

Department of  
**Gastroenterology & Hepatology**

# Liver Cirrhosis and Advanced Care Planning (ACP)



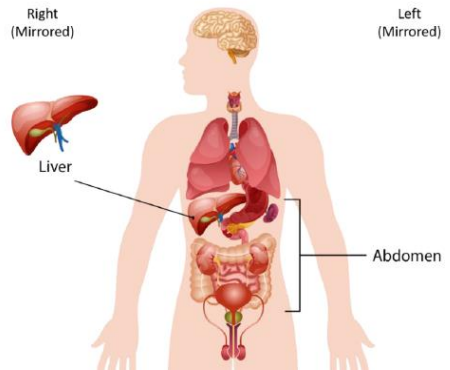
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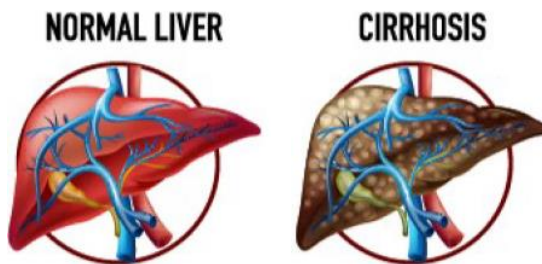
# What is the Function of Your Liver?

Your liver is one of the largest organs in your body and it is located on the right side of your abdomen. Your liver has many important functions such as:

- Making substances like proteins which are needed for your body to function properly
- Producing a fluid called bile which helps break down food during digestion
- Clearing your body of toxins and poisonous substances
- Acting as a storage place for sugar and vitamins for your body to use later



## What is Liver Cirrhosis?



Cirrhosis occurs when there is **continuous damage** to your **liver**, which results in healthy liver cells and tissues being replaced by scar tissue (hard, stiff patches of the liver after damage). This damage usually takes place over many years and causes the liver to shrink and become hard. Common causes of cirrhosis include:

- **Hepatitis B and C** (viral infection of your liver)
- **Overconsumption of alcohol**
- **Fatty liver disease** (build-up of fat in your liver)
- **Autoimmune Hepatitis (AIH)** (when your immune system attacks your liver, causing inflammation and liver damage)

# What are the Symptoms of Cirrhosis?

You may not show any signs or symptoms during the early stages of cirrhosis. This is known as **"compensated cirrhosis"** and it may continue for many years.

When your liver gets more damaged over time, it cannot work as well as it should. In such cases, **portal hypertension** (high blood pressure in the portal vein of the liver) may occur, which makes it increasingly difficult for blood to flow through the liver. In the advanced stage, your liver is damaged and may struggle to perform its functions, causing complications to develop. This is known as **"decompensated cirrhosis"**.

Some symptoms of decompensated cirrhosis include:

<ul style="list-style-type: none"><li>• Feeling tired and weak</li><li>• Poor appetite and nausea</li><li>• Swelling in your legs or abdomen (ascites)</li><li>• Yellowing of your skin or eyes (jaundice)</li></ul>	<ul style="list-style-type: none"><li>• Itchy skin, dark urine, pale stool</li><li>• Blood in your stools/faeces</li><li>• Easy bruising or bleeding</li><li>• Confusion and memory loss (hepatic encephalopathy)</li></ul>
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# What are the Common Investigation Tests for Cirrhosis?

<ul style="list-style-type: none"><li>• Blood tests (e.g. Full Blood Count, Liver Function Test etc)</li><li>• Fibroscan – non-invasive liver ultrasound to measure stiffness of your liver</li><li>• Upper endoscopy (OGD) – a thin flexible tube with an attached camera to look at your food pipe, stomach and first part of your small intestine (duodenum)</li></ul>	<ul style="list-style-type: none"><li>• CT or MRI scans</li><li>• Liver biopsy</li><li>• Liver cancer screening – 6 monthly Alfa-Fetoprotein (AFP) blood test and abdominal ultrasound</li></ul>
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# What are the Common Complications of Cirrhosis?

