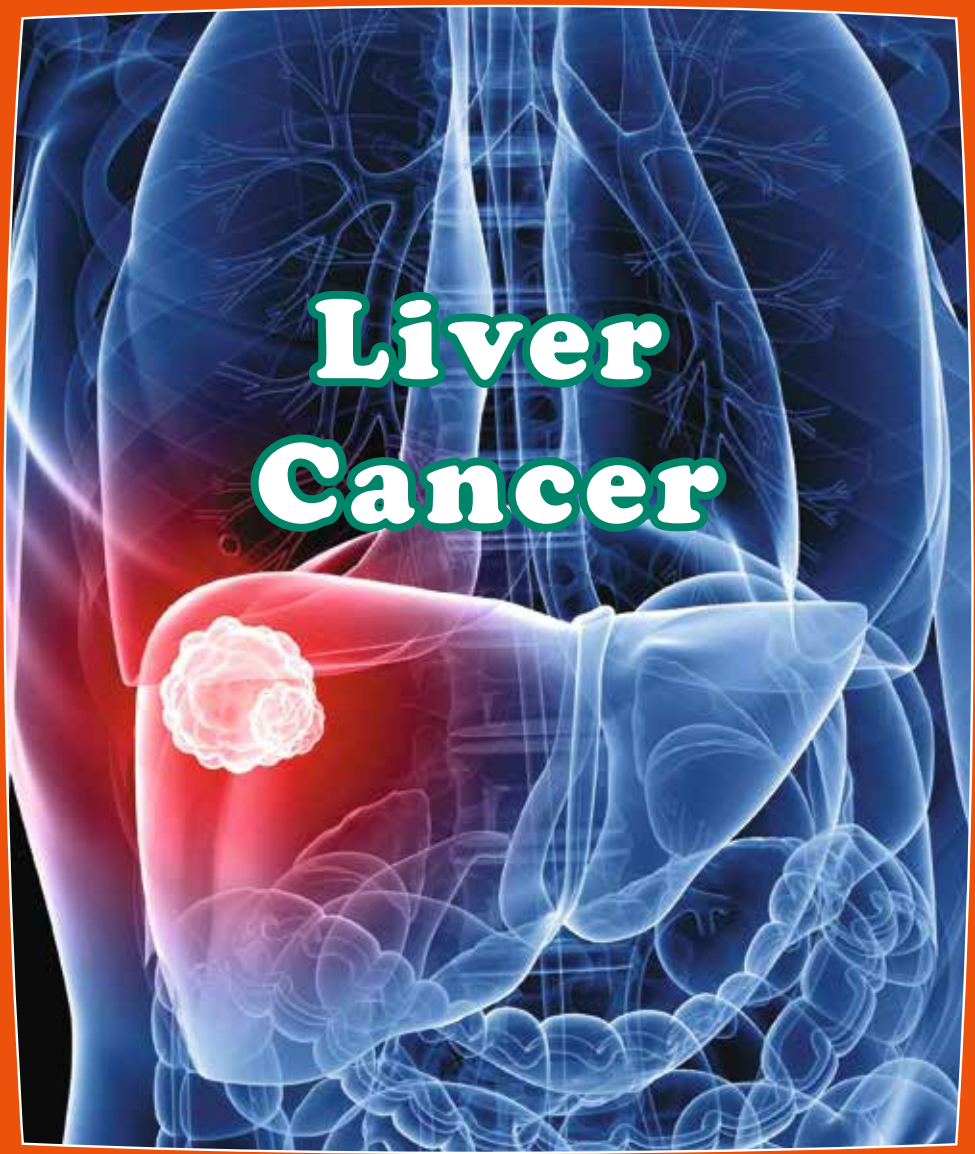
Inspired by Hope
Committed to Care

National Cancer Centre Singapore
SingHealth

Liver Cancer



An Educational Initiative by National Cancer Centre Singapore

Contents

Special thanks to Prof Pierce Chow, Senior Consultant, Division of Surgery & Surgical Oncology,National Cancer Centre Singapore and Senior Consultant, Hepato-pancreato-biliary and Transplant Surgery, Singapore General Hospital, who has contributed to the development of this booklet.

Document No. CEIS-EDU-PEM-194/1024

First edition August 2012. Revised October 2024.

