

Cirrhosis

A plain-English guide for you and your family

WHAT IS HAPPENING

Your liver sits quietly under your right ribs doing hundreds of jobs every second. It makes albumin (a sticky protein that holds water inside your blood vessels so you do not swell up). It makes clotting factors (the glue that stops bleeding when you get cut). It makes bile (a green liquid that helps digest fat). It cleans out toxins and drugs. It breaks down ammonia (a poison your gut bacteria make) into safe urea. It stores sugar and vitamins. Blood flows into the liver through a big vein called the portal vein, moves slowly through tiny spongy channels past millions of liver cells that clean and build, then flows out. In cirrhosis, long-term injury—from alcohol, hepatitis B or C virus, fatty liver disease, autoimmune attack, or inherited problems like too much iron or copper—kills liver cells over months to years. Dead cells get replaced by stiff scar tissue and bumpy nodules that try to regrow but cannot do the liver's work. The scar tissue squeezes and blocks the blood channels. Pressure builds up in the portal vein like a clog in a pipe. Blood backs up and finds other routes, ballooning weak veins in your food tube (varices) that can suddenly burst and bleed. High pressure pushes watery fluid into your belly (ascites). Your spleen swells and traps platelets. The scarred liver cannot make enough albumin, so water leaks out of your blood and pools in your legs and belly. It cannot make clotting factors, so you bruise and bleed easily. It cannot clean ammonia, so toxins reach your brain and make thinking slow and confused (encephalopathy). Bile backs up and turns your skin and eyes yellow (jaundice). Your kidneys sense low blood flow and clamp down, which can spiral into kidney failure (hepatorenal syndrome). None of these problems is random—each one traces back to scar tissue blocking blood flow and breaking the liver's ability to make, clean, and store. The only cure is a new liver. Medicines and procedures buy time by lowering portal pressure, draining fluid, preventing bleeding, and clearing toxins, but they cannot reverse the scar.

What you might feel

- Yellow skin and eyes (jaundice)
- Swollen belly (ascites)
- Spider-shaped blood vessels on the chest and shoulders (spider angiomas)

- Swollen veins on the belly that look like twisted ropes (caput medusae)
- Breast growth in men (gynecomastia)
- Shaking hands (asterixis or flapping tremor)
- Red palms (palmar redness (erythema))
- Easy bruising and bleeding
- Confusion or sleepiness (hepatic encephalopathy)
- Throwing up blood or black tarry stools

Call the doctor right away if...

- Throwing up bright red blood or coffee-ground material (bleeding from swollen veins in the food tube)
- Confusion, extreme sleepiness, or not making sense (ammonia poisoning the brain)
- Black, sticky, tar-like stools (bleeding inside the intestines)
- Sudden belly pain with fever (infection of belly fluid)
- Yellowing skin getting much worse quickly (liver failing fast)

What the care team will do

- Check mental status every 2 to 4 hours using a simple tool like asking the patient to draw a five-pointed star or copy overlapping circles; report any new confusion, sleepiness, or hand flapping (asterixis) immediately.
- Monitor for any vomiting and immediately check if the material is bright red, dark red, or looks like coffee grounds; keep the patient NPO (nothing by mouth), place two large-bore IVs (18-gauge or bigger), and call the provider stat for possible endoscopy.
- Measure and record belly size at the belly button (umbilicus) every day at the same time; weigh the patient daily before breakfast on the same scale; report weight gain over 2 pounds in one day or belly size increase over 2 centimeters.
- Restrict sodium (salt) to less than 2 grams per day by teaching the patient to avoid processed foods, canned soups, deli meats, cheese, bread, and restaurant meals; read all food labels and count milligrams.
- Check for fever every 4 hours and report any temperature over 100.4 degrees Fahrenheit or new belly pain; prepare for diagnostic paracentesis (needle sample of belly fluid) to count white blood cells and culture bacteria.
- Inspect skin daily for new yellow color (jaundice), bruises, or small red spider-shaped blood vessels (spider angiomas); check sclera (white part of eyes) for yellow tint; report worsening yellowing of the skin and eyes (jaundice) or new bruising.

- Teach the patient to avoid all alcohol, acetaminophen over 2 grams per day, NSAIDs like ibuprofen and naproxen, and any herbal supplements without provider approval; review the medication list and stop any unnecessary drugs.
- Ensure the patient eats small frequent meals with at least 1.2 to 1.5 grams of protein per kilogram of body weight per day and a late-evening snack with complex carbohydrates; consult nutrition if the patient is losing muscle mass.