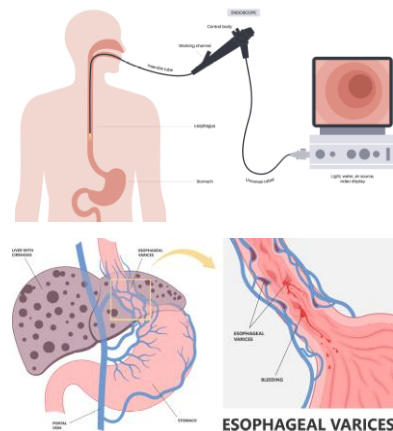
**Varices** – swollen blood vessels in your food pipe that may burst and lead to sudden and severe bleeding that is life-threatening

## Signs

- Vomiting large amount of fresh blood or blood clots
- Passing black and sticky stools

## Treatment / Prevention

- Medication (e.g. Beta-blocker such as Carvedilol to reduce the risk of variceal bleeding)
- Regular endoscopy screening as advised by your doctor to assess for varices
- Banding (placing rubber bands around enlarged veins in your food pipe to prevent bleeding)



**Ascites** – build-up of fluid in your abdomen caused by high pressure in the veins of your liver (Portal Hypertension)

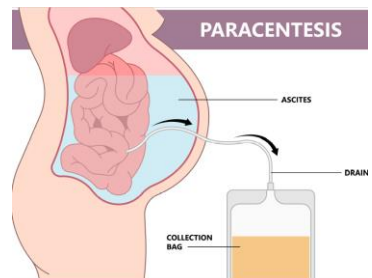
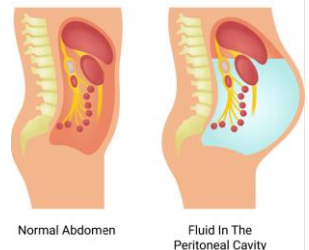
## Signs

- Increase in abdominal size
- Loss of appetite
- Feeling tired
- Swelling in your abdomen and / or feet
- Difficulty breathing (especially when lying down)

## Treatment / Prevention

- Low salt diet
- Medication (e.g. Diuretics or 'water pills' such as Spironolactone and Furosemide) to help your body get rid of extra salt and fluid through your kidneys
- Paracentesis (abdominal tap) - inserting a needle to drain fluid out of your abdomen) to provide temporary relief of symptoms

## Ascites



# What are the Common Complications of Cirrhosis?

**Hepatic Encephalopathy** - a mostly reversible condition where toxins from your gut build up in your body because your liver cannot clean them out properly, causing confusion and brain problems

## Signs

- Confusion
- Feeling sleepy during the day and unable to sleep at night
- Mood changes or inappropriate behaviour
- Coma

## Treatment / Prevention

- Medication (e.g. Lactulose, Rifaximin) to reduce the build-up of ammonia and other toxins
- Nutritional support (may need tube feeding through your nose to your stomach)



**Hepatorenal syndrome** - kidney failure caused by advanced liver cirrhosis when blood flow and hormones in your body do not work properly

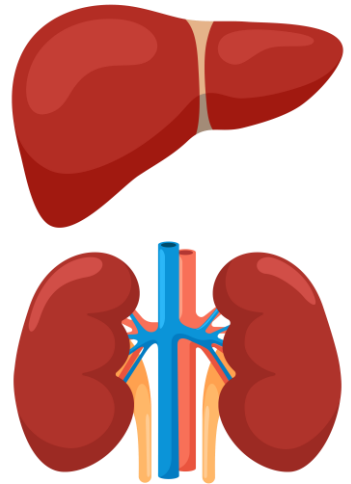
## Signs

- Low urine output
- Abnormal blood test (high creatinine and urea)

## Treatment / Prevention

- Make sure you have enough fluids in your body Treat causes such as infection, bleeding, dehydration)
- Medication including Vasoconstrictors (e.g, Terlipressin) and albumin infusions to reverse kidney injury and restore blood flow

