

## Medicines for Chronic Liver Disease

### *Treating common conditions*

*This handout gives basic information about how the liver works and what happens during liver failure. It describes medicines that are often used to reduce the risk of complications caused by liver disease.*

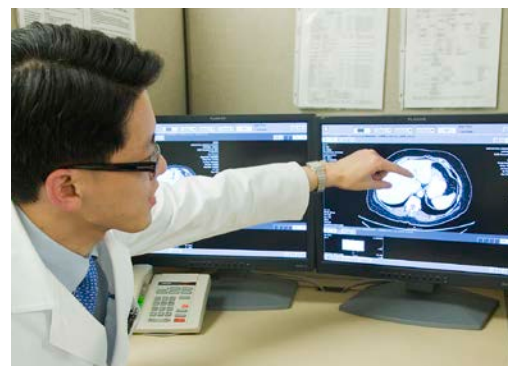
### About the Liver

The liver is one of the largest organs in your body. As your blood circulates, it passes through the liver. The liver breaks down the nutrients and chemicals in the blood into forms that are easier for the rest of your body to use. It also filters waste products out of your blood.

Your liver takes care of many important tasks for your body.

A healthy liver:

- Clears the blood of toxins or harmful substances.
- Produces *bile*, a liquid that helps carry away waste products and breaks down fats during digestion.
- Makes proteins that help your blood clot.
- Helps your body resist infections by removing bacteria from the bloodstream.
- Stores minerals such as iron so that your body can use them later as needed.
- Produces *albumin*, a protein in the blood that helps maintain fluid in the blood.



*A healthy liver handles many important tasks for the body.*

As your liver filters waste products, they are removed from your body in your feces and urine.

### Liver Failure

Liver failure occurs when many liver cells are damaged and the liver can no longer do its work. If permanent damage occurs, it cannot be reversed or cured.

Liver failure is a life-threatening condition that requires urgent medical care. Most often, liver failure occurs slowly, over many years.

## **Causes**

The most common causes of *chronic* liver failure (where the liver slowly fails over months or years) are:

- Hepatitis B
- Hepatitis C
- Long-term alcohol use
- *Hemochromatosis* (an inherited disorder that causes the body to absorb and store too much iron)
- Fatty liver disease (also called *non-alcoholic steatohepatitis*, or NASH)
- Autoimmune liver diseases

## **Complications Caused by Liver Failure**

Liver failure can cause many serious health problems. But, your doctor can prescribe medicines to help prevent or delay these problems.

The medicines listed in this handout are often used to reduce the risk of these problems. If your doctor has prescribed any of these medicines, it is very important that you keep taking them as prescribed, even if you are feeling well.

**The instructions in this handout do not replace directions from your doctor. Take these medicines only as your doctor has prescribed.**

Here are some of the common conditions caused by liver disease and the medicines that are most often prescribed to prevent them:

### **Liver Confusion**

Liver confusion is also called *hepatic encephalopathy*.

The liver plays a vital role in clearing toxins from the blood. In liver disease, the liver cannot clear these toxins. This puts you at risk for a buildup of toxins that can cause confusion.

Signs of liver confusion are mood changes, poor decision-making, sleep pattern changes, musty-sweet breath odor, and drowsiness. Your family members and caregivers can help watch for the early signs of liver confusion.

These medicines are often used to help maintain mental clarity and prevent liver confusion:

- **Lactulose** (Constulose, Enulose, Generlac, Kristalose)
- **Rifaximin** (Xifaxan)

### **Questions About Lactulose:**

- *How do I take lactulose?*

Your dose of this medicine will be based on your needs. You will be given instructions on how to take this at home. Remember to measure out the dose carefully. This is important for recordkeeping and will help your doctor know if your dose needs to be adjusted. If you miss a dose, take it as soon as possible.

- *How do I know if it is working?*

Toxins are removed from your body in your feces. The number of bowel movements you have tells us how well the lactulose is working. The goal is to have at least 3 to 4 soft stools during the day.

To reach this goal, your doctor may need to adjust how much or how often you take lactulose during the day. Or, your doctor may change your goal, depending on how well the medicine is working for you.

**If you feel you cannot think clearly or if someone else notices that you seem confused, take an extra dose of lactulose.** This will help you have another bowel movement to clear the toxins that may be building up.

- *Are there any medicines I should avoid while taking lactulose?*

Lactulose works as a laxative. You are likely to have soft or loose stools. While you are taking lactulose, do **not** take over-the-counter medicines that treat diarrhea. Some of these are psyllium (Metamucil), methylcellulose (Citrucel), loperamide (Imodium A-D), and other anti-diarrheal products.

### **Infection of the Fluid Around the Abdomen**

This condition is also called *spontaneous bacterial peritonitis* or SBP.

Signs of this infection include fever (see page 4) and abdominal tenderness. These medicines are often used to treat this condition:

- Ciprofloxacin (Cipro)
- Trimethoprim-sulfamethoxazole double-strength (Bactrim DS)

### **Questions About Ciprofloxacin and Trimethoprim-sulfamethoxazole:**

- *What do these medicines do?*

These medicines are antibiotics. They help prevent infections related to liver disease.

