty concentrating on tasks.
- More difficulty remembering things.
- More difficulty making decisions.
- Less confidence at your place of work.
- Thoughts of death or suicide.

#### Changes to your **emotional** self

- More crying spells.
- More frustration.
- More angry outbursts or irritability.

# Mood Changes

- Feeling like a failure or feeling guilty.
- Feeling helpless or overwhelmed.
- Less motivation.
- Less enthusiasm.

## Changes to your **spiritual** self

- Feeling empty.
- Loss of hope that things will get better or expecting the worst in situations.
- Loss of meaning or purpose in your life.
- Less spiritual practice.
- Less trust in people in general.

## Cause

The following changes associated with hepatitis C and its treatment may cause or add to a depressed mood in some people:

- More difficulty getting around or following through with normal daily activities;
- Less ability to participate in leisure activities such as exercise or social events;
- More difficulty keeping up at work;

- Job loss resulting in less income and the end of a daily routine;
- A shift in roles at home causing feelings of having lost your place in the family;
- Less ability to make future plans.

## Treatment

- **Choosing the type of treatment for depression that is best for you**  
Most people will choose one of the following three ways to treat their depression: antidepressant drugs, talk therapy or a combination of both. Antidepressant drug treatment combined with psychological (talk) therapy has a higher success rate than when medication is used by itself.

The use of antidepressant drugs continues to grow and family doctors are becoming increasingly comfortable in prescribing these medications, rather than referring to a psychiatrist. The advantages of taking antidepressant medication are twofold. First, drugs can make the difference in getting a person through a particularly severe spell of depression. Second, provincial/territorial health care plans and insurance companies will probably cover a portion or the entire cost of most antidepressants. The major disadvantage to antidepressants is their side effects. The most common side effects associated with antidepressant use are dry mouth, weight gain, sleep problems and loss of sexual interest or ability.

The advantages of talk therapy are also twofold. First, people in therapy learn coping skills that can be used throughout life during tough times. Second, talk therapy has no side effects. Talk therapy requires a time commitment (probably at least six sessions) and is emotionally hard work. Also, it may be more difficult to get your insurance company to reimburse the cost of therapy or there might be a limit on the number of sessions your insurance will cover.

## Mood Changes

- **Choosing the mental health professional right for you**

Therapists in private practice charge by the session, so costs can mount quickly. But lack of money should not stop you from finding help. Many therapists charge according to a sliding scale, which means you can get a discount off the regular fee if you have a small income. Similarly, counselling at a local community mental health agency will take into account your ability to pay. Psychiatrists' fees are covered by provincial/territorial health care insurance. Medical social workers and psychologists attached to hospital programs are paid by the health care system. Check with your extended benefits plan to see if counselling services are covered such as through an Employee Assistance Program (EAP).

The most frequently studied talk therapy is called cognitive behavioural therapy (CBT), in which you learn to recognize and change negative thinking patterns causing your distressed mood. Essentially, you can change how you feel by changing what you think and do. CBT is considered to be a first-line treatment of choice for people with depressive disorders. Many therapists use CBT along with other strategies to help you feel more like yourself again.

Psychiatrists use talk therapy along with prescribing antidepressants. Registered clinical (mental health) professionals who offer therapy but not drugs include psychologists, social workers and counsellors. Research shows that a therapist's professional degree and the type of therapy he or she uses are not as important as the quality of your relationship (that is, your trust and the positive feelings you have towards your therapist) in ensuring a successful outcome. It's important to take the time to carefully choose the right therapist for you.

- **Finding a mental health professional**

- Your family physician may prescribe an antidepressant drug or make a direct referral to a psychiatrist, community counselling agency or hospital psychiatry/psychology/social work department.
- You may find a good fit with a therapist through a recommendation from a family member or close friend.
- Your local HCV support group may know of a mental health professional who has experience in working with people living with hepatitis CC.
- Your community may have a mental health/family services agency that offers counselling services.
- Your workplace may have an employee assistance program as part of your employee benefits package. Your employer will not be told you accessed counselling services or why, and the therapist's report will not be sent to your employee record.
- Online search engines are available at the professional association websites for psychologists or social workers registered in your province/territory.
- Your local telephone directory won't offer much detail, but will likely provide listings under the headings of counsellors, psychologists and social workers.

