RESEARCH ARTICLE

Medical Versus Endoscopic Treatment of Oesophageal Varices in Liver Cirrhosis

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Abstract

Introduction: Portal hypertension is the most common complication of liver cirrhosis. It may be complicated by gastrointestinal bleeding from oesophageal or gastric varices. Treatment of varices can be medical by using non-selective beta blockers (as propranolol or carvedilol), or endoscopic (endoscopic variceal ligation EVL, endoscopic injection sclerotherapy EIS), or both.

Aims & Methods: This study was conducted on 80 patients with liver cirrhosis and oesophageal varices (O.V.) grade III and IV, who were classified into five groups. Group I, 20 patients were subjected to EVL alone, group II, 20 patients received carvedilol alone(6.25 mg once daily, then increased to 6.25 mg twice daily after 1 week), group III received propranolol alone (20 mg three times daily), group IV, 20 patients who were subjected to EVL combined with carvidolol (6.25 mg once daily, then increased to 6.25 mg twice daily after 1 week) and group V, 20 patients who were subjected to EVL combined with propranolol(20 mg three times daily). All patients were followed up by doppler study of portal vein and upper G.I. endoscopy.

Results: Upper G.I. endoscopy was done for all patients every 3 months up to 12 months. In the 1st visit, 95% of group I patients had O.V. grade IV and 5% had grade III O.V., by the 4th visit 80% had O.V. grade I and 20% had no O.V. in the same group. In group II, in the 1st visit 90% of patients had O.V. grade IV and 10% had O.V. grade III, in the 4th visit 60% had O.V. grade I and 40% had no O.V., In group III, in the 1st visit 95% of patients had O.V. grade IV and 5% had O.V. grade III, in the 4th visit 50% had O.V. grade I and 30% had no O.V., In group IV, in the 1st visit 20% of patients had O.V. grade IV and 80% had O.V. grade III, in the 4th visit 40% had O.V. grade I and 60% had no O.V., regarding group V, in the 1st visit, 75% had grade IV O.V. and 5% had O.V. grade III, while in the 4th visit 60% had O.V. grade I and 40% had no varices.

Conclusion: The combination of carvedilol and EVL is more effective in treating medium and large sized O.V. than EVL alone or EVL combined to propranolol.

Introduction

Portal hypertension is responsible for the majority of complications of patients with liver cirrhosis, such as, development of oesophageal varices (OV), ascites, hepatorenal syndrome and hepatic encephalopathy.[1] OV are found in between 39 and 50% of cirrhotic patients; approximately half of them bleed at some point, and rebleeding occurs in up to two-thirds of the patients [1,2].

Almost 25% of patients with variceal bleeding (VB) die, with the associated mortality rate depending on several factors, including the severity of the underlying liver disease, the treatment received during the acute episode [3], the size of the varices and the presence of red spot signs. [2] Up to 30% of these patients also develop gastric varices, which on bleeding result in an even higher mortality [4,5].

Non-selective beta blockers (NSBB) and endoscopic variceal ligation (EVL) have been the mainstay of primary prophylaxis and reduce the risk of bleeding from 50 to 15% for large varices. [6,7] NSBB are a class of drugs with effects on the sympathetic nervous system [8]. NSBB have beta-1 receptor blocking effects that reduce cardiac output and portal venous inflow and beta-2 receptor blocking effects that lead to splanchnic vasoconstriction. Both the reduced cardiac output and the reduced portal venous inflow will reduce portal pressure [8,9].

NSBB are cost-effective [10], and may be also used in the prevention of other complications of cirrhosis and portal hypertension, including bleeding from portal hypertensive gastropathy [11]. However, other studies do not recommend the use of NSBB in patients with decompensated cirrhosis [12,13], in addition, they have some side effects that lead to treatment discontinuation in approximately in 15% of patients [14] such as depression, fatigue, sexual dysfunction, bradycardia and even heart block [15,16]. Therefore further

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researches are needed regarding the appropriate use of NSBB in patients with cirrhosis.