Introduction

Primary liver cancer or Hepatocellular Carcinoma (HCC) originates in the liver. HCC is the 5th most common cancer among men in Singapore (Singapore Cancer Registry Annual Report 2022).

Patients and their families often receive a lot of information and advice that can vary from helpful to contradicting and confusing. Often patients are asked to make quick treatment decisions during a period of intense personal and familial crisis, which can be very stressful.

We hope this booklet can help you understand more about liver cancer, its risk factors, signs and symptoms, treatment options so that you can work with your doctor to make rational, thoughtful decisions about your treatment. The information in this booklet serves only as a guide and is not to be taken as medical advice. You need to discuss with your doctor the best treatment option for you. However, we hope this information will answer some of your questions and help you think about the questions to ask your doctors.

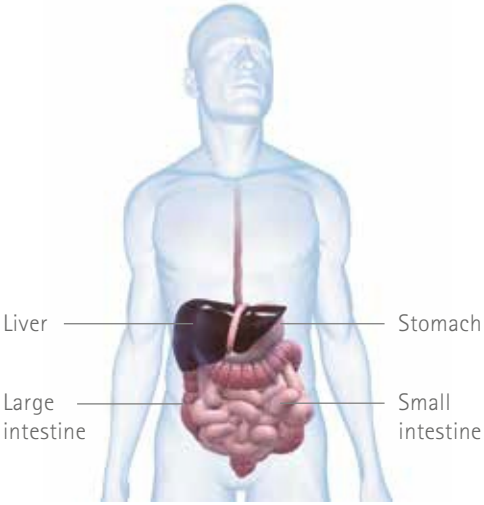
If you have any questions about the contents of this book, or if the information you are seeking is not covered here, please do not hesitate to contact the Cancer Helpline at 6225 5655 for more information.

Other cancer information booklets are also available at the National Cancer Centre Singapore's Cancer Education and Information Services and at the Comprehensive Liver Cancer Clinic. Contact the Cancer Helpline to request for a free copy. For electronic versions of this and other booklets, please visit our website: www.nccs.com.sg.

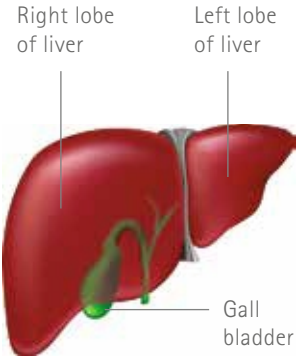
THE LIVER

The liver is one of the largest organs in the body. It is located under the diaphragm in the right upper abdominal cavity and performs many important functions, such as manufacturing various essential proteins, processing and storing nutrients, destroying toxins and poisons.

Location of the Liver

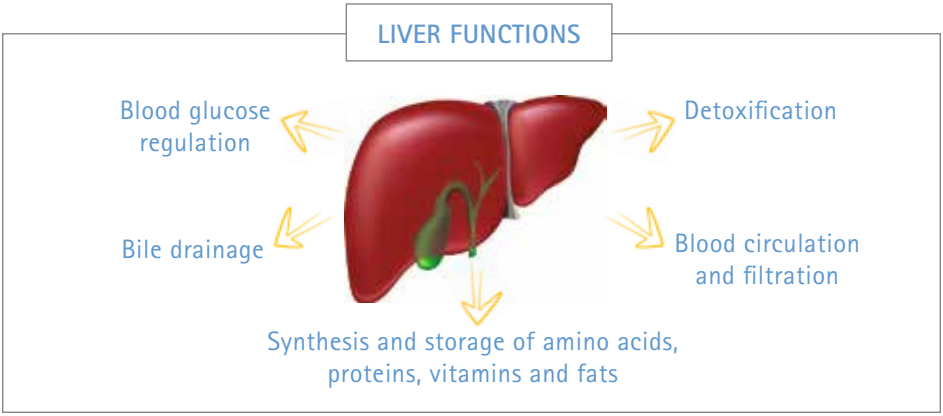


Lobes of the Liver



Functions of the Liver

The liver performs many important functions. It makes, regulates, and stores a variety of substances used by the body, and also serves important roles in metabolism and digestion.



