

Loving your liver

Part II of a review of Canada's new hepatitis C nutrition guidelines

by Diana Johansen

In the last issue of Living+, we reviewed the first part of the national nutrition guidelines for hepatitis C. Now we discuss the nutritional issues at different stages of HCV infection, as well as complementary and alternative medicine (CAM) to treat symptoms and side effects.

The various stages of HCV

Acute HCV infection is the initial infection period of the hepatitis C virus. Most people will develop few or mild symptoms, but some will experience fatigue, nausea, vomiting, and loss of appetite. The goal of nutrition therapy during this stage is to provide adequate nutrition to help the liver cells heal and regenerate. This means getting enough calories, protein, and micronutrients (vitamins and minerals) to maintain weight. In some cases, a low fat diet is helpful. Avoid alcohol.

Chronic HCV infection (pre-cirrhotic) can extend over many years, during which mild or intermittent symptoms may occur. Chronic inflammation can ultimately result in liver damage, fibrosis, steatosis (fatty liver), cirrhosis, or cancer. Eating a nutritious diet with moderate physical activity is recommended. No specific dietary modifications are required unless symptoms are present, which should be addressed individually (see Part I of this article).

Chronic HCV infection (cirrhosis) develops as fibrosis and irreversible scarring that progressively damage the liver. Most people with cirrhosis have compensated disease with few symptoms, in which case nutritional guidelines do not change. However, cirrhosis can gradually become decompensated, which results in numerous metabolic and nutritional complications.

Malnutrition can have an independent negative effect on disease progression and survival. The principle causes are metabolic abnormalities (glucose intolerance and breakdown of the body's proteins), inadequate dietary intake because of loss of appetite and gastrointestinal symptoms, and maldigestion or malabsorption, especially of fat.

Hepatic encephalopathy (HE), or impaired mental function, may occur in advanced liver disease when scar tissue prevents normal flow of blood through the liver. The damaged liver has difficulty processing the products of protein metabolism, especially ammonia, leading to protein intolerance. Prolonged low protein diets are no longer used to treat HE, but they may be used briefly in conjunction with medications. Lactulose is often prescribed to induce two to three soft bowel movements daily, which help clear the ammonia.

Ascites, the build-up of excess fluid in the abdomen, is the most common complication. It develops because the body is unable to regulate fluid and sodium balance. Dietary treatment involves restricting salt intake and sometimes fluid intake, in conjunction with diuretic medications.

Hepatic bone disease, or loss of bone mass density, occurs more frequently and with more severity as liver function declines. The development of osteoporosis is likely a result of decreased bone formation and increased bone breakdown, which may be influenced by calcium, vitamin D, or vitamin K deficiencies.

End-stage liver disease is an indication for liver transplant, although not everyone will qualify. Nutritional problems and wasting are common at this stage. The role of nutrition is to alleviate symptoms and create the best possible nutrition status to withstand the stress of a transplant. Poor nutrition status at the time of transplant is associated with increased risk of complications and poor survival. After a transplant, nutrition therapy deals with common health problems related to transplant surgery and immunosuppressive drugs.

Using CAM to treat symptoms

The HCV nutritional guidelines define CAM as "medical and healthcare practices that are not an integral part of conventional (Western) medicine." The guidelines suggest asking the following questions to evaluate a therapy:

- ▼ Has the therapy been proven to be more effective than providing no intervention?
- ▼ Is the therapy as safe as doing nothing?
- ▼ Does the potential for benefit exceed the potential for harm to the patient and family?
- ▼ Have proponents of the therapy demonstrated its efficacy and safety?
- ▼ What is the cost of the therapy and what are the financial implications for the patient?

Because oxidative stress appears to play a role in the progression of liver damage, nutritional antioxidants are often promoted to protect the liver. In particular, vitamin E and selenium have shown promise. However, the guidelines still recommend that supplementation be restricted to clinical trials.

Herbal remedies are often used to heal the liver or deal with the side effects of HCV treatment. Several therapies have demonstrated potential benefit, but some can actually be toxic to the liver or interfere with other medications such as HIV drugs. See tables 1, 2, and 3.

Table 1. Herbs that are toxic to the liver
Artemesia
Atractylis gummifera
Bush tea
Callilepsis laureola
Chapparal leaf
Comfrey
Crotalaria
Germander
Gordolobo herbal tea
Heliotropium
Jin-bu-huang
Kava
Kombucha mushroom tea
Ma-huang
Margosa oil
Mate (Paraguay) tea
Mistletoe
Pennyroyal (squaint oil)
Sassafras
Senecio aureus
Senna
Skullcap
Symphytum
Valerian root

Table 2. Herbs that may improve liver functions	
Herb	Mechanism
Silymarin (milk thistle; silibinin is the active ingredient)	Targets cirrhosis Antioxidant, free radical scavenger Prevents glutathione depletion in animals May be anti-fibrotic Has government approval in Europe for liver disease
Glycyrrhizin (licorice root)	Anti-inflammatory properties Antioxidant May be antiviral Used for liver inflammation but should be avoided if cirrhotic
Ginseng	May help body's disease fighting and glandular systems May help improve liver function and reduce damage to liver tissue
Herbal medicine 861	Used for fibrotic liver disease Combination of 10 herbs Blocks stellate cell activation which is involved in fibrosis
Tj-9 (sho-saiko-to)	Used for fibrotic liver disease Blocks stellate cell activation Inhibits lipid peroxidation
Tj-41	Targets liver cancer Induces cellular apoptosis (self-destruction)
Tj-108 (gomisin A)	Used to reduce HCV RNA levels Has antiviral properties
Liv-52	Protects the liver Approved in India to treat alcohol-induced liver disease

Table 3. Herbs that may help alleviate the side effects of interferon	
Herb	Mechanism
Ginger root	Reduces nausea and may relieve vomiting
St John's wort	May help relieve depression in the short term. May interact with other medications and cause unpleasant side effects.

Note: Herbal medicines are not regulated in Canada, and it is difficult to know if the products contain the stated amounts of the medicinal ingredient. Based on random sampling, some products on the market contain very little of the desired component. Health Canada's Natural Health Products Directorate has more information. Monographs for specific therapies can be found at www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/monograph_compendium_list_e.html

Nutritionally at-risk groups

Other determinants of health can influence nutritional health in vulnerable groups. People with other medical conditions such as HIV, hepatitis B, diabetes, and renal disease are at high risk of developing nutritional problems because of the additive nature of complications. People with HCV who drink alcohol or use street drugs are also more likely to experience nutritional deficiencies and may have a more rapid disease course. Poverty severely limits food security and is strongly linked to nutritional vulnerability. Aboriginal people have a much higher rate of HCV infection than non-aboriginal Canadians. They may also experience other negative determinants of health such as poverty, substance use, alcohol use, and other diseases such as HIV and diabetes.

People with HCV infection are susceptible to a wide range of nutritional complications, with increasing prevalence and severity

as the disease progresses and liver function declines. Nutrition therapy may help to slow liver damage, and well-nourished individuals may have a better clinical course. A number of complementary therapies, including antioxidants and herbs, have shown promise, but these should be evaluated carefully before embarking on long-term use. Many aspects of a person's life impact nutritional status and must be considered holistically when developing nutrition care plans. *More details on the national nutrition guidelines for HCV can be found at* www.dietitians.ca/resources/HepatitisC_Guidelines.htm ⊕

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