

DIAGNOSTIC AND THERAPEUTIC CHALLENGES IN HEPATOCELLULAR CARCINOMA

Stavar Angelica Nela¹, Sava Alexandra Mihaela¹, Adam Tatiana¹, Craciun Relu Liviu¹

¹ University "Ovidius" of Constanta, Faculty of Medicine

Angelica Nela Stavar

email: angel.stavar@yahoo.com

phone: +40 30658188

ABSTRACT

Introduction: Early detection of hepatocellular carcinoma is essential to provide effective therapy to high-risk patients, including patients with viral cirrhosis (eg HBV, HCV), haemochromatosis, alpha 1 antitrypsin deficiency or alcohol users.

Material and method: The group of patients studied was represented by patients from the records of the Medical Clinic I of the Clinical Hospital "Saint Andrew the Apostle" Constanta for a period of 3 years (2017-2019). We included 82 patients aged between 32 and 82 years (60.22 ± 10.66 years) of which 55 were male and 27 were female.

Results: Out of a total of 82 patients, 74 (90.25%) had cirrhosis (CH) and a number of 8 patients (9.75%) had chronic hepatitis without cirrhosis. Child-Pugh stage B had the highest prevalence among patients with hepatic cirrhosis. The etiological factor was hepatitis C virus infection 46 patients (56.1%), followed by hepatitis B virus infection 23 patients (28.05%), 4 patients (4.87%) had double hepatitis virus infection (HBV + HCV), and 9 patients (10.98%) had a mixed viral and ethanolic etiology. Most of the lesions were located in the right hepatic lobe 58 patients (70.74%), respectively right + left hepatic lobe 22 patients (26.83%) and in 2 patients (2.44%) there were no visualized liver nodules. All patients had parenchymal fibrosis.

Conclusions: It is recommended to screen patients with chronic liver disease to assess the risk of developing hepatocellular carcinoma, initially by liver ultrasound that can accurately detect and locate suspected nodules later the definite diagnosis of hepatocellular carcinoma is confirmed by magnetic resonance imaging (MRI).

Keywords: chronic hepatitis, hepatocellular carcinoma, diagnosis, screening

Introduction

Hepatocellular carcinoma (HCC) is the most common primary liver cancer and is a leading cause of death from cancer worldwide. In the United States, HCC is the ninth leading cause of cancer deaths (1,2). Cellular hepatocellular carcinoma (HCC) accounts for more than 90% of primary liver cancers, being a major public health problem worldwide (3-6).

Over 80% of these cases are found in the Far East, under-Saharan Africa and Malaysia, areas with an increased incidence of viral infections B and C, the main risk factors for HCC (3,5,7).

The incidence of HCC is significantly

higher in men (2.4 times higher than in women) (3-6).

Due to its high mortality (mortality / incidence ratio of 0.93), liver cancer is the third leading cause of cancer death worldwide, and the distribution of the mortality rate is similar to that of the incidence (8,9).

The main purpose of the study was to highlight the importance of early imaging (ultrasound, magnetic resonance) diagnosis of hepatocellular carcinoma in the management of the HCC patient.

Material and method

The group of patients studied was represented by patients from the records of the Medical Clinic 1 of the Emergency County Clinical Hospital "Saint Andrew" Constanța for a period of 3 years (2017-2019).

Patients with specific liver pathology, liver cirrhosis of various etiologies, chronic hepatitis or patients with hepatic decompensation were selected. They were subsequently evaluated by liver ultrasound and imaging examination (MRI) clinical-biological profile.

At the ultrasound examination we looked at changes in size (hepatomegaly in the early stages of alcoholic liver, liver shrinkage in advanced cirrhosis), the presence of nodular formations associated with cirrhosis and nodular regeneration, diffuse echogenicity changes (hyperechogenicity of hepatic steatosis, hepatic cirrhosis, hypoechogenicity from diffuse cancer).

Focal changes in echogenicity may suggest the presence of cysts, hemorrhages, abscesses, focal fibrosis / necrosis, nodular hyperplasia, dysplastic nodules, primary hepatic or metastatic tumor nodules, evidence of nodular lesions, number, benign / malignant location.