The functions of the liver include:

1. Production of bile. Bile is formed in the liver. It is the chemical substance which breaks down the fats in food so that these can be easily absorbed by the intestines. Bile is secreted by liver cells and travels through the hepatic duct system into the gall bladder where it is stored until needed during a meal, when it is released into the small intestines to aid digestion.
2. Production of products that help in clotting of blood.
3. Storage of vitamins A, D, K and B12.
4. Regulates blood glucose (blood sugar) in the body by converting glucose to glycogen, and also serves as a store for glucose in the body.
5. Makes and stores proteins
6. Filters and destroys harmful substances from the blood (such as alcohol, poisons, toxins) – a process known as detoxification.
7. Destroys and gets rid of some types of waste products from the body. It does this by breaking down substances not used by the body so that they can be passed out in the urine or stools (bowel motions).

The healthy liver has an amazing ability to repair itself and can regenerate, but this ability can be decreased when the liver is diseased.

WHAT IS LIVER CANCER?

Normal cells divide and reproduce in an orderly manner. Your body relies on this orderly activity to repair injuries and replace worn-out cells. Sometimes this orderly process is disturbed. This can be due to mutations in the genes of cells. Mutations in the liver can be caused by chronic inflammation due to viruses (hepatitis B and C), toxins (alcohol, alfa-toxins) and metabolic injuries (non-alcoholic fatty liver disease (NAFLD), steatohepatitis (NASH)).

When cells grow and divide out of control, extra tissue is formed creating a mass or lump called a tumour. Tumours can be benign or malignant. Benign tumours are not cancers as they grow slowly and do not spread to other parts of the body.

Malignant tumours are cancerous growths which have the potential to spread to other parts of the body. Malignant liver tumours can be primary or secondary.

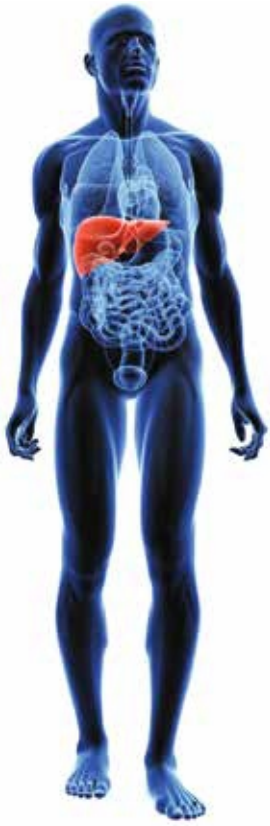
Primary liver cancer or Hepatocellular Carcinoma (HCC) originates in the liver. This is the most common type of primary liver cancer.

Metastatic or secondary liver cancer occurs when cancer that originates elsewhere in the body spreads to the liver. The most common type of metastatic liver tumours is caused by colon cancer that has spread to the liver.

For purposes of this booklet, the information here on Liver Cancer will focus on Hepatocellular Carcinoma (HCC), which is the most common type of primary liver cancer.

WHAT ARE THE RISK FACTORS?

People with risk factors are more likely to develop primary liver cancer or HCC. The more risk factors a person has, the greater the chance that liver cancer will develop. However, many people with known risk factors do not develop the disease. If you think you may be at risk for liver cancer, discuss it with your doctor to see how to manage your risk.



Factors that increase the risk of primary liver cancer:

Chronic Infection with Hepatitis B or C

- Hepatitis B is the most common cause of primary liver cancer. Hepatitis B can be transmitted from an infected mother to her baby during pregnancy. In the adult setting, hepatitis B and C can be transmitted by contact with infected body fluids, for example saliva, blood, sperm and other secretions. Infection of liver cells with hepatitis B viruses causes DNA damage, which can lead to liver cirrhosis (hardening of the liver).
- Hepatitis C causes primary liver cancer by damaging the liver through chronic inflammation, which can lead to liver cirrhosis.
- An individual with hepatitis B or C is 100 times more likely to get liver cancer compared to an individual without hepatitis B or C.

Excessive Alcohol Consumption

Repeated and excessive alcohol abuse can lead to liver cirrhosis and liver cancer.