NSBB used in clinical practice are propranolol, nadolol, and timolol [17], and recently, carvedilol that represents a promising drug that needs to be explored further [18]. Carvedilol is a racemic mixture that possesses both non-selective β2-antagonist and α1-receptor antagonist activity. Given its combined mechanism of action, carvedilol may have a greater potential for lowering portal pressure than propranolol [19].

The concept of EVL was based upon the treatment of varices with rubber band ligation. EVL obliterates varices by capturing all or part of a varix with rubber bands, resulting in mechanical strangulation and occlusion from thrombosis. The tissue then necrotizes and sloughs off in a few days to weeks, leaving a superficial mucosal ulceration, which rapidly heals [5].

It was documented that there was no difference in survival between EVL and NSBB for treating patients with high-risk OV. EVL showed the same efficacy or even better than the NSBB in preventing a first bleed [20]. But the recurrence of esophageal varices after EVL was more than 50% within 2 years [21]. This is because persistence of high portal pressure after EVL results in reformation of OV [22]. So the addition of NSBB to reduce portal pressure has been proved to decrease OV recurrence [23].

Patients and Methods

This study was conducted on 100 patients with liver cirrhosis and esophageal varices (O.V.) Liver cirrhosis was diagnosed on clinical, biochemical and radiological basis then patients were selected after upper GIT endoscopy screening for esophageal varices of grade III and IV.

Patients were classified into five groups. Group I, 20 patients were subjected to EBL alone, group II, 20 patients received carvedilol alone (6.25 mg once daily, then increased to 6.25 mg twice daily after 1 week), Group III received propranolol alone (20 mg three times daily), group IV, 20 patients who were subjected to EBL combined with carvedilol (6.25 mg once daily, then increased to 6.25 mg twice daily after 1 week) and group V, 20 patients who were subjected to EBL combined with propranolol (20 mg three times daily).

All patients were followed up by doppler study of portal vein and upper G.I. endoscopy.

Aim of the work

The aim of this work was to compare between medical treatment and band ligation in the treatment of oesophageal varices secondary to liver cirrhosis.

Results

Patient demographic data:

Regarding sex, the majority of patients were males consisting of 55%, 75%, 80%, 65% and 60% respectively. There was no statistical significance between the studied groups regarding sex (p = 0.189).

Regarding to age, patient’s ages ranged from 40 to 72 years in group I, 45 to 65 years in group II, 36 to 70 in group III, 35 to 60 in group IV and 41 to 66 in group IV. [Table 1].

Endoscopic follow up of the studied groups

Upper G.I. endoscopy was done for all patients every 3 months up to 12 months. In the 1st visit, 95% of group I patients had O.V. grade IV and 5% had grade III O.V., by the 4th visit 80% had O.V. grade I and 20% had no O.V. in the same group.

In group II, in the 1st visit 90% of patients had O.V. grade IV and 10% had O.V. grade III, in the 4th visit 60% had O.V. grade I and 40% had no O.V., In group III, in the 1st visit 95% of patients had O.V. grade IV and 5% had O.V. grade III, in the 4th visit 50% had O.V. grade I and 30% had no O.V.,

In group IV, in the 1st visit 20% of patients had O.V. grade IV and 80% had O.V. grade III, in the 4th visit 40% had O.V. grade I and 60% had no O.V., regarding group V, in the 1st visit, 75% had grade IV O.V. and 5% had O.V. grade III, while in the 4th visit 60% had O.V. grade I and 40% had no varices [Figure 1].

Doppler follow up of portal vein:

Regarding the percentage of change between the first and fourth visit, in group I mean value of 18.54% was achieved. While in group II it was 11.06%, 10.8% in group III, 22.35 in group IV and 20.56% decrease in portal vein diameter after the fourth visit. There was a statistical significance between the five groups regarding the percentage of change between the first and the fourth visit. (p < 0.001*) [Figure 2].

