Biomedicine & Pharmacotherapy 84 (2016) 1679–1688

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Review

"Hepatocellular carcinoma: A life-threatening disease"

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ARTICLE INFO

Article history:
Received 11 September 2016
Received in revised form 13 October 2016
Accepted 26 October 2016

Keywords:
Hepatocellular carcinoma
Transarterial chemoembolization
Molecular targeted therapy
Personalized medicine
Immunotherapy
Peptide hybrid

ABSTRACT

An estimated rise in liver cancer incidence will increase to 95374 new cases by 2020. Hepatocellular Carcinoma (HCC), the most common primary malignant tumour of the liver, is considered to be the third leading cause of all cancer-related deaths and fifth common cancer worldwide. The reported data shows that the rate of HCC incidence in male population is three to four times higher compared with the female population. In the United States, HCV-induced liver cancer is increasing very fast because of the lack of proper treatment option. There are various treatment strategies available for HCC like liver transplantation, resection, ablation, embolization and chemotherapy still the prognosis is destitute. If the patient is eligible, liver transplantation is the only therapeutic option that may give around 90% survival rate, but the scarcity of liver donor limits its broad applicability. A sudden address is necessary to develop specific drugs, personalized medicine, for HCC.

Contents

1. Introduction

Cancer develops when normal cells become abnormal, and the abnormal cells keep dividing and forms a lumps (tumours). All tumours are not cancerous, cancerous tumours (malignant) can grow into nearby tissues and may spread through blood or lymphatic system from the site where it originated (primary

Abbreviations: ADME, absorption distribution metabolism and excretion; AFP, alpha-fetoprotein; BCLC, Barcelona Clinic Liver Cancer; Chk 1, check point 1; HBV, Hepatitis B Virus; HCC, hepatocellular carcinoma; HCV, Hepatitis C Virus; LT, liver transplatation; NAFLD, nonalcoholic fatty liver disease; PDGF, platelet-derived growth factor; PS, performance status; TACE, transarterial chemoembolization; TSC, thiosemicarbazide; VEGFR, vascular endothelial growth factor receptors.

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http://dx.doi.org/10.1016/j.biopha.2016.10.078
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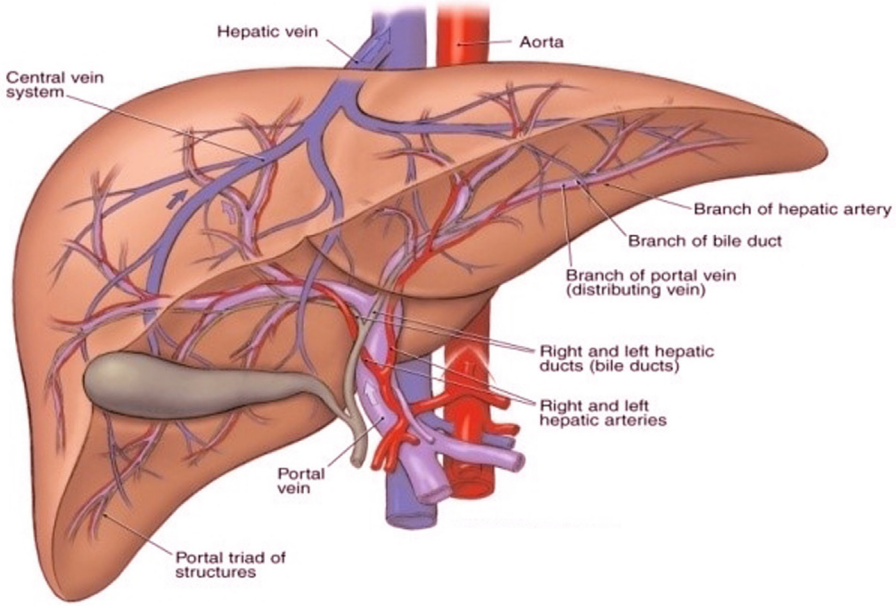

Fig. 1. Internal Anatomy of the liver.

cancer) to the other parts of the body and developed new cancerous tissue (secondary cancer or metastasis).

The liver is the largest, lobed, glandular organ in the body. The internal anatomy of the liver is depicted in Fig. 1. The parenchymal tissue of the liver mainly consists of hepatocytes. Liver aids in digestion by producing biochemicals, store energy, protein synthesis and detoxification. The liver is getting perfusion at the rate of 85 mL/min/100 g of tissue which is 24% of total cardiac output. Most of the drugs are metabolized primarily in the liver with the help of enzymes and bile produced by the liver. Any diseases or injury to the liver may lead to impairment of these process and lead to the accumulation of toxic compounds in the body [1].

The primary liver cancer originates in the liver and its occurrence is increasing rapidly in every year. Worldwide, liver cancer is the sixth most common cancer (782451 new cases), the 2nd cause of cancer-related death (745,533 cases), and accounts for 5.6% of all cancers as per the data published in Globocan 2012 (Fig. 2). In 2020, it is estimated that liver cancer incidence will be rise to 95374 new cases [2] (Fig. 3).

Among the various types of primary liver cancers like hepatocellular carcinoma (HCC), cholangiocarcinoma, angiosarcoma, hepatoblastoma, fibrosarcoma, leiomyosarcoma and rhabdomyosarcoma, HCC occupies major portion.

2. Hepatocellular carcinoma (HCC)

Hepatocellular Carcinoma (HCC), also called malignant hepatoma, is a primary malignant tumour of the liver arising from the liver cells (hepatocytes). HCC is considered to be the third leading cause of all cancer-related deaths and fifth common cancer worldwide [3]. It accounts for around 80–90% of all liver cancers. Globally, the occurrence of HCC is increasing by 3–9% annually [4] and approximately 7.5 Lakhs of new cases of HCC occurs per year [5]. More than half a million people are diagnosed with HCC worldwide, including about 20,000 new cases in the United States,

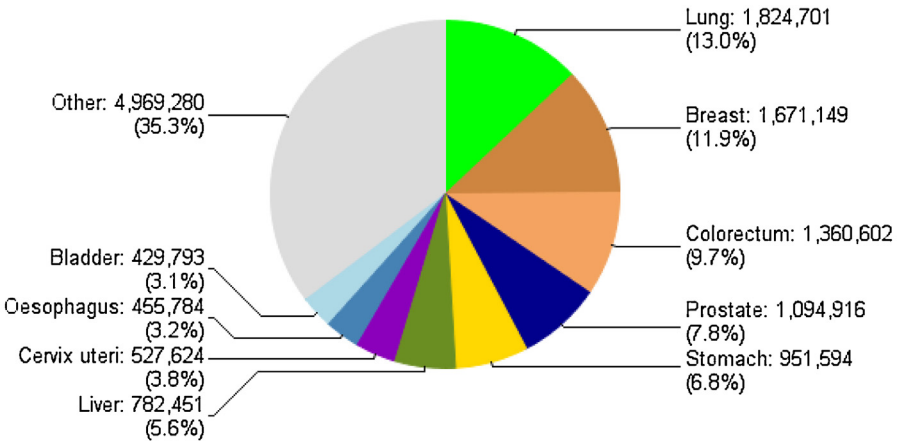

Fig. 2. Estimated number of cancer incidence worldwide, all ages both sexes.
Source: http://globocan.iarc.fr/old/pie_pop.asp?selection=224900&title=World&sex=0&type=0&window=1&join=1&submit=%C2%A0Execute accessed on 31-08-2016