Non-alcoholic Fatty Liver Disease (NAFLD)

- Almost half the adult population in Singapore may have NAFLD. This can progress to non-alcoholic steatohepatitis (NASH), liver cirrhosis and primary liver cancer.
- NAFLD and NASH are increasingly important causes of HCC in Singapore and globally.
- NAFLD is related to diabetes mellitus and obesity. However, many patients with NAFLD are not obese.

Cirrhosis or Hardening of the Liver

- People with liver cirrhosis, an irreversible condition in which healthy liver cells are replaced by scar tissue, are at greater risk for developing liver cancer and should undergo regular screening.
- Cirrhosis happens because of liver damage from a variety of causes, but the most common causes are hepatitis B or C infections, fatty liver and excessive alcohol consumption.

Exposure to Poison (Aflatoxins)

Alfatoxins are harmful food contaminants made by certain moulds that grow on poorly stored grains and nuts.

Inherited Metabolic Diseases

Inherited metabolic diseases that affect the liver such as haemachromatosis, which causes excess deposits of iron in the body, puts a person at a higher chance of developing primary liver cancer.

TYPES OF LIVER TUMOURS

Peripheral cholangiocarcinoma (bile duct cancer) is a more uncommon type of primary liver cancer compared to HCC. Benign or non-cancerous tumours sometimes grow large enough to cause problems but do not grow into nearby tissues or spread to other parts of the body.

BENIGN TUMOURS

Hemangioma

This is the most common type of benign liver tumour that are formed from blood vessels of the liver. These usually do not cause any symptoms and do not need treatment, although some may rarely bleed and need surgery to remove.

Hepatic Adenomas

These are benign tumours that start from liver cells known as hepatocytes. Most of these tumours do not cause symptoms but some eventually do cause pain or grow big enough to present as a mass in the abdomen. As there is a chance that the tumour could rupture and can eventually turn into liver cancer (pre-malignant tumours), most doctors usually advise surgical removal.

Focal Nodular Hyperplasia

Focal nodular hyperplasia (FNH) is a tumour-like growth of several cell types (hepatocytes, bile duct cells, and connective tissue). Although these tumours are benign, it can be hard to tell these apart from actual liver cancers unless a special MRI contrast is used in imaging. Both hepatic adenomas and FNH tumours are more common in women than in men. Other than HCC, malignant tumours of the liver can also arise from other cells within the liver.

MALIGNANT TUMOURS

Cholangiocarcinoma or Bile Duct Cancer

About 10% of cancers that start in the liver are cholangiocarcinomas. This cancer starts in the cells lining the bile ducts and is more common in women. Signs and symptoms may include abdominal pain, enlarged liver and jaundice (yellow colouration of the skin and eyes).

Angiosarcomas and hemangiosarcomas

These are rare cancers that begin in blood vessels of the liver. People who have been exposed to chemicals like vinyl chloride or thorium dioxide are more likely to develop these cancers. Other cases are thought to be due to exposure to arsenic or radium. These tumours grow quickly and are usually too widespread to be operated by the time they are diagnosed. The outlook for this disease is usually poor.

Hepatoblastoma

This is a very rare type of liver cancer that is usually found in children less than 4 years old. The cells of hepatoblastoma are similar to fetal liver cells. About 70% of children with this disease are treated successfully and survival rate is over 90% for early hepatoblastoma, as it usually responds well to surgery and chemotherapy.

Secondary Liver Cancers

In contrast to primary liver cancers that start in the liver, metastatic or secondary liver tumours are those that develop in other organs (such as the pancreas, colon, stomach, breast or lung) and spread or metastasize to the liver. These tumours are named after their primary site. For example, cancer that started in the colon and spread to the liver is called metastatic colon cancer.

SYMPTOMS OF LIVER CANCER

In most patients with HCC, the most common type of primary liver cancer, there are often no symptoms even when the tumour has grown large. As the cancer advances, some symptoms may show. These include:

- Unexplained and unintentional weight loss
- General weakness and lethargy
- Loss of appetite
- Feeling very full after a small meal
- Nausea or vomiting
- Fever
- Abdominal swelling or a bloated abdomen
- A mass felt under the ribs on the right side because of an enlarged liver
- An enlarged spleen
- Yellowing of the skin and eyes (jaundice)
- Enlarged veins on the belly that become visible through the skin
- Dark coloured urine

WHEN TO SEE A DOCTOR

Make an appointment with your doctor if you experience any signs or symptoms that worry you.