# Mood Changes

## Tips

- Add a daily exercise routine.
- Try to be around other people, even if only for a little while each day.
- Let people close to you help out with their company, encouragement, affection or ability just to listen.
- Take part in activities, even if you don't especially want to. You may find you underestimate the amount of enjoyment you actually get from the experience. Low expectations are a product of negative thinking, so it's important to give yourself the opportunity to counter these thoughts and give yourself something to look forward to.
  - Set some priorities, then focus on them one at a time. Usually breaking a priority or task down into smaller parts helps give you more confidence as you take each small step closer to your goal.
  - Expect your mood to improve gradually. Feeling better does not occur overnight. Feeling a little better each day is how depression normally lifts.
  - Discuss with your doctor whether or not a prescription for antidepressant medication and/or a referral to a therapist is right for you. Treatment for depression may be the answer if your usual coping skills aren't working or if your depressed mood significantly interferes with your life for a couple of weeks or more.
- Recognize that you may need a professional diagnosis if you apply for disability benefits. There are licensed/registered therapists who are qualified to use a manual called the DSM-IV-TR in order to assess and diagnose depression. The DSM-IV-TR recognizes that a person may have a mental disorder due to a general medical condition. Some people fear being labelled with a mental health disorder and dealing with that stigma. However, a diagnosis based on the DSM-IV-TR may be required by insurance companies.

## ● LOW SEX DRIVE (LOSS OF LIBIDO)

### Description

The lowering of one's sex drive is sometimes called loss of libido. Sexuality is not only about physical activity, but it also includes your feelings of attractiveness, your desire for emotional closeness and your openness to sensory experiences. There's a general acceptance that there's no one way to sexual fulfillment.

### Cause

Living with hepatitis CC may cause changes to your sexual activity, but it does not mean you have to give up intimacy or a satisfying sexual relationship. The tips below may help you manage the changes to intimacy and sexuality imposed on you by HCV.

### Treatment

If concerned about a change in your sex life, try the following process to resolve the situation:

- Identify the change. Is it, for example, your level of desire, your sense of being attractive, tension within the relationship, your mood or the onset of physical pain?
- Ask yourself whether or not these changes are something you need to worry about.
- If yes, ask yourself whether or not you're willing to talk to someone about it.
- If yes, ask yourself who would be the most appropriate person. That could be your partner, a trusted friend, your family doctor, a nurse or doctor working in your local hospital's sexual health program (if available) or a therapist.

### Tips

- **Pain:** Before sex, try to reduce your pain by taking a warm bath or doing a few light stretching exercises.
- **Fatigue:** Plan for sex by pacing your day's activities so that you're well rested.
- **Depression:** Depressed people tend not to see themselves as sexy, and this can reduce the desire for physical intimacy. Complicating matters is the fact that antidepressant medication may reduce interest and/or the ability of a man to get and keep an erection. If this is a side effect for you, talk to your doctor about changing the dosage of your medication. Your doctor may also consider adding an erectile dysfunction drug that increases blood flow to the penis, resulting in an erection when sexually stimulated. Women may find the application of a water-soluble lubricant will take care of vaginal dryness, which may also be a side effect caused by the HCV drug peg-interferon.
- **Reluctance to discuss sex with your partner:** Your relationship will likely be strained if a decrease in sexual activity is accompanied by a reluctance to discuss the changes. Your partner may take it as a personal rejection. Talking with your partner about your desires, pleasures and fears around sex can really help to reduce tension. Your partner may see this as an invitation to talk about his or her own feelings and concerns about sex. For example, your partner may have stopped initiating sex, fearing that physical contact will be too painful for you.



- **Here are some questions you can ask yourself before talking with your partner about sex:**
  - Has hepatitis CC caused any changes in my attitude or emotions towards sex?
  - Where on my body do I enjoy being touched and what areas should be avoided because they're just too sore?
  - Are there sexual activities that are less or more pleasurable since I was diagnosed?
  - Are there new things, such as sexual positions, that I want to try?
  - Does my partner worry about having sex with me?

## **STRESS (EMOTIONAL STRAIN OR TENSION)**

### **Description**

For some people, stress (emotional strain or tension) can be more disabling than the physical effects of an illness. Stress can also make the symptoms of hepatitis C worse and may even affect the progression of the disease.