\* Liver transplant is the only cure if hepatorenal syndrome develops, as it is usually a sign that your liver is at its end stage



# What are the Common Complications of Cirrhosis?

**Liver Cancer** – the most common cancer in cirrhosis

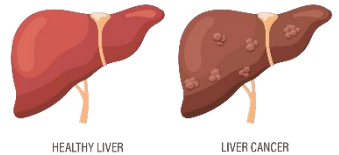
## Signs

- You may not have any symptoms if the liver tumour is small

## Treatment / Prevention

- Ultrasound scan of your liver every six months
- If scan shows something unusual, you may need more scans or tests to confirm the diagnosis
- If liver cancer is suspected, surgery, chemotherapy or radiological procedures may be considered and discussed with you. Speak to your doctor or surgeon for more information.

HEPATOCELLULAR CARCINOMA



# Can Your Liver Regenerate When You Have Cirrhosis?

Your liver is the only organ in your body that can regenerate itself by making new healthy tissues. It can regenerate itself if the damage is found early or in the early stages of fibrosis (liver hardening).

However, once cirrhosis becomes advanced or complications (such as portal hypertension, ascites, varices etc) set in, fibrosis become permanent. When this happens, the ability to regenerate may become limited and sometimes may not be possible.

## When Should You Consider a Liver Transplant?

Liver transplant is the best treatment once cirrhosis or liver failure reaches an advanced stage. It involves removing your diseased liver and replacing it with a healthy liver from a donor (either from someone who has died or from living donor).

General eligibility criteria for liver transplant
<p>A liver transplant team will check if you are suitable for a liver transplant.</p> <ul style="list-style-type: none"><li>• You must not have conditions such as drug or alcohol abuse or active cancer</li><li>• Your body needs to be healthy enough for surgery and handle medications post-transplant</li><li>• You must be willing and able to follow all medical instructions post-transplant</li></ul>



The screening for getting a liver transplant is very strict. Speak to your liver doctor if you wish to find out more.



# Living Well with Cirrhosis

It is possible to live well with cirrhosis. Following your doctor's advice, making lifestyle changes and having regular check-ups are important. Good self-care are key to maintain quality of life.

Goals in cirrhosis care include:

1. Treat the underlying cause
  - Stop alcohol completely
  - Take anti-viral medications for Hepatitis B or C
  - Take immunosuppressants for autoimmune hepatitis
  - Make lifestyle changes to lose weight and control your blood sugar and cholesterol
2. Prevent further liver damage
  - Make lifestyle changes such as not drinking alcohol and maintaining a healthy weight
3. Prevent, minimise or manage complications if any
4. Improve your quality of life

<b>Medications to avoid</b>	<p><b>Non-Steroidal Anti-inflammatory Drugs (NSAIDs)</b></p> <ul style="list-style-type: none"><li>• May hurt your kidneys</li><li>• You can buy these without a prescription (such as Ibuprofen, Naproxen) or get them by prescription (such as Celecoxib, Diclofenac)</li><li>• Always check with your prescribing doctor or pharmacist before taking these</li></ul> <p><b>Sleeping pills, sedatives, narcotics</b></p> <ul style="list-style-type: none"><li>• These medications can cause symptoms of Hepatic Encephalopathy (confusion, drowsiness)</li><li>• Examples include Lorazepam, Zopiclone, Tramadol, Morphine, Codeine</li></ul> <p><b>Acetaminophen / Paracetamol</b></p> <ul style="list-style-type: none"><li>• Avoid taking more than 3000mg per day (e.g. 500mg every 6 hourly or 1000mg 8 hourly)</li><li>• Check the labels carefully as taking too much can make your liver worse</li></ul> <p><b>Traditional Chinese Medicine (TCM), Jamu, dietary supplements</b></p> <ul style="list-style-type: none"><li>• Check with your doctor before taking any of these as they may cause more damage to your liver</li></ul>
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# Living Well with Cirrhosis

