Relation betweenGlycated Albumin to Glycated Hemoglobin ratio and high bleeding risk of esophageal varicesin patients with liver cirrhosis

Thesis Submitted for Partial Fulfilment of Master Degree in Internal Medicine

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بِسْمِ اللّهِ الرّحمَنِ الرّحيم

(...رَبِّ أوزِعنِي أن أشكُر نِعمَتَكَ الّتِي أنْعَمْتَ عَلَيَّ وعَلى والِدَيَّ وأنْ أعْمَلَ صَالِحاً تَرْضَاهُ وأدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ)

صدق الله العظيم

سوره النمل..الايه 19

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Mohamed Abdullah Abdelsalam

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List of Abbreviations

Abb.	Full term
ADA	American Diabetes Association
Alb	Albumin
ALT	Alanine Aminotransferase
AST	Aspartate Aminotransferase
CBC	Complete Blood Count
cm	Centimeter
Creat.	Creatinine
CRS	Cherry Red Spot
CTP	Child-Turcotte-Pugh
dl	Deciliter
g	Gram
GOV	Gastrooesophgeal varices
HCV	Hepatitis C Virus
HE	Hepatic encephalopathy
HVPG	Hepatic venous pressure gradient
IGV	Isolated Gastric varices
INR	International Normalization Ratio
ISMN	Isosorbide mononitrate
IVC	Inferior vena cava
K	Potassium
MELD	Model for End-stage Liver Disease
mg	Milligram
ml	Milliliter
mm	Millimeter
mm Hg	Millimeter mercury

Na	Sodium
No	Number
NO	Nitric oxide
OV	Oesophageal Varices
PBF	Portal blood flow
Plat	Platelet
PT	Prothrombin Time
PTH	Portal Hypertension
PV	Portal Vein
RBCs	Red Blood Cells
SAAG	Serum ascites albumin gradient
SD	Standard Deviation
SPSS	Statistical Program for Social Science
TIPS	Transjugular Intrahepatic Portocaval Shunt
UGE	Upper Gastrointestinal Endoscopy
WBCs	White Blood Cells
3-NT	3 nitrotyrosine

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Introduction

Esophageal varice (o.v) are extremely dilated sub-mucosal veins in the lower third of the esophagus. They are most often a consequence of portal hypertension, commonly due to cirrhosis; patients with esophageal varices have a strong tendency to develop bleeding. **(Nicki et al, 2010).**

Despite the name esophageal varices, they can form in the esophagus and the stomach**. (ParveenK, Michael C, et al, 2005).**

Esophageal varices (O.Vs) are caused by an increase in pressures in the portal vein (P.V), the blood vessel that connects the liver to the digestive organs. This elevated pressure is called portal hypertension. This increase in pressure causes a back up of blood that makes the blood vessels in the esophagus (and/or stomach) enlarge, swell and become very fragile. The increase in pressure is typically caused by liver disease, such as cirrhosis or hepatitis**. (Anastasios A, and Mihas et al, 2006).**

The swollen blood vessels are sensitive, and can bleed easily. When the vessels rupture, the bleeding can be life-threatening and have high morbidity, mortality and economic effects that requires immediate medical attention (**Cenon et al, 2005).**

In emergency situations, the care is directed at stopping blood loss, maintaining plasma volume, correcting disorders in coagulation induced by cirrhosis, and appropriate use of antibiotics (usually a quinolone or ceftriaxone, as infection by gram-negative strains is either concomitant or a precipitant).

Blood volume resuscitation should be done promptly and with caution. Goal should be hemodynamic stability and hemoglobin of over 8.

Resuscitation of all lost blood leads to increase in portal pressure leading to more bleeding. Volume resuscitation can also worsen ascites and increase portal pressure. **(Arun, Eric, 2009).**

Therapeutic endoscopy is considered the mainstay of urgent treatment. Two main therapeutic approaches exist:

Variceal ligation, or banding. and sclerotherapy **(Murr et al, 2010).**

Prevention and prophylactic :

The upper endoscopy is still the golden method to diagnose early esophageal varices and prevents its bleeding and further complications, since endoscope have a high economic pattern and also bad patient compliance, the non invaise (endoscopic) predictors to diagnose esophageal varices early importance rises

Many studies in this field was done like platelet count spleen diameter ratio, serum fibrosis marker ,right hepatic lobe diameter platelet count ratio and Elevation of the glycated albumin to glycated hemoglobin ratio**(Marwa khairy et al, 2012).**

Glycated proteins are known to reflect the plasma glucose level and glycated hemoglobin (HbA1c) is used as a standard index of glycemic control in patients with diabetes mellitus. Since the lifespan of erythrocytes is about 120 d, HbA1c reflects the glycemia for the recent few months. Glycated albumin (GA) is another index of glycemic control which correlates with the plasma glucose levels during the past few weeks because the turnover of albumin is about 20 d. Although the ratio of GA/HbA1c is usually close to 3, the value changes based on the patient's condition. In patients with chronic liver disease (CLD),

hypersplenism causes a shortened lifespan of erythrocytes, leading to lower HbA1c levels relative to the plasma glucose level. In contrast, the turnover periods of serum albumin in CLD patients is prolonged in order to compensate for the reduced production of albumin. Therefore, the GA levels in CLD patients are higher relative to the degree of glycemia **(Ansari A, Thomas S, Goldsmith D, et al, 2003).**

Aim of the work

To determine the relation between (glycated albumin to glycated haemoglobin) ratio and risk of bleedind esophageal varices in patient with liver cirrhosis