



Comparative Study between Band Ligation and Combined Band Ligation and Argon Plasma Coagulation for Primary Prophylaxis of Variceal Bleeding

Thesis

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By

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To my parents
Who gives me everything since I was born
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Abstract

EVL followed by APC did not offer significant advantages over EVL alone with respect to obliteration of esophageal varices and their recurrence over a 6 months period of follow up.

Increased esophageal variceal grade was observed more in the EVL alone group and may significant differences occur between both methods if the follow up period is prolonged.

No significant complications were added to EVL from the use of APC in the distal esophagus.

Key words:

- omparative Study between Band Ligation
- Combined Band Ligation
- Argon Plasma Coagulation
- Primary Prophylaxis
- Variceal Bleeding

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Abbreviations

APC	Argon Plasma Coagulation
CNS	Central Nervous System
CSPH	Clinically Significant Portal Hypertension
CT	Computed Tomography
EGD	Esophago-gastro-duodenoscopy
EGJ	Esophago-gastric Junction
EIS	Endoscopic Injection Sclerotherapy
EUS	Endoscopic Ultrasonography
EVL	Endoscopic Variceal Ligation
FHVP	Free Hepatic Venous Pressure
GABA	Gamma Amino Butyric Acid
GAVE	Gastric Antral Vascular Ectasia
GERD	Gastroesophageal Reflux Disease
GFR	Glomerular filtration Rate
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HVPG	Hepatic Venous Pressure Gradient
ICG	Indocyanine Green
IMEV	Intramural Esophageal Varices
IMN	Isosorbide Mononitrate
IVC	Inferior Vena Cava
LPS	Lipopolysaccharide
MRI	Magnetic Resonance Imaging
NIEC	North Italian Endoscopic Club
NO	Nitric Oxide
NOS	Nitric Oxide Synthase
PD	Polidocanol

PHG	Portal Hypertensive Gastropathy
PHT	Portal Hypertension
PMEV	Paramural Esophageal Varices
PSS	Portosystemic Shunt Surgery
PTFE	Polytetrafluoroethylene
PV	Portal Vein
PVT	Portal Vein Thrombosis
RCT	Randomized Controlled Trial
SLS	Sequential Ligation Sclerotherapy
SMC	Smooth Muscle Cell
SVC	Superior Vena Cava
TIPS	Transjugular Intrahepatic Portosystemic Shunt
TNF- α	Tumor Necrosis Factor Alpha
WHO	World Health Organization
WHVP	Wedge Hepatic Venous Pressure

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***Introduction
and
Aim of the Work***

Introduction

Gastro-esophageal variceal bleeding is a major complication of portal hypertension resulting from cirrhosis, accounts for 10–30% of all cases of upper gastrointestinal tract bleeding. Prospective studies have shown that more than 90% of cirrhotics will develop esophageal varices sometime in their lifetime and of these 30% will bleed (*Laine L, 1991*).

Variceal bleeding is associated with more substantial morbidity and mortality than other causes of gastrointestinal bleeding, as well as with higher hospital costs. Up to 30% of initial bleeding episodes are fatal and as many as 70% of survivors have recurrent bleeding after a first variceal hemorrhage (*Graham and Smith, 1981; The North Italian Endoscopic Club for the study and treatment of esophageal varices, 1988*).

Treatment of patients with gastro-esophageal varices includes prevention of the initial bleeding episode (primary prophylaxis), control of active bleeding, and prevention of recurrent bleeding after a first episode (secondary prophylaxis), (*Sharara and Rockey, 2001; Samonakis et al., 2004*).

Variceal band ligation is the only effective alternative to beta-adrenergic blockers for primary prophylaxis, but its use should be restricted to patients with large varices and intolerance or contraindications to beta-adrenergic blockers, however, multiple sessions of EVL are often necessary due to the frequency of variceal recurrence after ligation (*Imperiale and Chalasani, 2001*).

The combination of EVL with a technique that causes fibrosis of the mucosa in the distal esophagus, may offer improved outcomes for these patients by circumventing variceal recurrence. Evidence in the literature indicates that ligation in combination with low-volume sclerotherapy is no more effective than ligation alone. Within this setting, argon plasma coagulation (APC), a non-contact method of thermal coagulation, offers a distinct feature: safe and effective shallow coagulation over extensive areas. In a preliminary study by *Cipolletta et al., 2002*, the use of APC to induce mucosal fibrosis after eradication of