



## Course – Modern multidisciplinary approach on hepatic carcinoma

### Hepatocellular carcinoma – a short review

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Introduction: Our objective is to review current international data regarding hepatocellular carcinoma.

Materials and methods: Hepatocellular carcinoma (HCC) is the most common type of primary liver cancer with an incidence ranging from 6.5 % in women to 7.9 % in men.

HCC has a high mortality rate being the third leading cause of cancer-related death worldwide, responsible for ~ 700,000 deaths annually. Regardless of the cause, cirrhosis is the most important risk factor for the development of HCC with an annual risk of 2-7%.

Biannual surveillance using both AFP and abdominal ultrasound remains the gold standard for HCC screening in cirrhotic patients even if they are not very sensible for early HCC detection. Other biomarkers, such as des  $\gamma$  carboxy-prothrombin (DCP), AFP-L3, and cross sectional imaging are of great interest, but there is insufficient evidence to consider using them for routine screening.

Radiological imaging is the primary tool used in HCC diagnosis, without a need for biopsy when typical appearance exists. Recent findings in genomics could provide new tools in HCC diagnosis.

Although there are many staging systems for HCC, the Barcelona Clinic Liver Cancer is the most widely accepted since it contains an evidence-based treatment algorithm.

There are multiple treatment options for HCC

depending on patient performance status and liver dysfunction degree. There is a tendency in expanding the actual criteria for liver transplantation, but recent data show a higher posttransplant mortality.

Results and conclusion: Hepatocellular carcinoma is an aggressive solid tumor with a high mortality rate. Even if there are multiple treatment options, surveillance and detection of early HCC is the best option in increasing survival rate.

### The hepatocellular carcinoma – what we know from guides

**Gaudia Mănescu, Cătălina Diaconu, D.O. Costache, Raluca S. Costache**

Hepatocellular carcinoma is a malignant tumor that is the fifth most common type of cancer, the third leading cause of cancer-related death globally (preceded only by the lung and the stomach cancers) and the most common primary liver cancer. HCC was thought to be a special type of cancer prevalent only in the Southeast Asia and Africa, but it has become in a short time more common in other regions, especially in Europe and the United States, which has led to greater interest in the diagnosis and treatment of HCC worldwide.

90% of patients with hepatocellular carcinoma associate cirrhosis. Chronic viral hepatitis (hepatitis B is an independent predictor of HCC development), hemochromatosis and alcoholic cirrhosis are the most frequently associated with HCC.

The pathogenesis of HCC is not fully understood, but

most probably are implicated the activation of proto-oncogenes, deactivation of tumor suppressor genes (e.g. p53 and pRb), changes in growth factor or growth factor signaling processes (e.g. IGF, TGF), changes in telomeric length and activity or microsatellite instability.

Symptoms of HCC are commonly related to those of their chronic liver disease and include weakness or fatigue, weight loss, anorexia, pain in the upper abdomen usually in the right hypocondrium, bloating or jaundice.

Diagnosis is usually made by history, physical examination, laboratory studies (aminotransferase levels, alkaline phosphatase, serum bilirubin and optionally elevated serum AFP (> 400 ng/ml), because AFP is elevated in only 50-75% of cases), MRI or CT scan showing a liver mass consistent with HCC.

The treatment should be discussed and planned by a multidisciplinary team. The applicable treatment possibilities include surgical (liver resection, liver transplantation-OLT), ablative (percutaneous ethanol injection, transarterial chemoembolization, radiofrequency ablation) and systemic therapy (tyrosine-kinase inhibitor – Sorafenib).

The treatment is established using the Barcelona-Clinic Liver Cancer (BCLC) staging system which defines very early stage cancer (single nodule, <2 cm, Child-Pugh A) as stage 0, early stage cancer (1-3 nodules, <3 cm each, Child-Pugh A-B) as stage A, intermediate stage for multinodular HCC (stage B), advanced stage which involves vascular invasion or extrahepatic spread (stage C) and terminal stage at patients with Child-pugh C cirrhosis. Resection, ablation and transplantation is recommended for stage 0 and A, transcatheter arterial chemoembolization for stage B, Sorafenib – stage C and best supportive care for terminal stage.