<b>Nutrition</b>	<p>a. Importance of adequate nutrition</p> <ul style="list-style-type: none"><li>• When your liver is damaged by cirrhosis, it cannot process nutrients properly. This leads to your body breaking down muscles and fats for energy which may cause unwanted weight loss.</li><li>• Adequate nutrition is important to reduce your risk of malnutrition and health complications such as unwanted weight and/or muscle mass loss, infections, tiredness, Hepatic Encephalopathy</li><li>• Diet recommendations include<ul style="list-style-type: none"><li>➤ Eating 6 small frequent meals or eating every 2 to 3 hours throughout the day to prevent your body from breaking down the protein in your muscles for energy</li><li>➤ Eating late evening snack (e.g. 100ml low fat plain milk + 3 slices whole meal bread + 1 egg) 1 to 2 hours before bedtime to reduce fasting state</li></ul></li></ul> <p>b. Salt restriction</p> <ul style="list-style-type: none"><li>• Low salt diet is <u>key</u> if you have ascites (build-up of fluid in your abdomen) as salt causes water retention and build up extra fluid in your body</li><li>• Recommended daily salt intake: less than 2000mg per day (about 1 teaspoon per day)</li><li>• Avoid seasonings and sauces (e.g. chicken stock, soya / oyster / tomato / chili sauce), processed or canned foods</li></ul> <ul style="list-style-type: none"><li>• Tips when eating out<ul style="list-style-type: none"><li>✓ Skip gravy and soup</li><li>✓ Skip the sauce or ask for sauce to be served on the side</li><li>✓ Choose fresh foods over processed or preserved foods</li><li>✓ Choose snacks that are lower in salt (e.g. plain baked potato / plain thosai / low-salt crackers / raisin bread)</li></ul></li></ul> <p>Speak to a Dietitian for a formal nutrition assessment</p>
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# Living Well with Cirrhosis

<p><b>Make sure you have enough fluids in your body</b></p>	<ul style="list-style-type: none"> <li>• You usually do not need to limit how much water you drink when you cirrhosis, unless your blood sodium level is very low or you have been instructed to do so</li> <li>• Nonetheless, you can consult your liver doctor if you need to limit how much water you drink</li> </ul>
<p><b>Exercise</b></p>	<p>Exercise is important for patients with cirrhosis as they are prone to muscle wasting (Sarcopenia). Exercise also improves your overall health, stamina and quality of life. Types of exercise (aim 150 minutes per week) you can consider:</p> <ul style="list-style-type: none"> <li>• Walking, light jogging or stationary cycling as you can tolerate</li> <li>• Resistance training with light weights</li> <li>• Chair exercises if you have trouble moving around</li> <li>• Stretching &amp; balance exercises such as Tai Chi</li> </ul> <p>Speak to your liver doctor if you wish to see a Physiotherapist for a personalised exercise plan</p>
<p><b>Vaccinations</b></p>	<p><b>Hepatitis A &amp; B</b></p> <ul style="list-style-type: none"> <li>• Your doctor may check if you have protection against Hepatitis A &amp; B. If not, it is recommended to receive these vaccinations to protect your liver from additional injury</li> </ul> <p><b>Influenza</b></p> <ul style="list-style-type: none"> <li>• Yearly flu vaccination is recommended to prevent flu-related complications</li> </ul>

## Palliative Care in Cirrhosis?

Palliative care is specialised support for individuals living with serious or chronic conditions, for example liver cirrhosis. In cirrhosis care, it focuses on improving your quality of life and controlling symptoms (e.g. pain, tiredness, breathlessness). It also provides emotional support for you and your family.

Palliative care does not mean 'giving up'. In fact, the palliative care team (made up of doctors, nurses, therapists, social workers) works alongside your liver doctor to support you, especially when symptoms are difficult to manage or when you and your family are experiencing distress.

Speak to your liver doctor or an advanced care planning (ACP) facilitator if you wish for palliative care, are considering withholding treatment and/or wish to focus on quality of life.

