

Hepatocellular Carcinoma (Liver Cancer)

Hépatocellulaire Carcinome (Cancer du foie)



What does the liver do?

The liver has four (4) lobes. It has many functions: (i) stores glycogen, vitamins and minerals, (ii) produces and excretes bile, (iii) metabolizes carbohydrates, fat and proteins, (iv) excretes bilirubin, cholesterol, hormones and drugs, (v) purifies and detoxifies the blood (vi) activates enzymes, and (vii) synthesizes plasma proteins.

Clinical trials

- ✓ World wide clinical trials:
<https://www.clinicaltrials.gov>
- ✓ Canadian trials (CAPTUR):
<https://clinicaltrials.gov/ct2/show/NCT03297606>
- ✓ www.Genomicfocus.com

Staging and Prognosis

- ✓ 5 stages
- ✓ Staging based on the Barcelona clinic Liver Cancer (BCLC) system
- ✓ Prognosis is dependent on stage, health of individual and response of cancer to treatment: no specific Canadian statistics available

Prevention

- ✓ Vaccination for Hepatitis B
- ✓ Prevent spread of Hepatitis C
- ✓ Alcohol consumption less than 2 drinks per week
- ✓ Exercise or physical activity
- ✓ No smoking
- ✓ Nutritional (well-balanced) diet

References

Amaro, C.P., Allen, M.J., Knox, J.J., Tsang, E.S., Lim, H.J., Lee-Ying, R.M., ... Tam, V. (2022). Dosing, efficacy and safety of lenvatinib in the real-world treatment of hepatocellular carcinoma: Results from a Canadian database. *Liver Cancer International*. 3(3) 119-127. <https://doi.org/10.1002/lci.2.59>

Asafo-Agyei, K.O. & Samant, H. (2023). Hepatocellular carcinoma. Retrieved from: www.ncbi.nlm.nih.gov/books/NBK559177/

Canadian Cancer Society (2023). Liver cancer. Retrieved from <https://cancer.ca/en/cancer-information/cancer-types/liver>

Canadian Cancer Society (2023). Targeted therapy. Retrieved from: <https://cancer.ca/en/treatments/treatment-types/targeted-therapy>

Canadian Centre on Substance Abuse and Addiction (2023). Retrieved from www.ccsa.ca

Canadian Liver Foundation (2023). Liver cancer and tumours. Retrieved from: <https://www.liver.ca/patient-caregivers/liver-diseases/liver-cancer/>

Gao, Y-X., Yang, T-W., Yin, J-M., Yang, P-X., Kou, B-X., Chai, M-Y., Liu, X-N., Chen, D-X. (2020). Progress and prospects of biomarkers in primary liver cancer (review). *International Journal of Oncology*. pp 54-66. Retrieved from <https://doi.org/10.3892/ijo.2020.5035>

Mansouri, V., Razzaghi, M., Nikzamir, A., Ahmadzadeh, A., Iranshahi, M., Haghazali, M., & Hamdieh, M. ((2020). Assessment of liver cancer biomarkers. *Gastroenterology and Hepatology from Bed to Bench*. 13(Suppl. 1), S29-S39. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7881406/pdf/GHFBB-13-S29.pdf>

National Cancer Institute (2021). Advances in liver and bile duct research. Retrieved from: <https://www.cancer.gov>

What is hepatocellular carcinoma?

- ✓ In children, it is called hepatoblastoma
- ✓ It is a primary liver cancer, a common tumour world-wide
- ✓ Third leading cancer death worldwide, the second leading cause of cancer death in men.

Main types of primary liver cancer:

- ✓ Hepatocellular carcinoma 75-85%
- ✓ Intrahepatic cholangiocarcinoma (iCC) 10-15%
- ✓ Combined HCC-cholangiocarcinoma (cHCC-CC) 1-5%

Signs and Symptoms

May not experience any signs or symptoms in the early stages.

- ✓ Pain in the RUQ
- ✓ Lump on right side below ribs
- ✓ Nausea, Vomiting
- ✓ Loss of appetite
- ✓ Feeling full after a small meal
- ✓ Unexplained weight loss
- ✓ Ascites (abdominal swelling)
- ✓ Swelling in the legs and feet
- ✓ Fatigue, weakness
- ✓ Itching
- ✓ Easy bruising or bleeding
- ✓ Jaundice of eyes and skin
- ✓ Confusion, personality changes

Risk Factors

- ✓ Hepatitis B and C
- ✓ Chronic inflammation in chronic hepatitis C
- ✓ NAFLD in the absence of history of alcohol
- ✓ Alcohol ingestion (30% of all cases)
- ✓ Aflatoxins
- ✓ Iron overload
- ✓ Glycogen storage disease
- ✓ Wilson disease
- ✓ Alpha one antitrypsin (AAT) disease
- ✓ Hypercitrullinemia
- ✓ Alagille syndrome
- ✓ Acute intermittent porphyrias

Factors Linked with HCC

- ✓ Obesity
- ✓ Diabetes

Causes

- ✓ Hepatitis B and C (chronic hepatitis)
- ✓ Alcoholic liver disease
- ✓ Non-alcoholic steatohepatitis (NASH)
- ✓ MASLD used to be called Non-alcoholic fatty liver disease (NAFLD)

Diagnosis

- ✓ Ultrasound
- ✓ CT (computed tomography) scan
- ✓ MRI (magnetic resonance imaging)
- ✓ Biomarkers:
 - AFP (alpha feta-protein)
 - AFP-L3
 - DCP
 - AFU
 - Golgi protein 73 (GP73)
 - Osteopontin (OPN)
 - CA19-9

Treatment

Discuss options with physician

- ✓ Surveillance
- ✓ Surgery
- ✓ Chemotherapy
- ✓ Targeted therapy
- ✓ Immunotherapy
- ✓ Radiation
- ✓ Embolization
- ✓ Chemoembolization
- ✓ Radioembolization
- ✓ Ablation
- ✓ Transplantation
- ✓ Yttrium-90 radioembolization
- ✓ Histotripsy