Hepatocellular carcinoma (HCC) has mixed ultrasound echogenicity and small HCCs may have a false negative appearance of hepatic hemangioma. MRI imaging is the optimal investigation to confirm hepatocellular carcinoma.

The criteria for CHC confirmation (8) are as follows: formations of various sizes, encapsulated or not, with variable signal on T1 sequences (hypo-, iso- or hypersignal), with moderate hypersignal in T2 sequence, hypervascularized homogeneously or inhomogeneously in the arterial phase (arterial hypercapture), with late wash-out (late venous phase), which does not capture the contrast substance, possibly with vascular invasion (50%) (8).

Results

From the total of 82 selected patients, the group included 55 men (67%) and 27 women (33%) (Figure 1), with a ratio of approximately

2: 1. The distribution of the group by age groups showed an increased incidence of HCC with advancing age (Figure 2), with a peak at the age of 60-69 years (41.46% of patients).

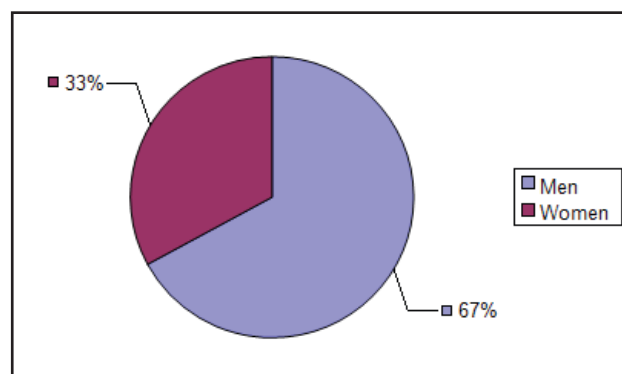


Figure 1. Gender distribution of HCC patients

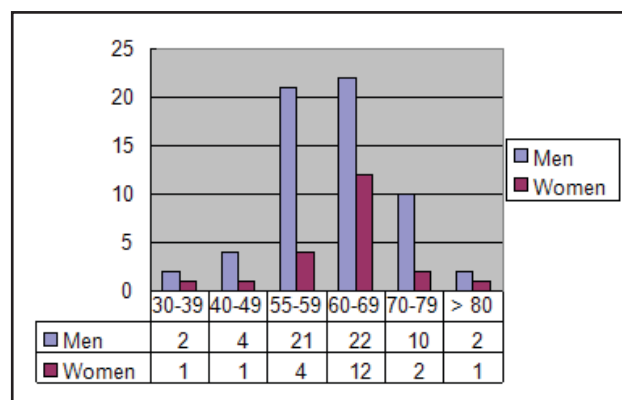


Figure 2. Distribution of HCC patients by age groups

From the group of 82 patients, 74 (90.25%) had hepatic cirrhosis (CH), 27 (36.5%) CH Child A, 42 (56.75%) CH Child B and 5 patients (6.75%) CH Child C and a number of 8 patients (9.75%) chronic hepatitis without cirrhosis.

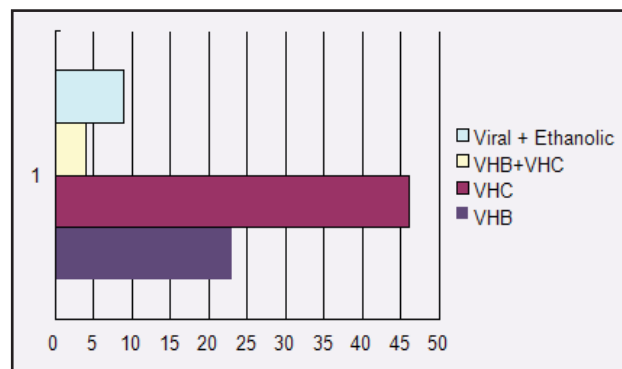


Figure 3. Etiology of liver disease in patients with HCC

The etiological factor was in most cases (Figure 3) chronic HCV viral infection 46

patients (56.1%) and HBV respectively 23 patients (28.05%), 4 patients (4.87%) had double hepatitis virus infection (HBV + HCV), and 9 patients (10.98%) had a mixed viral and ethanolic etiology.