## What is Advanced Care Planning?

**Advanced Care Planning (ACP)** is the process of planning for your healthcare and personal care needs. It helps in:

- Identifying your **preferences for medical care** based on your **personal values, beliefs and goals of care**
- Guiding your doctors to make treatment decisions during a medical crisis

## Why is Advanced Care Planning Important for Patients with Cirrhosis?

Over time, your liver function may get worse, and it may also become difficult for you to communicate your preferences for medical care. Hence, ACP is important and may be done early while you are still well. Having ACP discussion with your doctor is encouraged at the earliest time in your disease course so that treatment decisions are made based on your preferences and in your best interests.

# Misconceptions about Advanced Care Planning

1. If I agree to ACP, it means that my doctor will 'give up' on me
<ul style="list-style-type: none"><li>• ACP is <u>not</u> a death sentence by your doctor</li><li>• ACP allows your doctor to understand your care preferences</li><li>• Together, your doctor and you can discuss and decide the extent of medical treatment you prefer if you become too ill to communicate your wishes</li></ul>
2. ACP is <u>not</u> an Advanced Medical Directive (AMD) or a Lasting Power of Attorney (LPA)
<ul style="list-style-type: none"><li>• An AMD allows you to give an instruction to refuse life-sustaining treatment when you are very ill (e.g. <b>Cardiopulmonary resuscitation (CPR)</b> to restart your heart's pumping action; use of <b>Mechanical Ventilation</b> (ventilator) to assist in breathing)</li><li>• An LPA allows you to appoint someone to look after your financial and/or personal welfare if you lose the ability to make decisions</li></ul>
3. I have an AMD & LPA. It is okay to skip ACP
<ul style="list-style-type: none"><li>• Unlike AMD or LPA, ACP is <u>not</u> legally binding. ACP does not involve a contract with specific rules or instructions that you must sign and follow</li><li>• Your ACP will be reflected in the electronic medical records of all public hospitals once it is completed. If you need urgent medical attention that could be life-threatening, the attending doctor can discuss and decide the extent of your preferred medical treatment with your Nominated Healthcare Spokesperson (NHS).</li></ul>
4. ACP is <u>not</u> final once an ACP session is done
<ul style="list-style-type: none"><li>• ACP is an ongoing discussion and can be changed upon request, especially when your health condition changes</li><li>• Please contact a Gastroenterology nurse if you wish to do an ACP session</li></ul>

# How Should I Prepare for My ACP?

- 1. Reflect on your past experiences and think about what brings meaning to your life:**
  - How have your past hospitalisations been? How was the most recent time you were sick? Was it an unpleasant experience that you do not wish to go through again?
  - What gives you meaning in life? What kind of 'quality of life' do you wish to have? This may be influenced by your personal values and beliefs, and hobbies or activities that you enjoy doing.
  - Note down your preferences.
- 2. Take note of your medical considerations:**
  - Would you want to put on life-sustaining measures when your heart stops beating?
  - How would you want to be cared for when you are very ill?
  - How would you want to spend your last days?
- 3. Choose your Nominated Healthcare Spokesperson (NHS)**
  - Your NHS is someone you can trust to share your care preferences if you fall too ill to communicate. They can be your spouse, child or close friend.
  - As an NHS, he or she must be:
    - Willing to be an NHS
    - Able to discuss your preferences, values and goals
    - Able to follow and honour your preferences
    - Able to make decisions under stressful situations
- 4. Write down your care preferences  
(to be discussed during the ACP session)**

# Your Liver, Your Health

Managing cirrhosis is important because it preserves your current liver function, prevents or delays complications, improves quality of life and helps you live longer. Here is a breakdown of how you can help yourself to manage it.

