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Predictors of Early Rebleeding After Ligation of Esophageal Varices

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1. Abstract

Bleeding from ruptured esophageal varices is a fatal complication in patients with portal hypertension. Early rebleeding occurs frequently in the first few weeks after ligation. Several factors were identified to be associated with the occurrence of variceal rebleeding. The aim of our study is to explore the predictors of rebleeding in our cirrhotic patient of Mohamed VI university hospital in Marrakech to improve the management of decompensated cirrhotic patients and therefore reduce morbidity and mortality related to re-bleeding.

2. Introduction

Gastrointestinal bleeding of varicose origin is a serious complication of portal hypertension. Early rebleeding after endoscopic variceal ligation (LVE) occurs frequently in the first few weeks, and the mortality associated with each bleeding episode ranges from 30% to 50%.

Several factors have been noted to be associated with the occurrence of variceal rebleeding; high portal pressure, size of the varices, portal vein thrombosis, red signs on varices, treatment modalities of acute bleeding, infection have all been presumed to be related to variceal rebleeding.

Our objective is to evaluate the clinical, biological and endoscopic predictors of early re-bleeding after LVE in our context to act upstream and avoid this complication which can be fatal.

3. Materials and Methods

A retrospective study was carried out during the period June 2020 to May 2021 on 103 cirrhotic patients who had done LVE, at the Mohamed VI university hospital in Marrakech. The patients were divided into groups: group I without recurrent bleeding comprising 83 patients and group II with early re-bleeding comprising 20 patients. The medical history of the patients, clinical examination, laboratory assessment, abdominal ultrasound as well as an esogastroduodenal fibroscopy were carried out for all the patients in our series.

4. Results

A total of 146 patients with cirrhosis were enrolled in this study mean age 50, 5 years, range 25–76 years). Among the 103 patients treated with EVL, 20 patients developed early rebleeding: 19,4%. There were 16 male patients in the rebleeding group 80% and only 4 women 20%. Low blood albumin, elevated creatinine, and total bilirubin were predictors of new varicose bleeding after LVE.

The presence of gastric varices as well as the grade and extent of esophageal varices were endoscopic risk factors contributing to recurrent variceal bleeding early after LVE.

The presence of ascites, notion of anterior LVE, higher MELD score, and Child-Pugh stage C were statistically associated with early re-bleeding.

5. Discussion

Acute oesophageal variceal bleeding is a frequent and severe complication in patients with cirrhosis, which is related to a high mortality and rebleeding rate. In previous reports, early rebleeding was defined as the recurrence of haemorrhage within 6 weeks [1-2]. The data obtained before re-bleeding are very important for the analysis of prognostic factors in addition to the endoscopy data obtained after re-bleeding.

A prior study [3] reported that the rate of early rebleeding following LVE was between 9% and 19%, which is close to our result (19,4%). We also found that rebleeding often occurs between the 7th and 13th day following the procedure. Vanbiervliet et al [7] reported that cases

of severe bleeding after LVE were all caused by early slippage of the rubber bands, leaving the unhealed laceration. Usually, the bands slip spontaneously within the second week after LVE, which can explain the timing of rebleeding found in the study. On the basis of the above result, recommending a soft diet and avoiding strenuous exercise is helpful to prevent early slippage of the bands, and decrease the rate of rebleeding in cirrhotic patients [4].

In other studies, more expanded indices were collected than former studies to evaluate patients with esophageal varices more comprehensively, which allowed us to draw convincing conclusions.

As shown, presence of significant differences between cases and controls for many characteristics, such as age, surgical history, varicose vein grade and extent, number of rubber bands applied, liver function, presence or not of an associated ascites decompensation. But as the multivariate analysis demonstrated, there were only some of these criteria that had a direct impact on the rate of re-bleeding, namely grade 2 or 3 ascites, the number of rubber bands placed, the extent of varicose veins and impaired liver function. These risk factors are judged by studies to be more significant than others in predicting early re-bleeding after LEV.

Lee et al [5] believed that the more rubber bands that were used to ligate, the greater the possibility of rebleeding, because of the increasing ulcera. In our study, we also found that the number of rubber bands was an independent risk factor for bleeding after LVE.

The prognosis does not only depend on the LVE procedure, but also relates to the severity of liver damage and bleeding. Yang et al [6] found that the Child-Pugh score for liver function was an independent risk factor of post-LVE rebleeding. Berreta et al [8] proved that Child-Pugh C was an independent risk factor of death from rebleeding. In our study, the Child-Pugh score was defined as a predictor of post-LVE re-bleeding.

Ascites as an independent risk factor for early recurrence of bleeding after LEV was not reported in the study by Vanbiervliet et al [7]. However, the volume of ascites was not quantified. In our study it was shown that ascites grade 2 and was the most important factor in predicting rebleeding [9]. This can be explained by the increase in pressure in the portal vein which increases proportionally with the volume of the ascites. It was reported in a previous study [10] that variceal bleeding recurred more in patients with higher basal portal vein pressure, and led to higher mortality. High portal vein pressure is then an important predictor for the recurrence of variceal bleeding [11-12].

Another determined risk factor was the extent of varicose veins, which also reflects the severity of varicose veins. Very extensive varicose veins are more difficult to take care of and therefore require the break of more elastic and therefore a greater risk of re-bleeding.

In conclusion, our study predicted early post-ligation hemorrhagic recurrence by analyzing multiple predictors. Part of the result was consistent with previous studies, but the other part differed from previously reported studies. Patients should be carefully analyzed for their re-bleeding factors before performing LEV to reduce recurrence of bleeding.

Patients with liver function disturbances, significant ascites and coagulation disorders should be treated for their dysfunction before LEV. Correction of coagulation disorders, reduction of ascites by diuretics and albumin should intervene in the reduction of the rate of re-bleeding.

6. Conclusion

Early rebleeding following LVE was detected in about 19% of our patients. The suggested predictors should be researched and minimized prior to LVO, in order to reduce the risk of rebleeding and improve the vital prognosis of cirrhotic patients having presented a hemorrhagic complication.

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