PREVENTION OF LIVER CANCER

Take measures to reduce the risk of hepatitis B and hepatitis C

You can reduce your risk of hepatitis B by receiving the hepatitis B vaccine. Vaccines for hepatitis B are available for children and adults. Children should get hepatitis B immunisation at birth as part of the Singapore National Childhood Immunisation Schedule. There is currently no vaccine for hepatitis C.

Family members of patients with hepatitis B are advised to check their own hepatitis B status.

If you are at risk for hepatitis B virus and hepatitis C virus, it is advisable to get tested. If positive, there are treatments for hepatitis B and hepatitis C, which can lower the risk of liver cancer. Individuals at risk will also be put on a regular screening schedule for liver cancer.

While some patients will unfortunately be infected with chronic viral hepatitis, studies have consistently shown that treatment and control of these diseases can significantly decrease the risk of developing hepatocellular carcinoma (HCC).

Maintain a healthy weight and active lifestyle to prevent fatty liver

You can lower your risk of developing liver cancer by leading a healthy lifestyle - exercise regularly, control your weight and eat a healthy balanced diet. As it stands, in addition to hepatitis B and C, major risk factors for liver cancer are non-alcoholic fatty liver disease (NAFLD), non-alcoholic steatohepatitis (NASH) and diabetes. People who are overweight or obese are more likely to have these diseases, which makes maintaining a healthy weight essential.

Avoid excessive alcohol consumption

Excessive alcohol use is a risk factor and can lead to liver cirrhosis, which increases the risk of liver cancer. Health Promotion Board (HPB) recommends no more than two standard drinks a day for men, and no more than one standard drink a day for women. A standard alcoholic drink is defined as a can (330 ml) of regular beer, half a glass (100 ml) of wine or 1 nip (30 ml) of spirit.

Avoid high-risk behaviours

As viral hepatitis B and C are spread through bodily fluids, high-risk behaviours that increase spread of the diseases should be avoided. This includes using contaminated needles and unprotected sex, other than with a regular partner.

Liver Cancer Screening

Screening is advised for high-risk individuals with liver cirrhosis or chronic hepatitis B infection. Regular screening may involve blood tests for alpha-fetoprotein (AFP) and liver function assessments, as well as ultrasound scans of the liver every 6 months.

DIAGNOSIS OF LIVER CANCER

Current gold standard for diagnosing primary liver cancer is through multi-phasic imaging with CT scans or MRI scans.
In high-risk patients, regular screening is carried out using abdominal ultrasound and a blood test for serum alpha-feto protein (AFP), which is a cancer marker. If either the ultrasound or serum AFP is abnormal, then a CT scan or MRI scan would be done to confirm the diagnosis.

Tests and procedures used to diagnose liver cancer:

- **Imaging**

  The simplest imaging study of the liver is an ultrasound. There is no radiation risk and it can be done on a regular basis, especially in individuals who are at risk of liver cancer, e.g., hepatitis B carriers. However, it is not the most accurate or specific imaging study.

  A CT scan is a better way of detecting liver cancer and is crucial for treatment planning. This is the basic imaging done by the liver surgeon to detect and plan a treatment strategy. In certain cases, if a CT scan is not enough or is inconclusive, additional investigations like a MRI scan or a PET scan may be performed.

- **Blood Tests**

  A blood test can be done to measure the level of a protein produced by the liver called alpha fetoprotein (AFP). AFP is associated with primary liver cancer. However, this blood test should not be used in isolation or as a routine screening test.

- **Liver Biopsy / Removing a Sample of Liver Tissue for Testing**

  A liver biopsy involves the removal of a small amount of liver tissue via a needle procedure for laboratory testing.

  For primary liver cancer, a biopsy is not usually necessary or advised as it carries a potential risk of bleeding and spreading the tumour. A biopsy is only advised by the doctor if there is uncertainty in diagnosis, based on other methods.

STAGING OF LIVER CANCER

Staging is part of the diagnostic process and consists of gathering detailed information about the tumour to determine how advanced the cancer is. The exact stage of your cancer will determine the treatment options.