General	<ul style="list-style-type: none"><li><input type="checkbox"/> Strictly avoid alcohol</li><li><input type="checkbox"/> Take all prescribed medications</li><li><input type="checkbox"/> Attend regular liver check-ups</li><li><input type="checkbox"/> Do regular gentle daily exercise; avoid strenuous activities if you feel weak</li></ul>
Lifestyle Maintenance	<ul style="list-style-type: none"><li><input type="checkbox"/> Monitor your weight – sudden weight gain <b>(more than 2kg over a few days)</b> may signal fluid buildup in your body; check for swelling in your abdomen and/or legs</li><li><input type="checkbox"/> Keep a symptom diary; show it to your liver doctor at your next appointment</li></ul>
Nutrition	<ul style="list-style-type: none"><li><input type="checkbox"/> Eat small frequent meals</li><li><input type="checkbox"/> Choose high protein foods (unless your doctor restricts it)</li><li><input type="checkbox"/> Follow a low-salt diet (less than 2000mg per day), even when dining out, to reduce fluid build-up</li><li><input type="checkbox"/> Limit or avoid processed, canned foods and snacks</li><li><input type="checkbox"/> Have supper before bed</li><li><input type="checkbox"/> Avoid raw or undercooked seafood and meat</li><li><input type="checkbox"/> Speak to a Dietitian for a nutrition assessment</li></ul>
Caution with medications	<ul style="list-style-type: none"><li><input type="checkbox"/> Avoid taking more than 3000mg of Paracetamol (Panadol) per day</li><li><input type="checkbox"/> Avoid NSAIDs (Aspirin, Ibuprofen, Naproxen) and narcotics (morphine, codeine)</li><li><input type="checkbox"/> Check with your doctor or pharmacist before taking cough medicine</li></ul>
Hygiene and infection prevention	<ul style="list-style-type: none"><li><input type="checkbox"/> Wash your hands regularly</li><li><input type="checkbox"/> Avoid close contact with people who are sick</li><li><input type="checkbox"/> Stay up to date with vaccines (e.g. flu, hepatitis A/B, pneumonia)</li></ul>

# Your Liver, Your Health

<p><b>(Hepatic Encephalopathy (confusion) prevention)</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Practice good sleep habits</li> <li><input type="checkbox"/> Watch for early signs of restlessness, confusion, disorientation, mood changes or changes in sleep-wake cycle</li> <li><input type="checkbox"/> Have two to three bowel movements daily; Take Lactulose if             <ul style="list-style-type: none"> <li>✓ Your stools are firm</li> <li>✓ You have less than two stools per day</li> <li>✓ You are developing signs of Hepatic Encephalopathy</li> </ul> </li> </ul> <p><b>For patients with underlying cognitive impairment</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Help your loved one remember the time, where they are and who people are, 3 times a day; maintain the same daily routines and caregivers if possible</li> </ul>
<p><b>Practice mindfulness</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Be kind to yourself – mindfulness is about acceptance, not control</li> <li><input type="checkbox"/> Celebrate small achievements: walking, socialising, managing appointments</li> <li><input type="checkbox"/> Join a support or social group; stay in touch with your friends and family</li> <li><input type="checkbox"/> Speak to your liver doctor if you would like see a psychologist and/or social worker</li> </ul>
<p><b>Travel plans</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Tell your liver doctor if you plan to travel</li> <li><input type="checkbox"/> Ensure that you carry enough medications with you</li> </ul>
<p><b>When to seek medical treatment</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Go to the emergency department if you:             <ul style="list-style-type: none"> <li>• Vomit blood or pass black sticky stools</li> <li>• Have sudden confusion, excessive sleepiness</li> <li>• Have severe abdominal pain and/or marked increase in abdominal size</li> <li>• Have high fever (<math>\geq 38^{\circ}\text{C}</math>) and chills</li> </ul> </li> </ul>
<p><b>Clinic 4B</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> For non-urgent liver care, contact Clinic 4B (8.30am to 5.30pm) at 6889 4445 to book an early appointment with your liver doctor if needed</li> </ul>



Clinic 4B  
TTSH Medical Centre, Level 4  
Contact: 6889 4445



Scan the QR Code with your smart phone  
to access the information online or visit  
<https://nhghealth.com.sg>



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