A person's life situation, even without hepatitis C, may be terribly stressful. Taking care of the basics will likely take priority over symptom management or the threat of poor health in the future. Worry about where to sleep at night or when the next meal will come is more real for some people than concerns about liver damage, whether they have symptoms or not.

Physical symptoms of stress include lower back and neck pain, headaches, nervous tics, irregular heartbeat or racing pulse, having the feeling of a lump in the throat, sweating, dry throat and mouth, stomach pain and sleeplessness.

### **Cause**

You can create stress for yourself when you worry about the future. Having hepatitis C can certainly change your outlook on life. Quite often stress is caused by worry over events that may or may not happen in the future, but that you believe to be outside your control. For some people, stress comes from having to deal with the losses caused by a chronic illness. People living with hepatitis C may have several stressors in common:

- Fear of physical and mental deterioration;
- Fear of tests, such as a liver biopsy (obtaining a sample of liver tissue by putting a needle through the skin into the liver), and then they worry while waiting for test results;

## Mood Changes

- Concern that important health care services may not be available when needed;
- Uncertainty about the future and feeling unable to make plans;
- Worry about transmitting the virus to others;
- Tension that has developed in important relationships;
- Fear that others will pass judgment and treat you differently because of their attitude about hepatitis C.

### Treatment

- **Exercise:** Many people find that exercise allows them time to think things through because there are fewer distractions or interruptions. Exercise reduces stress hormones and so will help your body relax.
- **Learn a new calming technique:** Breathing exercises combined with flexibility exercises like yoga can have a calming effect. Other techniques, including mindfulness and meditation, have also shown positive outcomes.

### Tips

- **Plan ahead:** Make a short list of tasks for the next day, then tick them off as you complete them. Try not to get sidetracked by less important obligations that don't have deadlines attached to them. You can plan ahead for both the short term, such as allowing enough time for you to travel from A to B, and the long term, such as completing a disability pension application.

- **Be aware of interactions with people in your life:** Sometimes your stress will be linked to specific people, so you will need to figure out how to communicate better with them. For example, do you have to be clearer in stating your point of view? More willing to compromise? On the other hand, talking with a trusted friend, even if you don't come up with a solution, will likely make you feel better.
- **Make time for yourself:** Try spending an hour a day simply relaxing alone without distractions. Also, schedule at least one event during the week so that you can look forward to something. Enjoyable activities will help take your mind off the stressful things troubling you.

### ● EXTREME CONFUSION (HEPATIC ENCEPHALOPATHY)

#### Description

Extreme confusion, along with sleepiness and/or an agitated mood, are symptoms of a condition called hepatic encephalopathy. Early signs include changes in sleeping pattern or the development of tremors. In the worst cases, it can lead to coma.

#### Cause

Hepatic encephalopathy may occur when the liver is unable to remove harmful waste products from the blood. It is a condition associated with cirrhosis and liver failure.

#### Treatment

- Rifaximin is an antibiotic that lowers the level of ammonia in the blood by getting rid of ammonia-producing bacteria in the colon. Research has shown this drug helps to stop hepatic encephalopathy from reoccurring, thus improving the quality of life for people.
- Lactulose and lactitol are commonly used to treat hepatic encephalopathy. They are thought to reduce ammonia absorption into the blood and improve elimination of waste through bowel movements. However, there is minimal to no documented evidence that lactulose is an effective therapy, especially when compared to the antibiotics rifaximin, neomycin, ribostamycin and vancomycin.

#### Tip

- If your dietary protein intake is greater than what your liver is able to process, it can lead to a build-up of toxins that interfere with brain function. However, your body needs proteins, so restricting your daily protein intake should only be carried out under the direction of your doctor.

### ● PROBLEMS WITH THINKING (“BRAIN FOG”)

#### Description

Some people experience what is often called “brain fog”. Brain fog is how people describe being forgetful or unable to concentrate. The medical terms for a problem in the process of thinking are cognitive deficit or cognitive impairment.

About one-third of people living with hepatitis C have cognitive deficits, most commonly difficulty concentrating and slowed thinking. This can interfere with your ability to learn, focus on a task for a long time or do more than one task at the same time. It can easily chip away at your confidence in being able to finish tasks on time, as they take longer and are more likely to have errors.

#### Cause

Brain fog may have a direct link to hepatitis C, although its possible causes remain unknown.

