

**Evaluation of brain natriuretic peptide (BNP) as a
marker of cirrhotic cardiomyopathy in hepatocellular
carcinoma patients before and after Radiofrequency
ablation**

Thesis

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Medicine*

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أَعُوذُ بِاللَّهِ مِنَ الشَّيْطَانِ الرَّجِيمِ
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
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صَدَقَ اللَّهُ الْعَظِيمُ

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Mrs. Ebtahal El Arousy

And My Sisters..

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Ms. Aliaa Saeed Toaima

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List of abbreviations:

AA	Amino Acid
ACS	Acute coronary Syndrome
ALB	Albumin
ALT	Alanine Aminotransferase
AST	Aspartate Aminotransferase
BCLC	Barcelona Clinic Liver Cancer
BNP	Brain Natriuretic Peptide
BUN	Blood Urea Nitrogen
CBC	Complete Blood Count
CCM	Cirrhotic Cardiomyopathy
CECT	Contrast Enhanced Computerized Tomography
CEUS	Contrast Enhanced Ultra Sonography
CHF	Congestive Heart Failure
CO	Carbon Monoxide
COP	Cardiac Output
COPD	Chronic Obstructive Pulmonary Diseases
CT Scan	Computerized Tomography Scan
DT	The Deceleration Time
E/A ratio	Early / Late Ratio
ECG	Electro Cardio Gram
ED	Emergency Department
EF%	Ejection Fraction
ELISA	Enzyme Linked Immuno Sorbent Assay
FDG	Fluoride Radiolabeled Deoxyglucose
GGT	Gamma Glutamyl Transferase
HBV	Hepatitis B Virus
HCC	Hepatocellular carcinoma
HCV	Hepatitis C Virus
HDL	High Density Lipoprotein
INR	International Normalization Ratio
LDL	Low Density Lipoprotein
MDCT	Multidetector Computerized Tomography
MRI	Magnetic Resonance Imaging

N	Number
Na	Sodium
NICE	National Institute for Clinical Excellence
NO	Nitric Oxide
NS	Non Significant
PEI	Percutaneous Ethanol Injection
PET	Positron Emission Tomography
PG	Pico Gram
PMCT	Percutaneous Microwave Coagulation Therapy
PT	Prothrombin Time
PTT	Partial Thromboplastin Time
RF	Respiratory Failure
RFA	Radiofrequency Ablation
S	Significant
S. TG	Serum Triglycerides
SD	Standard Deviation
SNS	Sympathetic Nervous System
TACE	Trans Arterial Chemo Embolization
TIPS	Transjugular Intrahepatic Portosystemic Shunt

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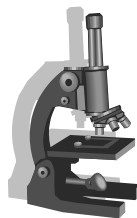
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Introduction



Introduction

Hepatocellular carcinoma is one of the ten most common cancers worldwide . the tumor is either single or occurs as multiple nodules throughout the liver. **(Kumar P ,et al, 2005)**.liver cancer is the fifth most common cancer in men and the seventh in women. **(Golobocan , 2008)**

Radiofrequency ablation has received great interest as a minimally invasive alternative therapeutic technique for hepatocellular carcinoma (HCC) for the past decade and has now gained a major role in the treatment of HCC with promising clinical outcome data. **(Rhim H et al,2003)**

Cirrhotic cardiomyopathy :This syndrome is formally described as cirrhotic cardiomyopathy, which is defined as chronic cardiac dysfunction in patients with cirrhosis characterized by blunted contractile responsiveness to stress and/or altered diastolic relaxation with electrophysiological abnormalities, in the absence of known cardiac disease and irrespective of the causes of cirrhosis, although some etiologies (e.g., iron overload and alcohol consumption) further impact on myocardial structure and function. **(Wong, 2009)**.

Brain natriuretic peptide (BNP)is a biological active peptide of 32 amino acids and has vaso dilator and natriuretic properties. BNP is cleaved from 108 amino acids proBrain Natruretic peptides released from cardiac ventricls in response to stretching champers . Release of

BNP appears to be indirect proportion to ventricular volume expansion and pressure overload. BNP decrease after effective treatment of heart failure . it is used in routin assessment for differentiating acute heart failure from other causes of dyspnea such as RF . **(Hobbs FD, et al, 2002).**

BNP levels increase markedly in left ventricular dysfunction and the level in heart failure correlated with symptoms severity . it is important in diagnosing heart Failure in patient with unexplained dyspnea and screening for asymptomatic ventricular dysfunction establishing prognosis or guiding titration of drug thereby and detection of future cardiovascular events .**(Jankowski M,2008)**

Level of ≥ 100 pg/ml have a greater than 95% specificity and greater than 98% sensitivity in patient with CHF. **(Hobbs FD, et al; 2002)**

Causes of increase of BNP could be cardiac such as heart failure , diastolic dysfunction , acute coronary syndrome , hypertension with left ventricular hypertrophy , valvular heart disease , atrial fibrillation , myocarditis and cardiac allograft rejection or non cardiac such as acute pulmonary embolism , pulmonary hypertension , sepsis , chronic obstructive pulmonary disease(COPD) with cor pulmonal or respiratory failure , hyperthyroidism and renal failure .**(Felker GM et al ,2006)**

Aim of the work:

This study aims to evaluate the brain natriuretic peptide as a marker for the diagnosis of cirrhotic cardiomyopathy in hepatocellular carcinoma patients before and after radiofrequency ablation.

Patients and methods:

The study will be conducted on **30 patients** admitted in internal medicine department and interventional radiology department of Ain shams university hospitals. They will be divided into:

- **20 patients** with hepatocellular carcinoma undergoing radiofrequency ablation as patient group.
- **10 patients** with chronic liver disease (child A) as control group.

All patients will be subjected to the following:

I-full history taking and clinical examination

II-Laboratory investigations including:

1- liver function tests

- S.albumin (Alb)
- S.alanine transaminase (ALT)
- S.aspartate transaminase (AST)
- S.alkaline phosphatase (ALP)