Medicines you may be given — and why

Propranolol

Lowers the pressure inside the veins that connect your gut to your liver (called portal veins). When the liver is scarred, blood backs up and these veins swell like overfilled balloons. Propranolol slows your heart and relaxes these veins so the pressure drops and the veins are less likely to burst and bleed.

Nadolol

Works the same way as propranolol: slows the heart and relaxes gut blood vessels to lower pressure in the swollen veins around the esophagus and stomach. Nadolol lasts longer in the body, so you take it once a day instead of twice.

Carvedilol

Lowers portal vein pressure even more than propranolol because it works two ways: slows the heart (beta block) and also relaxes the tiny muscles around liver blood vessels (alpha block). This double action drops pressure harder and may work better to prevent bleeding from varices.

Spironolactone

Blocks aldosterone, a hormone that tells the kidneys to hold onto salt and water. In cirrhosis, aldosterone levels are too high, so the body keeps piling up fluid in the belly (ascites). Spironolactone flips that switch off so the kidneys let go of salt and water through urine, which shrinks the belly fluid.

Furosemide

Blocks a sodium pump in the kidneys so salt and water pour out into the urine. Works faster and stronger than spironolactone. In cirrhosis, furosemide is paired with spironolactone (usual ratio 40 mg furosemide to 100 mg spironolactone) to drain fluid buildup in the belly (ascites) more quickly while keeping potassium balanced.

Albumin (intravenous)

A protein solution given through an IV to pull fluid back into blood vessels and keep blood pressure stable. In cirrhosis, albumin is used three ways: (1) after large-volume paracentesis (draining more than 5 liters of belly fluid) to prevent shock, (2) with antibiotics during spontaneous bacterial peritonitis to protect the kidneys, and (3) in hepatorenal syndrome to help restore kidney blood flow.

Lactulose

A synthetic sugar that gut bacteria break down into acids. These acids do two things: (1) trap ammonia (a toxin that causes confusion) in the colon so it leaves in stool instead of entering the blood, and (2) speed up bowel movements so less ammonia is made and absorbed. Lowers blood ammonia and clears brain fog (hepatic encephalopathy).

Rifaximin

An antibiotic that stays in the gut and kills bacteria that produce ammonia. Less ammonia means less confusion. Rifaximin is added to lactulose when lactulose alone does not fully control encephalopathy or to prevent encephalopathy from coming back.

Ceftriaxone

Kills bacteria that infect the fluid in the belly (spontaneous bacterial peritonitis, or SBP). In cirrhosis, gut bacteria can leak into fluid buildup in the belly (ascites) and multiply. Ceftriaxone crosses into ascitic fluid and breaks down bacterial cell walls so the bacteria burst and die.

Norfloxacin

An oral antibiotic used to prevent spontaneous bacterial peritonitis from happening again (secondary prevention (prophylaxis)) after a first episode, or to prevent a first episode in high-risk patients (those with very low ascitic protein or GI bleeding). Kills gut bacteria before they can leak into the belly fluid.

Terlipressin

Tightens blood vessels in the gut and spleen so more blood flows to the kidneys instead. In hepatorenal syndrome, the kidneys shut down because blood is pooling in the belly vessels and not reaching the kidneys. Terlipressin shifts blood flow back to the kidneys, which helps them start working again. Always given with albumin.

Norepinephrine

Tightens blood vessels throughout the body, which raises blood pressure and pushes more blood to the kidneys. Used in hepatorenal syndrome when terlipressin is not available. Given through a central IV line in the ICU, along with albumin, to restore kidney function.

Midodrine

An oral pill that tightens blood vessels to raise blood pressure and improve kidney blood flow. Used off-label in hepatorenal syndrome, usually combined with octreotide and albumin. Less powerful than IV vasopressors but can be given outside the ICU.

Octreotide

A synthetic version of somatostatin, a hormone that tightens blood vessels in the gut. Reduces blood flow to the gut and spleen so more blood flows to the kidneys. Also lowers portal pressure. Used in hepatorenal syndrome (with midodrine and albumin) and to control acute variceal bleeding (with endoscopy).

Where this information comes from

- AASLD Practice Guidance on Cirrhosis 2021
- Hepatology journal (official AASLD publication)
- Cochrane Hepato-Biliary Group
- AGA Clinical Practice Update on Cirrhosis 2022

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