

Chapter One

Introduction

1.1 Introduction:

Carcinomas of the liver can be classified as primary and secondary tumors. The most common neoplasms occurring in the liver are metastatic carcinomas (MC), which may arise from a primary in almost any site in the body, particularly the colon, lung and breasts. Primary carcinomas of the liver are mainly of three types: hepatocellular carcinoma (HCC), cholangiocarcinoma (CC), and mixed hepato-cholangiocarcinomas (Shiran, *et al.* 2006).

Hepatocellular carcinoma (HCC) is the most common primary liver cancer and occurs predominantly in patients with underlying chronic liver disease and cirrhosis (Alison, 2005).

Each year, hepatocellular carcinoma is diagnosed in more than half a million people worldwide, including approximately 20,000 new cases in the United States. Liver cancer is the fifth most common cancer in men and the seventh in women. Most of the burden of disease (85%) is borne in developing countries, with the highest incidence rates reported in regions where infection with hepatitis B virus (HBV) is endemic: Southeast Asia and sub-Saharan Africa (Hashem and El-Serag, 2011).

The most commonly diagnosed cancer in Sudan among men was prostate cancer followed by leukemia, lymphoma, oral, colorectal and liver cancer (rate = 4.2 per 100,000) (Intisar, *et al.* 2014).

Major risk factors for hepatocellular carcinoma include infection with hepatitis B virus (HBV) or hepatitis C virus (HCV), alcoholic liver disease, and most probably non alcoholic fatty liver disease. Less common causes include hereditary hemochromatosis, alpha1-antitrypsin deficiency, autoimmune hepatitis, some porphyrias, and Wilson's disease (El-Serag and Rudolph, 2007).

The diagnosis of hepatocellular carcinoma can increasingly be made with the use of noninvasive imaging test, computed tomography (CT) and

magnetic resonance imaging (MRI) are recommended (Bruix and Sherman, 2005).

The choice of treatment is driven by the cancer stage, the resources available, and the level of practitioner expertise (Forner, *et al.* 2010).

Transplantation remains the best option for patients with HCC. Thus, alternative treatments, including resection, radiofrequency ablation (RFA), and, potentially, systemic therapy with sorafenib (Kaido, *et al.* 2011).

In 1993, Wenner berg reported the development of a new monoclonal antibody designated as Hepatocyte Paraffin 1 (Hep Par 1), which was produced in mice using tissue from a failed allograft liver (Maitra, 2001).

HepPar-1 is available antibody which seems to be very specific and sensitive for the diagnosis of hepatocellular carcinoma (HCC) (Geramizadeh, 2007).

In 2006 Shiran studied the utility of Hepatocyte Paraffin 1 antibody in the immunohistological distinction of hepatocellular carcinoma from cholangiocarcinoma (Ccs) and metastatic carcinoma (MC) he apply hepar 1 antibody to 28 cases of HCC, 22 cases of MC from varying sites and 8 CCs. 23 out of 28 cases of HCC showed heterogeneously positive staining for Hep Par 1, while 2 out of 8 cases of cholangiocarcinoma were positive for Hep Par 1, and all 22 cases of metastatic carcinoma were negative (Shiran, 2006).

In 2014 Hanif and Mansoor did research on Hep par-1 for differentiating hepatocellular carcinoma from metastatic carcinoma they find that Hep par-1 expression was noted in 25 out of 30 cases of hepatocellular carcinoma (83%). Out of 30 cases of metastatic carcinoma, only one case expressed staining and remaining 29 cases showed no reactivity (Hanif and Mansoor, 2014).

1.2 Objectives:

1.2.1 General Objectives :

To study immunohistochemical detection of hepar1 antibody diagnosis of liver carcinomas among sudanese.

1.2.2 Specific Objectives:

- 1- To detect the expression of hepar-1 in hepatocellular carcinomas using immunohistochemical method.
- 2- To find out the association between Hepar-1 and liver carcinomas subtybes.