## **Surgical treatment of the hepatocellular carcinoma (HCC) – review**

### **L. Mosoia**

Hepatocellular carcinoma (HCC) is a rising cause of cancer related mortality and viral causes of cirrhosis appear to be a major cause. The data work stress out that surveillance helps to detect early stage disease and treatment options are determined by stage of presentation. Different classifications of HCC and specific treatment are presented.

Three potentially curative options are tumor resections, liver transplantation and radiofrequency ablation/cryotherapy.

Emerging therapies such as drug eluting beads – transarterial chemoembolizations, radioembolization or Sorafenib treatment will continue to advance options in HCC.

## **Early experience with laparoscopic bipolar radiofrequency device for liver resection in hepatocellular carcinoma**

### **L. Mosoia, V. Ștefănescu, F. Măcău, C. Mitru, V. Dumitrașcu**

Laparoscopic liver resection remains a surgical procedure of great challenge because of the risk of massive bleeding during liver transection and the complicated biliary and vascular anatomy in the liver. Various techniques and energy-based devices have been used to minimise the blood loss during transection of the liver parenchyma laparoscopically.

Methods.

The laparoscopic Habib™ 4X is a bipolar radiofrequency device consisting of a 2x2 array of needles arranged in a rectangle. It produces coagulative necrosis of the liver parenchyma sealing biliary radicals and blood vessels and enables bloodless transection of the liver parenchyma.

Two patients underwent laparoscopic liver resection in a period of 6 months. Indications for liver resection were marginal hepatocellular carcinoma (3.7/3.1cm

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and 8/7 cm) in 2 cirrhotic patients. Technical aspects were analysed.

Results. One patient underwent S6 resection, the other one underwent S2-S3 resection. Pringle manoeuvre was not used in any of the patients. Mean operative time was 180 minutes (range, 160–200 minutes). Bleeding control along the transection line was satisfactory. No conversion to laparotomy was required. Operative blood loss was minimal. No blood transfusion was recorded. The postoperative period was uneventful. Median postoperative hospital stay was 3 days. Histopathology revealed that the margins were disease free.

Conclusion. Laparoscopic liver resection can be safely performed with laparoscopic Habib™ 4X with a significantly low risk of intraoperative bleeding or postoperative complications.

### **Two stage surgical treatment for giant right hepatic hepatocellular carcinoma**

**L. Mosoia, T. Artenie, A. Dima, C. Mitru, V. Dumitraşcu, Florina Bold, Irina Zahiu, C. Beţianu**

Hepatocellular carcinoma (HCC) is a primary tumor of the liver, usually associated with chronic liver disease, is less common in non-cirrhotic livers. In this report, we present a 75 yrs old patient who came to our attention one month after the initial ultrasound with palpable hepatomegaly.

The CT showed a hypervascularized solitary liver lesion measuring 22/18 cm originated from right hepatic lobe, with small for size left hemiliver at volumetry. Laboratory data showed normal liver function and hepatitis B and C serologies were negative. Serum tumor markers including CEA, CA 12.5, CA 19.9 were within normal range while AFP was elevated, > 500. Due to the insufficient future liver remnant, we performed right portal vein ligation (PVL) in the first

instance, to convert the unresectable tumor to resectable for potential cure. We record the success of PVL with compensatory hypertrophy in the left liver, seen at seven weeks after PVL.

The patient underwent planned laparotomy and right hepatectomy with uneventfully postoperative follow-up and discharge in day 9.

The case presented, indicates that surgical resection for giant HCC is possible in selected patients, even if initially, the future liver remnant does not allowed surgical therapy.

### **Alternative treatment options for inoperable primary and secondary liver tumors**

**Săndica Bucurică**

The treatment protocols proposed by EASL and AASLD are similar and it are made (based on Barcelona Clinic Liver Cancer staging) according to disease stage. As for early stages there are curative treatments for advanced stages (as inoperable, vascular invasion, extrahepatic spread, poor clinical and biological patient status).

It is considered that hepatic resection, liver transplantation (in carefully selected individuals), and radiofrequency ablation are considered curative.

Treatments that consider best supportive care for terminal-stage HCC, but not intend to be curative are transarterial chemoembolization, radioembolization, and systemic chemotherapy such as with sorafenib.

The goals of trying to treat inoperable hepatic tumors is desirable in order to obtain a longer time of progression, the extension of survival with a better life quality by minimizing the symptoms or to obtain regression of tumors sizes for ablation, resection or transplantation.