During staging, the tumour is assessed and classified according to a specific tumour classification system. The common systems are the American Joint Cancer Committee (AJCC) TNM staging system which looks at the tumour burden and the Barcelona Clincia for Liver Cancer (BCLC) system. Separately, the function of the liver can also be assessed using the Child-Pugh score.

HOW DOES LIVER CANCER SPREAD?

Liver cancer can spread (metastasize) outside the liver to the nearby lymph nodes, lungs and bones. Rarely it also spreads to other organs. When this happens, the new tumour has the same kind of abnormal cells as the primary tumour in the liver. For example, if liver cancer spreads to the bones, the cancer cells in the bones are actually liver cancer cells. The disease is metastatic liver cancer, not bone cancer and is treated as a spread of liver cancer.

TREATMENT OF LIVER CANCER

While Hepatocellular Carcinoma (HCC), a common type of primary liver cancer is the third most fatal cancer in Singapore, early-stage liver cancers are responsive to treatment with either surgery or ablation techniques. The chance of survival for individuals with early-stage liver cancers beyond 5 years is more than 40%.

Treatment for primary liver cancer should be individualised to each patient and depends on:

- Stage of the cancer
- Underlying liver function of the patient
- General health and fitness of the patient
- Availability of specialised treatment

An individual with cancer should be assessed by a specialist to determine which modality of treatment is best suited for them.

TYPES OF LIVER CANCER TREATMENT

Liver Cancer Surgery

Surgery offers the best chance for cure and long-term survival for primary liver cancer. It can be in the form of resection, where the part of the liver with the cancer is removed, or a liver transplant. Unlike many other organs where complete removal of the organ (such as both breasts, the entire colon or stomach) is possible, a person cannot live without a liver. Resection is undertaken when complete removal of the cancer is feasible and yet leaves enough liver intact for the patient's needs.

Liver Transplant

In cases where there are multiple cancer nodules, the cancer is recurrent or the underlying liver disease is advanced, a liver transplant may be recommended. A donor liver can be from a cadaveric donor or from a healthy individual who is willing to donate part of their liver (i.e. a living donor). If a liver transplant is recommended, a series of tests and medical assessments will be carried out to assess if the patient is fit to undergo a liver transplant.

Following a liver transplant, the patient will need to take immunosuppression drugs for life to prevent organ rejection.

Localised Chemotherapy and Radiotherapy

Localised chemotherapy and radiotherapy treatments are done when surgery is not possible.

Localised chemotherapy involves delivery of chemotherapy directly to the liver cancer via a tube inserted at the groin. This has the advantage of delivering a higher dose of chemotherapy to the cancer, while minimising side effects to the rest of the body.

Localised radiotherapy with yttrium 90, is similar to localised chemotherapy. It involves delivering radioactive materials directly to the liver cancer via a tube inserted at the groin. A series of tests is performed before administering this form of treatment to determine if a patient is suitable.

Ablation Techniques

Ablation techniques are suitable for small cancers measuring less than 3cm in size. The efficacy of ablation in small cancers is close to that achieved with surgery. The most common form of ablation technique is Radiofrequency Ablation (RFA). This involves inserting a thin rod through the liver into the cancer and using radiofrequency to generate heat, which kills the cancer cells.

Microwave is another source of energy used for ablation. Access of the rod to the cancer can be via the skin and is guided by ultrasound or CT scan. In this situation, general anaesthesia may not be necessary. General anaesthesia is required if access of the rod is directly into the liver via open or laparoscopic (keyhole) surgery.

Systemic Treatment

Systemic treatment is undertaken in advanced cases where other treatment options are not suitable. Sorafenib, which is taken daily as an oral medication, is the most commonly prescribed systemic treatment. Intravenous chemotherapy may be given in selected cases.

Clinical Trials

In advanced cancer cases where all the above treatment options are not suitable, participation in a suitable clinical trial may be suggested. Clinical trials aim to determine if new treatment medication is effective in controlling the disease.

Palliative Care

When treatment is not possible or is ineffective, palliative care can help to ease symptoms such as pain, ascites (collection of fluid in the peritoneal cavity that can cause breathlessness and discomfort) and jaundice (which causes the skin to turn yellow and feel itchy).