#### Treatment

- When your head is clearer, try and keep your mind active by doing activities that require you to concentrate, such as doing crossword puzzles or reading.
- Along with exercising your brain, exercise your body. Physical exercise increases blood flow to the brain. Extra blood will nourish your brain cells and help reduce the build-up of plaque (fatty deposits) in the blood vessels including those in the brain.

# Neurological Changes

## Tips

- Try and keep track of the time of day when you feel most confused. Plan to rest during this time period.
- Buy a daily or weekly pill container to hold medications such as ribavirin. Keep a record to track when you have to take your medication. Make a check mark at the time you take your medication.
- Use Post-It notes to remind you of important appointments.
- Find a permanent place to put your keys and other important items.
- Start to-do lists with titles like *Must Be Done* and *Nice to Get Done*. Focus on one task at a time and cross it off when you finish. Make your lists in the evening for the following day.

## SLEEP PROBLEMS

### Description

Even with daytime naps, many people with hepatitis C find it difficult to stay awake when they want to. Sleep can also feel less refreshing. The most common sleep problem is known as day-night reversal. This occurs when a person lies awake all night, then sleeps through much of the day.

### Cause

Having a problem sleeping may be caused by the stress of living with hepatitis C and can also be a symptom of depression. It is also more common in people who have cirrhosis or liver failure, though it can happen at any stage of liver damage.

### Treatment

- **Managing stress** – Living with hepatitis C can be stressful. Try to look honestly at your life to see if stress, anxiety or other emotional health issues could be contributing to your sleep problems. There are many things a person can do to reduce the effects of stress on the body, including meditation, deep breathing exercises, yoga or talking to a mental health professional.
- **Exercise** – Exercise, such as walking, can help people sleep better. Always check first with your doctor about what form and duration of exercise is safe for you. If you don't exercise regularly, start with a small amount of activity and gradually increase it over time.
- **Over-the-counter medications** – Some sleep aids are available over the counter, meaning they can be purchased without a prescription. These medicines may put you to sleep; however, they do not address the underlying reasons for sleep issues. Therefore, try to avoid the use of these over-the-counter pills to self-treat sleeping problems. Examples of such medicines include the anti-nausea medication Gravol and the

## Neurological Changes

antihistamine Benadryl, both of which cause drowsiness as a side effect. These should not be used for more than one or two days if you are attempting to self-treat sleeping problems. Longer use can make sleep problems worse or lead to more serious problems, such as depression or anxiety. That is why it is always best to consult a doctor about sleep problems.

- **Prescription medications** – In some cases you may be prescribed sleeping pills. These medications should only be used short-term and at the lowest possible dose needed to re-establish a good sleep pattern. However, sleep problems can sometimes be an early warning sign of other issues, such as depression. In such cases, your doctor may discuss the use of an antidepressant rather than sleeping pills. Before beginning any prescription sleep aid, check with your doctor about whether it will affect your hepatitis C medications or any other medications you are taking.
- **Complementary therapies** – There are a number of complementary therapies used to that can help promote sleep. Talk to your doctor before starting any complementary therapies. If you are considering taking a supplement or herb, check with your doctor and pharmacist to confirm that it will not affect your hepatitis C medications or any other medications you are taking.

Aromatherapy may help people feel sleepy. Essential oils of lemon balm, lavender or chamomile are considered calming.

Acupuncture can help some people experiencing sleep problems. A qualified acupuncturist can choose the right combination of points to treat.

### Tips

- Keep the “awake” world out of your bedroom. Remove the television, laptop or work papers you may have brought home from the office.
- Place your clock somewhere away from your head so the light from the clock dial doesn’t shine on you.
- Keep your bedroom dark and cool.
- Steer clear of caffeine and alcohol shortly before bedtime.
- Don’t go to bed hungry, but don’t eat a big meal close to bedtime either.
- Before going to bed, try a relaxation technique such as breathing exercises, meditation, keeping a journal, light reading or warm bath.
- Go to bed at the same time every night.
- Get out of bed if you are unable to get to sleep in about half an hour.
- Do something fairly boring for a while, and then try again to fall asleep.
- Try to get into the habit of getting seven to eight hours of sleep each night. It is not a good strategy to sleep less during the week, and then try to catch up on the weekend.
- If your bedroom is near a lot of noise, consider a technological aid such as a sleep machine (a small box that creates white noise or soothing sounds, such as ocean waves) to block out the noise that may interfere with falling asleep.