The Role of Sclerotherapy in Children

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ABSTRACT

Introduction: Endoscopic sclerotherapy to control variceal bleeding in adults has been proven to be useful. Complications from this procedure that have been reported include esophageal stricture, perforation, mediastinitis and recurrent bleeding. This procedure has increasingly been used in pediatric patients, thus increasing the incidence of its complications.

The purpose of this study: To report the effect of sclerotherapy in variceal bleeding

Method: All patients that underwent sclerotherapy since 1989 were included in the study and were followed up until December 1999. We recorded the frequency of injections, recurrent bleeding, and gastropathy.

Results: During the last ten years, we have used sclerotherapy in 26 patients. The varices were secondary to intrahepatic portal hypertension. The average age at initial sclerotherapy was 7 years (ranging from 1-12 years). Two patients died following initial sclerotherapy. Nine patients could not be followed up and 17 patients were under monitoring for 2-10 years. Four patients died after 2-8 years of follow up due to the underlying diseases. Complete obliteration of all varices was obtained in 12 cases, minimal residual varices in four and 1 case was unfavorable for injection. Six patients (35.3%) suffered from recurrent bleeding; 4 patients had minimal residual varices (1 year follow up), and 2 patients had complete obliteration (3 years follow up). Gastropathy was found in 6 patients after 12 to 32 sessions of injection. Complications such as perforation or stricture were not found.

Conclusions: Sclerotherapy is a very useful technique to control variceal bleeding in children. We found recurrent bleeding and gastropathy in 35.3% patients. Other complications were not found.

***Keywords**: Sclerotherapy, children, endoscopy varices esophagus*

INTRODUCTION

Endoscopic sclerotherapy is very useful to control variceal bleeding, which make up 9% of acute upper gastrointestinal bleeding in children. This procedure is increasingly used in pediatric patients, thus increasing the incidence rate of complications such as esophageal stricture, esophageal perforation, and mediastinitis. This method can reduce the frequency and severity of recurrent variceal bleeding. This procedure is preferred for patients who are not surgical candidates because the method appears to be as good as shunt surgery. Repeated sclerotherapy is needed to decrease the rate of recurrent bleeding and to improve survival. The session can be done in an outpatient clinic at 2 to 4 weeks intervals until all varices were obliterated. Endoscopic follow up at 6-12 months intervals is advised to prevent recurrent bleeding. The purpose of this study is to report the effect of sclerotherapy in variceal bleeding and its complications in children.

PATIENTS AND METHOD

All patients who underwent endoscopic sclerotherapy were included in the study. The study took place from July 1989 to December 1999. We recorded the diagnoses of underlying diseases, the patient's age, the frequency of injections, recurrent bleeding, gastropathy, or other complications. We used general anesthesia in all patients. Injections were repeated every 1 to 2 weeks based on the patients status and was stopped if the varices had been obliterated. All patients were followed

up endoscopically every 6-12 months. Injections may be either paravariceal, intravariceal, or both. A sclerosing agent (ethoxysclerol 1%) was injected to the distal esophagus. Patients were followed up for 2-10 years.

RESULTS

Twenty-six patients who underwent sclerotherapy were included in the study. The age of the patients at initial sclerotherapy ranged from 1-12 years (mean 7 years). Almost all of our patients underwent the Kasai procedure, except one who had portal vein thrombosis. Two patients died following initial sclerotherapy due to the underlying diseases. Nine patients could not be followed up. Seventeen patients were monitored for 2-10 years. Four patients died after 2-8 years follow up due to underlying diseases. Complete obliteration was obtained in 12 cases (70,6 %), minimal residual varices in 4 cases, and unfavorable for injections in one case (Table 1.)

Table 1. Result of Sclerotherapy

	Number of patients (%)	Recurrent Bleeding
Complete obliteration	12 (70.6)	2
Minimal Residual Varices	4 (23.5)	4

The complications were as follows: recurrent bleeding in 6 patients (35.3%) and gastropathy in 6 patients (35.3%) (after 12-32 sessions). During 3 years follow up, we found recurrent bleeding in 4 patients who had minimal residual varices and in 2 patients who had complete obliteration.

DISCUSSION

Esophageal varices in children is not uncommon. During a 10-year period, we managed 26 cases of esophageal varices due to portal hypertension. Almost all patients except one had varices due to intrahepatic portal hypertension and liver cirrhosis. Variceal bleeding was reported as the major cause of death in these patients, and sclerotherapy was proven to be useful to control variceal bleeding. In our study, the youngest age of variceal bleeding was one year. The bleeding was not directly related to the severity of cirrhosis or liver function test. It might be related to the blood pressure in the portal vein. Unfortunately, because our study was a retrospective study, we did not measure the pressure of the portal vein. The average age of our patients was almost the same as the other study in the literature. Some of our cases could not come in a regular basis due to financial problems. However, we were able to follow up 17 cases for 2-10 years. During the study period, 6 patients died due to underlying diseases, two of them at initial sclerotherapy and 4 of them during follow up. From the patients who underwent sclerotherapy, two thirds of them demonstrated a good response (complete obliteration), and only few of them still had minimal residual varices. In one case, we could not inject the varices because of technical difficulties. We performed 12 to 32 injections of sclerotherapy. There was one patient who received 32 injections. This might have been due to the severity of the varices. During study period, the incidence of recurrent bleeding was almost the same as in another study[1]. Interestingly, patients from the minimal residual varices group had a higher rate of recurrent bleeding (twice) and the time to the point of recurrent bleeding was shorter than in the complete obliteration group (1 year vs. 3 years). However, it was difficult to the know prognosis of the patient or when they would suffer from recurrent bleeding.[2, 3] In addition, we found gastropathy among our cases. The etiology of such condition is still unclear. Some investigators hypothesized that it might occur due to bad mucosal circulation of the stomach. Sclerotherapy was proven to be useful to control variceal bleeding and decreased mortality rate. [4, 5] During follow up, 6 patients died due to the underlying diseases, and no one due to variceal bleeding. This data confirmed some reports that sclerotherapy increased mortality rate due to underlying diseases but decreased mortality rate due to variceal bleeding. [6, 7] At the end of the study, the oldest patient was 19 years old and suffered from no recurrent bleeding in the last five years. However, the mortality rate due to hepatic failure is still high, as found in other reports.[8, 9] No complications such as esophageal stricture or perforation were found, and only one case had severe bleeding during sclerotherapy requiring transfusion. This result is lower than reports in the literature. [10, 11]

CONCLUSION

Sclerotherapy is a very useful technique to control variceal bleeding in children, and it can improve the survival rate of our patients. We found recurrent bleeding and gastropathy in 35.3 % patients. Other complications were not found.

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