- *Why do I need to take this medicine?*

During liver disease, the normal bacteria in your intestines multiply.

Over time, bacteria may pass through the wall of your intestines and cause an infection of the fluid around your belly (*ascites*).

- *How do I take this medicine?*
  - **Ciprofloxacin** is usually taken once a week or once a day. Take ciprofloxacin at least 2 hours before or 6 hours after any antacids, products, or foods that contain iron, zinc, and calcium (such as dairy products).
  - **Trimethoprim-sulfamethoxazole** is usually taken once a day.
- *How do I know if the medicine is working?*

This medicine can help prevent infections if taken as directed. Watch for signs of an infection such as fever higher than 100.4°F (38°C), abdominal pain, or confusion.

- *Are there any side effects that I should be concerned about?*

**Trimethoprim-sulfamethoxazole** can cause sensitivity to sunlight. Because of this:

- Wear sunscreen and protective clothing.
- Avoid being in the sunlight for long periods.

Trimethoprim-sulfamethoxazole may also cause a rash, which may be a sign of a serious adverse reaction. **If you get a rash, stop taking this medicine and call your health care provider.**

## **Gastroesophageal Bleeding**

Liver disease can cause bleeding in your *esophagus* (the tube that carries food from your mouth to your stomach) or your *gastrointestinal* (digestive) tract. This is also called *variceal bleeding* or *variceal hemorrhage*.

One sign of gastroesophageal bleeding is having blood in your stools.

These medicines are often used to treat this condition:

- Propranolol
- Nadolol (Corgard)

### ***Questions About Propranolol and Nadolol:***

- *What do propranolol and nadolol do?*

These medicines lower heart rate and blood pressure. They help prevent gastric and esophageal bleeding due to liver disease.

- *Why do I need to take this medicine?*

Some people with liver disease develop enlarged esophageal veins. These enlarged veins are filled with blood and may bleed.

- *How do I know if the medicine is working?*

Your doctor will set your dose so that it lowers your resting heart rate to about 55 to 60 beats per minute. This target may be different for some people. Watch out for signs of bleeding such as vomiting blood, having dark-colored stools, or feeling lightheaded.

- *Are there any side effects that I should be concerned about?*

Propranolol and nadolol can cause light-headedness or dizziness. Be careful when getting up after lying down or sitting.

Since these medicines lower your heart rate and blood pressure, do **not** take other medicines that also lower your heart rate or blood pressure. Talk with your doctor if you have any questions about your medicines.

While you are taking this medicine, monitor and record your blood pressure and heart rate twice a week. Take your written record to your doctor visits. This information will tell your doctor if your dose needs to be adjusted.

### **Prolonged or Excessive Bleeding**

Liver disease can increase your risk of bleeding. This condition is called *coagulopathy*.

- *What over-the-counter medicines should I avoid?*

Avoid any *non-steroidal anti-inflammatory drugs* (NSAIDs) such as ibuprofen (Advil, Motrin), naproxen (Aleve), or aspirin unless your doctor tells you to take them. Taking NSAIDs will increase your risk for bleeding.

Also check the ingredients in common cold remedies. Avoid any that contain NSAIDs. Some of these are Advil Cold & Sinus, Aleve-D Sinus & Cold, and Sudafed 12-Hour Pressure+Pain. If you are not sure about whether a product contains NSAIDs, ask your local pharmacist for help.

### **Fluid Collection Around the Abdomen**

This condition is also called *ascites*.

These medicines are often used to treat this condition:

- Furosemide (Lasix)
- Spironolactone (Aldactone)

### **Questions About Furosemide and Spironolactone**

- *What do these medicines do?*

The medicines help prevent fluid buildup by increasing urination. They are often called *diuretics* or “water pills.”

## Questions?

Your questions are important. Call your doctor or pharmacist if you have questions or concerns.

### Primary Care Provider:

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Phone: \_\_\_\_\_

### Hepatologist:

\_\_\_\_\_

Phone: \_\_\_\_\_

### Nephrologist:

\_\_\_\_\_

Phone: \_\_\_\_\_

### Pharmacy (for prescription refills):

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Phone: \_\_\_\_\_

### Durable Power of Attorney:

\_\_\_\_\_

Phone: \_\_\_\_\_

### Legal Next of Kin:

\_\_\_\_\_

Phone: \_\_\_\_\_

- *Why do I need to take this medicine?*

As liver disease progresses, it can cause problems in your circulatory system. This can cause a buildup of fluid around your abdomen and/or in your legs.

- *How do I take this medicine?*

Since this medicine increases your need to urinate, it is best to take it during the day. Avoid taking it at bedtime to lessen the need to get up during the night. Do not take extra doses unless your doctor tells you to.

- *How do I know if the medicine is working?*

Weigh yourself every day and keep a record of your weight. Share this record with your doctor. Your doctor may ask you to take an extra dose of this medicine if you have weight gain caused by the fluid buildup.

- *What else can I do to avoid fluid buildup?*

Your doctor may advise you to eat:

- **A high-protein diet.** Eating protein increases *albumin*, a blood protein that helps keep fluid in the blood from leaking out into the tissues.
- **A low-salt diet.** Too much sodium (salt) causes the body to retain water. Eating less salt can help prevent fluid buildup.