<table>
<thead>
<tr>
<th>group I (n=20)</th>
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Table 1: different studied groups according to patient’s demograph.
Discussion

Portal hypertension (PHT) is responsible for the majority of complications of patients with liver cirrhosis, for example, the development of oesophageal varices, ascites, hepatorenal syndrome, hyperdynamic circulation and hepatic encephalopathy. [1] Patients with oesophageal varices are at risk of variceal bleeding, especially if varices are large or with red spot signs. [24, 25] Despite advances in the management of acute variceal bleeding the in hospital mortality is still as high as 20% [26]

Earlier studies have already shown that achieving a haemodynamic response to non-selective β-blockers (NSBB) (defined as a decrease in hepatic venous pressure gradient (HVPG) of ≥20% compared to baseline values or to absolute values <12 mm Hg) treatment may protect from variceal bleeding. [27,28] consequently, current guidelines [29] suggest pharmacological treatment with NSBB or endoscopic band ligation (EBL) for the prevention of the first variceal bleeding episode.

Nadolol and propranolol have traditionally been used for prophylaxis of variceal bleeding. [30-32] while carvedilol represents a promising drug that needs to be explored further. [29] Carvedilol is a racemic mixture that possesses both non-selective β1/2-antagonist and α1-receptor antagonist activity. Given its combined mechanism of action, carvedilol may have a greater potential for lowering portal pressure than propranolol [1].

This study was conducted on 100 patients with liver cirrhosis and oesophageal varices (O.V.) Liver cirrhosis was diagnosed on clinical, biochemical and radiological basis then patients were selected after upper GIT endoscopy screening for oesophageal varices of grade III and IV.

Patients were classified into five groups. Group I, 20 patients were subjected to EBL alone, group II, 20 patients received carvedilol alone(6.25 mg once daily, then increased to 6.25 mg twice daily after 1 week), Group III received propranolol alone (20 mg three times daily), group IV, 20 patients who were subjected to EBL combined with carvedilol (6.25 mg once daily, then increased to 6.25 mg twice daily after 1 week) and group V, 20 patients who were subjected to EBL combined with propranolol(20 mg three times daily).

Regarding the diameter of the portal vein it was significantly smaller in the fourth visit than the first visit in the five studied groups, the percentage of change between the first and fourth visits in patients who received a combined treatment of oesophageal varices by band ligation and carvedilol was significantly higher than other groups (p < 0.001) this is in agreement with Reiberger T [33], et al. Who found that Carvedilol had significantly greater effects on portal pressure than propranolol (−19% vs −12%).

William F [34] et al, in Canada conducted a study on sixty patients suffering from liver cirrhosis and bleeding oesophageal varices found a positive correlation between the diameter of portal vein and grade of varices.

In the present study combination of carvedilol and EVL was found to be significantly effective (0.001*) in treating medium and large sized O.V.(on the 4 th visit 60% had no esophageal varices) than EVL alone(20% no varices by 4 th visit) or EVL combined to propranolol( 40% no varices), this is in agreement with Abid S et al, [35] who found that when Carvedilol was compared to EBL showed a significantly lower rate of first variceal bleeding , however Shah et al, [36] suspected that carvedilol is not superior to EBL for primary prophylaxis of oesophageal varices.

In the present study propranolol combined with EVL was significantly associated with a better outcome (40% no varices by 4 th visit) than using either propranolol alone (30% no varices by 4 th visit) or EVL alone (20% no varices by 4 th visit) but Abid S et al, [35] found that Propranolol decreases risk of variceal bleeding. EBL superior to propranolol in prevention, but propranolol is easier to use.

Conclusion

The combination of carvedilol and EVL is more effective in treating medium and large sized O.V. than EVL alone or EVL combined to propranolol.

References