By liver ultrasound completed later with MRI imaging examination we determined the location of liver lesions, their type and severity represented by the degree of fibrosis and the presence of liver nodules. Most lesions were located in the right hepatic lobe 58 patients (70.73%), right and left hepatic lobe 22 patients (26.83%) (Figure 4).

All patients had parenchymal fibrosis.

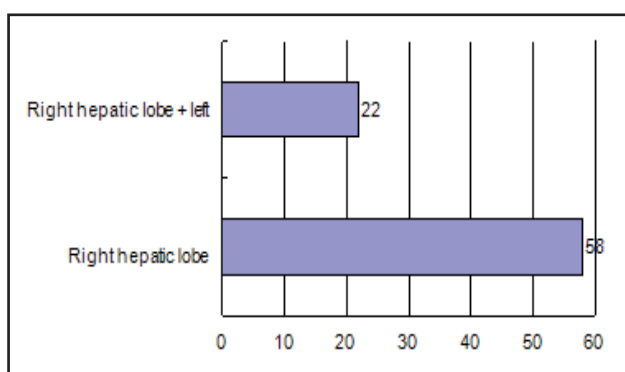


Figure 4. Location of liver lesions in patients with HCC

The performance of MRI imaging in determining liver lesions is superior to ultrasound and can identify liver nodules with dimensions less than 1 cm.

Of the 82 CHC patients, carcinomatous lesions were identified by imaging (by MRI), carcinomatous lesions in 80 patients, representing (97.56%) subsequently confirmed as hepatocellular carcinoma by PBH respectively by surgery with histopathological examination.

Discussions

Hepatocellular carcinoma is an upward trend disease both in Europe and Romania, and worldwide. It accounts for up to 90% of all primary liver tumors (8,10,11). Hepatocellular carcinoma is associated with liver cirrhosis in over 80% of cases, in most patients liver cirrhosis preceding malignancy (8,12,13). Of the total of 82 patients, 74 (90.28%) had liver cirrhosis, this being associated at increased risk of developing hepatocellular carcinoma. An important problem

is the appearance of liver cirrhosis in patients with non-alcoholic steatohepatitis that occurs in close connection with obesity, type 2 diabetes, dyslipidemia and hypertension demonstrating the usefulness of screening these patients by liver ultrasound at 6 months for early detection potentially malignant lesions.

The role of imaging in cirrhotic patients is to identify the morphological changes induced by cirrhosis (size, degree of liver fibrosis, nodularity), to evaluate intra and extrahepatic vascularization, to determine the degree of portal hypertension. Because the majority of HCC (80%) occur on a pre-existing cirrhotic background, there are problems of certainty of diagnosis and staging of HCC in the conditions of many diffuse or focal (nodular) imaging abnormalities (8,10).

By MRI imaging, we followed the location, the type of liver lesions and the degree of liver fibrosis and the presence of liver nodules. The lesions were located most frequently in the right hepatic lobe 58 patients (70.73%) and right + left hepatic lobe 22 patients (26.83%).

The management of hepatocellular carcinoma must be a multidisciplinary one that involves the collaboration between hepatologist, surgeon, oncologist, radiologist, an important role is played by palliative medicine. Surgical therapy is the best option for patients with a low number of tumor nodules. To date, no preoperative treatment (8) is completely effective. Adjuvant therapy that includes systemic chemotherapy, intra-arterial infusions, or chemoembolizations has not increased survival, (8) while immunological therapy appears promising.

Conclusions

It is important to screen high-risk patients to develop initial hepatocellular carcinoma by liver ultrasound that can accurately detect and locate suspected liver nodules. To confirm the diagnosis of hepatocellular carcinoma, MRI magnetic resonance imaging is required.

Despite the efficacy of new antiviral therapies for HBV or HCV infection, remains a priority the evaluation of patients by hepatic ultrasound at 6 months followed in case of suspicion of superior MRI imaging for the purpose of a definite diagnosis of HCC in early

or very early stages of the disease and the most important, access to ensure optimal treatment.

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