RECENT MODALITIES IN THE SURGICAL MANAGEMENT OF HEPATOCELLULAR CARCINOMA

Essay

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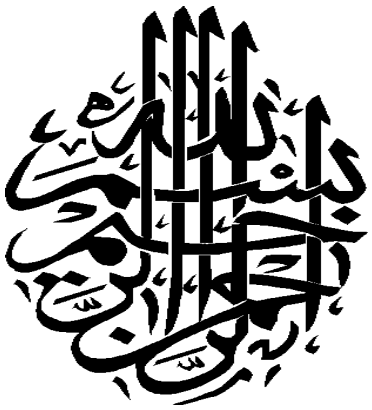

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Mahmoud Salama

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List of Abbreviations

Abbreviations

^{18}F-FDG:	18 Fluorine Labeled 2-deoy-2-d-Glucose
5-FU:	5-Fluorouracil
AASLD:	American Association for the Study of Liver Diseases
AD:	Anti-Date
AFP:	Alpha Feto Protein
AJCC:	Amirican Joint Committee on Cancer
ALT:	Alanine Aminotransferase
AST:	Aspartate Aminotransferase
BC:	Post-Century
BCLC:	Barcelona Clinic of Liver Cancer
CLIP:	Cancer Of Liver Italian Program
CT:	Computed Tomography
CTAP:	Computed Tomography Arterial Portography
CTHA:	Computed Tomography Hepatic Arteriography
CVP:	Central Venous Pressure
DNA:	Deoxyribonucleic Acid
GB:	Gallbladder
GGPT:	Gamma Glutamyl Transpeptidase
HBsAg:	Hepatitis B Surface Antigen
HBV:	Hepatitis B Virus
HCC:	Hepatocellular Carcinoma
HCV:	Hepatitic C Virus
ICG:	Indocyanine Green
IFN-a:	Interferon-alpha
IOUS:	Intra-operative Ultrasonography
IVC:	Inferior Vena Cava
LHV:	Left Hepatic Vein
LR:	Liver Resection
MHV:	Middle Hepatic Vein
MRA:	Magnetic Resonance aAngiography
MRCP:	Magnetic Resonance Cholangiopancreatography
MRI:	Magnetic Resonance Imaging
OLT:	Orthotopic Liver Transplantation
PEI:	Percutaneous Ethanol Injection
PET:	Positron Emission Tomography
RHV:	Right Hepatic Vein
RNA:	Ribonucleic Acid
TACE:	Trans Arterial Chemo-embolization
Tc^{99m}:	Technetium 99
TIE:	Trans-arterial Immuno Embolization
UK:	United Kingdome
US:	Ultrasonography
USA:	United States Of Amirica

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Introduction

Hepatocellular carcinoma(HCC) is the sixth most common cancer in the world (626,000 diagnoses per year) and is the third most common cause of cancer- related deaths (598,000 deaths per year) ***(Parkin et al., 2005)***.

The incidence ranges from <10 cases per 100 000 persons in North America and Western Europe to 50-150 cases per 100 000 persons in parts of Africa and Asia, where HCC is responsible for a large number of cancer deaths ***(El-Serag et al., 2003)***.

The etiology of HCC is multifactorial. The most important factors are cirrhosis or chronic hepatitis caused by hepatitis C or hepatitis B infections, and alcohol. Hepatocellular carcinoma usually presents with nonspecific symptoms, either due to the underlying cirrhosis or HCC itself ***(Al-Sowmely and Hodgson, 2002)***.

Unfortunately, HCC is often diagnosed only at an advanced stage due to the absence of specific symptoms during the initial course of the disease ***(Llovet and Bruix, 2003)***.

Unlike other forms of cancer, the diagnosis of HCC does not always require histological confirmation and HCC is usually diagnosed by tumor marker and radiology such as ultra-sonography, C.T and MRI. ***(Bolondi et al., 2005)***.

The usual outcome is poor, because only 10-20% of hepatocellular carcinomas can be removed completely using surgery. If the cancer cannot be completely removed, the disease is usually deadly within 3-6 months, although this varies greatly. Survival much longer than this occasionally occurs.
Hepatocellular carcinoma has, thus far, proven to be a difficult target for systemic therapies. The mainstays of treatment are, thus, physical treatments that in one way or another directly attack the tumor or its blood supply. The additional challenge posed by the fact that most cases of HCC develop in the setting of cirrhosis with impaired liver function, makes the selection of treatment a science in itself ***(Bruix and Sherman, 2005)***.

Till date, surgical, percutaneous and trans-arterial interventions have not been compared in randomized controlled trials. Tumor resection and

transplantation can achieve a 5-year survival rate of 60-70% in selected patients. Transplantation is the best treatment for patients with single lesions and advanced liver diseases, such as decompensated cirrhosis and multicentric small tumors ***(Blum, 2005)***.

Unfortunately, the overall 5-year survival rate for all patients with HCC has remained steady at 3-5% ***(Parkin et al., 2005)***.

Aim of the work

The purpose of this essay is to review the recent modalities in the surgical management of hepatocellular carcinoma and to focus on liver transplantation as an option for curability in hepatocellular carcinoma.

Anatomy Of The Liver

The internal architecture of the liver is composed of series of segments combined to form sector separated by scissurae containing the hepatic veins, Together or separately they constitute the visible lobes ***(Blumgart, 2006)***.

Alexandrian Herophilus (334-280 BC) was said by Galen to have provided the first detailed anatomic description of hepatic anatomy. Naturally, over the ensuing millennia, a better understanding of the precise anatomy of the liver has been forthcoming. Anatomic surgical approaches to the liver, the mainstay of elective hepatic surgery over the past several decades, however, did not become prevalent until the early 1950s. An in-depth knowledge of hepatic anatomy and its relationship to the surrounding perihepatic structures becomes essential if one is to successfully manage complex hepatic injuries ***(Skandalakis, 2010)***.

Lobar Anatomy

Galen (130-200 AD) described the liver as five-lobed, but Vesalius, in 1543, outlined a bilobed organ, separated by the falciform ligament into a