Palliative care, also increasingly known as supportive care, is a holistic approach to caring for anyone diagnosed with a serious illness such as cancer, to allow them to live as well as they can, for as long as they can. Palliative and supportive care is specialised support provided by a multidisciplinary team of doctors, nurses, clinical psychologists, medical social workers and other allied health professionals to help patients.

Preparing For Surgery

Before surgery, your surgeon will perform comprehensive medical assessments including blood tests and scans to see if you are suitable for surgery and advise on the risks involved. Your treatment recommendation is often based on consensus by a group of medical specialists' opinions (the tumour board), who come together to discuss the pros and cons of every treatment strategy.

Before surgery, the anaesthesia team will assess your fitness for surgery and advise you on various aspects of general anaesthesia and pain control after surgery.

Specialist nurses will also provide pre-surgery counselling so that you know what to expect.

Post-Surgery Care

After surgery, you will be given regular outpatient appointments to see your team of doctors. During these appointments you may have blood test and scans to check if the cancer recurs.

It is important to follow your doctor's advice, keep to your clinic visits and do the recommended scans and tests, so that timely treatment can be administered if the cancer recurs or other problems occur.

MAKING DECISIONS ABOUT TREATMENT

Sometimes it is difficult to make decisions about what the right treatment for you should be. You may feel that everything is happening so fast that you do not have the time to think things through. While some people feel they are overwhelmed with information, others may feel that they do not have enough information. It is very important to realize that there is frequently no single correct way to cope with cancer.

MULTI-DISCIPLINARY TUMOUR BOARD

Treatment for HCC is advancing at a rapid pace and new and better therapies are becoming available. The optimal treatment for a specific patient thus requires discussion among a few doctors from different disciplines such as surgery, medical oncology, interventional radiology, nuclear medicine, radiation oncology and diagnostic radiology. Such discussions occur in the context of a multi-disciplinary tumour board (MDTB) which seeks to customise the best treatment or combination of treatment for a specific patient. Sometimes new therapies are only available through participation in a clinical trial.

At the National Cancer Centre Singapore, patients with HCC have their cases discussed at the MDTB of the Comprehensive Liver Cancer Clinic.

SEEKING A SECOND OPINION

You may feel that you want to ask for a second opinion from another specialist. The reasons for wanting a second opinion vary. Sometimes, it is the wish to make sure that everything possible is being done to get the best treatment. Sometimes, it is to get confirmation of bad news that is otherwise difficult to accept and sometimes it is just to get clarification of what is going on.

This is understandable and can be a valuable part of your decision making process. You can still ask for a second opinion even if you have already started treatment or still want to be treated by your first doctor.

Before you see the doctor, it may help to write down your questions. To assist you, below is a list of questions to ask your doctor. Taking notes during the session can also help. Many people like to have a family member or friend to go with them, take part in the discussion, take notes or simply listen.

QUESTIONS YOU CAN ASK YOUR DOCTOR

You may find the following list of questions helpful when thinking about what to ask your doctor.

About your illness

1. What type of cancer do I have?
2. What is the stage of my cancer?
3. Is my type of cancer hereditary?

About tests

1. What are these tests for?
2. What will these investigations involve?
3. What are the risks of doing this test?
4. Will the results of this test make any difference to the treatment you provide?
5. How much will these tests cost?

About treatment

1. What are the treatments available for my type of cancer?
2. What treatment would you recommend and why?
3. What is the aim of the treatment?
   - Is it for cure?
   - Is it for temporary control?
   - Is it to reduce symptoms?
4. What are the benefits of this treatment?
5. What are the possible side effects of this treatment?
6. Can these side effects be prevented or controlled?
7. Are these side effects temporary or permanent?
8. How long is the treatment?
9. How does the treatment work and how is it given?
10. Can I take any herbal medicine or supplements during my treatment?
11. What will happen if I choose not to have any treatment?
12. Can I go back to work while I am on treatment?
13. Will I receive treatment as an outpatient or be admitted to the hospital?
14. What difference will this treatment make to my quality of life e.g. work, social, physical and sexual activity?

About follow-up

1. How often must I come back for check-ups?
2. Who should I contact if I want to change my appointments?

If you have other questions, you may want to add on to the list. Feel comfortable to ask the doctor to explain the answers to you again if you do not understand them. It is also useful to write down the points you have discussed to act as a reference and reminder when you need them.

SUPPORTIVE CARE

A diagnosis of cancer often leads to a variety of emotions such as shock, anger, sadness, and possibly even depression. You do not have to struggle with your illness alone. Help is available to support you and your loved ones through your cancer journey. Apart from the team of doctors and healthcare professionals looking after you, there are other information and support services you may find useful.

Medical Social Services/ Department of Psychosocial Oncology

The Department of Psychosocial Oncology at NCCS comprises a team of Medical Social Workers who are additionally qualified as Clinical Psychologists, Groupwork Facilitators, Counsellors, etc. They attend to patients and their families who need emotional support, financial aid, home care, transportation or rehabilitation. You will need a doctor's referral to link you with a Medical Social Worker. You may reach the Department of Psychosocial Oncology at 6306 1777 or psychosocial@nccs.com.sg

NCCS Cancer Helpline

The Cancer Helpline is a private, confidential and anonymous one-to-one information and support service manned by nurses. Their aim is to help you through your cancer experience. They provide information, support on management of treatment side effects, referral to cancer support services and free cancer-related information materials upon request.

The nurses do not give medical advice and treatment recommendations, but may be able to assist you in clarifying your doubts and help in putting into perspective the information you may have received from your doctors. They may be contacted via telephone at 6225 5655 or via email at cancerhelpline@nccs.com.sg

FOLLOW-UP CARE

Follow-up checks always cause anxiety. This can make it difficult to put the experience of cancer behind you. But regular follow-up with your doctor is necessary and very important in monitoring your recovery. These check-ups may include x-rays, blood tests and other physical examinations. If you have any concerns or suspicions about your health between follow-up care, make an earlier appointment to see your doctor.

When should you call the doctor?

After treatment, you are likely to be more aware of your body and the slight changes in how you feel from day to day. If you have any of the problems listed below, tell your doctor at once.

1. Pain that does not go away, especially if it is always in the same place
2. Lumps, bumps or swelling
3. Nausea, vomiting, diarrhoea, loss of appetite, or difficulty swallowing
4. Unexplained weight loss
5. Fever or cough that does not go away
6. Rashes, bruises, or bleeding
7. Any other signs as mentioned by your doctor or nurse

What the future holds

Treatment side effects last for a few months even after you have completed the treatment. When the body cells have recovered, the discomfort will disappear.

Eating a well balanced diet and keeping a healthy lifestyle will enable you to keep in good general health. Perform activities and exercises within your own limits and do not over exert yourself. You can also return to work if you and your doctor feel that you are well enough to do so. Some people prefer to return to work between treatments while some defer returning to work until after they have completed all treatments. Treatment times can be arranged to suit your needs.

TREATMENT AND SUPPORT UNITS AT NCCS

Department of Radiation Oncology

National Cancer Centre Singapore
Basement 3 & 4
Enquiry line: 6436 8000

Singapore General Hospital
Blk 2 Basement 1
Enquiry line: 6436 8000

Useful Contact Details

- Appointment Scheduling Unit : 6436 8088
- General Enquiries : 6436 8000
- Dept of Psychosocial Oncology : 6306 1777
- Outpatient Pharmacy Helpdesk : 6436 8091
- Cancer Helpline : 6225 5655

CANCER RESOURCES ON THE INTERNET

American Cancer Society
http://www.cancer.org

National Cancer Institute, USA
https://www.cancer.gov

Macmillan Cancer Support
https://www.macmillan.org.uk

National Cancer Centre Singapore
https://www.nccs.com.sg

NOTES

For more information on cancer, please call the

Cancer Helpline at Tel: 6225 5655 or email cancerhelpline@nccs.com.sg

MONDAYS - FRIDAYS	:	8.30am to 5.30pm
SATURDAYS, SUNDAYS & PUBLIC HOLIDAYS	:	CLOSED (Please leave a message)

Scan here for call back:

THIS IS A PUBLIC EDUCATION INITIATIVE BY:

Cancer Education & Information Services
Division of Supportive and Palliative Care
National Cancer Centre Singapore
30 Hospital Boulevard
Singapore 168583
Tel: 6225 5655 Fax: 6683 6174
Website: www.nccs.com.sg
Reg No. 199801562Z