Sclerotherapy and Its Complications: A Prospective Analysis at the Shaikh Zayed Hospital, Lahore

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SUMMARY

A prospective study was conducted to evaluate the efficacy and complication rate in patients undergoing sclerotherapy in gastroesophageal variceal bleeding. Variceal bleeding is a dreadful complication of portal hypertension and sclerotherapy has been found to be effective in controlling acute bleeding and in preventing episodes of recurrent bleeding. One hundred patients were enrolled in the study, 84 completed the study, 52 acute bleeders were hospitalized and 32 were treated as out-patient. Fiberoptic XQ 10 endoscope was used, mean number of injections given were 5 ± 2.8 and mean total volume injected was 15 ± 11.7 ml. Ethanol (50%) was used as sclerosing agent in all patients, 385 sessions of sclerotherapy were performed, with a mean of 4.60 ± 3.1 per patient, range (1-7). It was observed that more than 90% had high (3-4) grade varices at the beginning. Minor problems i.e. chest pain of mild to moderate severity (93%), low grade fever (50%), transient dysphagia (24%), odynophagia, (13%) and ulceration (18%) were noted as complications. Three patients developed significant dysphagia due to esophageal stricture for which esophageal dilatation was required. Slight oozing of blood was seen in most patients but significant bleeding occurred in 6 (6%). Major complications were, hepatic encephalopathy (2%), bacterial peritonitis (2%) and pulmonary infection (1%). Esophageal perforation was not seen in any of our patients. Endoscopic sclerotherapy is a well established procedure in controlling variceal bleeding, major complications are rare and often manageable. These should not preclude sclerotherapy as first line of management in variceal bleeding.

INTRODUCTION

Variceal hemorrhage is a challenge for gastroenterologist as it is one of the most common emergency conditions to manage and carries high morbidity and mortality.\(^1\)

Endoscopic variceal injection sclerotherapy (EVS) was introduced in 1939 by Crafoord and Frenchner.\(^2\) Since then it has been found to be effective in the control of acute variceal bleeding and in reducing the rate of rebleeding.\(^3,4\) Several trials have shown better results with EVS when compared with conservative management.\(^5,6\) Shunt surgery is found to be more effective in reducing the rate of rebleeding, however, it is associated with higher mortality.\(^7,8\) Sclerotherapy is also found to be associated with many local and systemic complications.\(^9\) We have conducted a prospective trial at Shaikh Zayed Hospital Lahore, to assess the efficacy of EVS and rate of complications in our patients.

PATIENTS AND METHODS

One hundred patients were enrolled in the study, 84 completed the study. After initial resuscitation, actively bleeding patients were admitted and their sclerotherapy was done within 24 hours, those who presented with recent bleeding but were stable at the time of initial evaluation were
managed as outpatient. Follow-up sclerotherapy was done at two week intervals till the eradication of varices. Endoscopy was repeated every 3 months after obliteration of varices and treatment was repeated in case of recurrence of varices or bleeding.

Patients who had intercurrent illness with death expected within twelve months, those who were not fit for endoscopy or who did not agree were excluded from the study.

Fiberoptic endoscope GIF XQ 10 and MH-1 (Olympus) 25 gauge needle was used for sclerotherapy. Two ml of 50% alcohol was injected either intravariceally or paravariceally. Injections were started 2 cms above gastroesophageal junction (GEJ), bleeding varix was injected first above and below the bleeding point, then rest of the varices were injected tangentially upto 7 cms proximally. Grading of varices was done into grade 1-4 as previously described.

Patients were examined and investigations, CBC, PT, APTT, LFTs, renal profile, x-ray chest and abdominal ultrasound were done. Child Pugh classification was used to assess the severity of liver disease11. Duration of hospitalization, blood transfusions required during admission, use of Sengstaken Blakemore (SB) tube, intake of medications e.g. octreotide, betablockers, sucralfate, H2 receptor blocker or omeprazole were recorded.

End points were initial control of bleeding, bleeding before discharge, variceal eradication, recurrence of varices, rebleeding, complications and mortality. Complications noted were fever, chest pain, dysphagia, odynophagia, esophagitis, ulcers (bleeding and non bleeding), bacterial peritonitis, pleural effusion, perforation and hepatic encephalopathy.

RESULTS

Total number of patients enrolled in the study were 100, of those 84 completed the study. Fifty two patients were admitted with active bleeding, thirty-two were females and 52 males, their mean age was 45±13.8 yrs, range 17-85 yrs (Table 1). Seventy nine patients had cirrhosis and 5 had noncirrhotic portal hypertension. Of 79 cirrhotic patients, majority (65%) had hepatitis C, 10% due to hepatitis B and 18% were positive for both hepatitis B and C, 2% had Wilson’s disease and 11% had idioepathic cirrhosis (Fig 1). Forty eight (61%) had Child’s A, and 7 (9%) were in Child’s class C (Fig 2). Hemostasis was achieved in 43 (86%) but 8 (20%) had early rebleeding which was controlled with repeat sclerotherapy in 3, Sengstaken tube was used in 3, and Sengstaken infusion was given in all patients. Eradication of varices was seen in 69%, recurrent bleeding in 13% and recurrence of varices in 36% (Table 2).

Table 1: Demographic features.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of patients enrolled</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Total number of patients completed the study</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Number of patients with active bleeding</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Mean Age (yrs)</td>
<td>54±14.8</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>7.85 years</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Results of sclerotherapy with 50% alcohol in 84 patients.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control of bleeding</td>
<td>13</td>
<td>86.0</td>
</tr>
<tr>
<td>Rebleeding before discharge</td>
<td>8</td>
<td>20.0</td>
</tr>
<tr>
<td>Eradication of varices</td>
<td>54</td>
<td>61.0</td>
</tr>
<tr>
<td>Recurrent bleeding</td>
<td>10</td>
<td>13.0</td>
</tr>
<tr>
<td>Recurrence of varices</td>
<td>30</td>
<td>35.0</td>
</tr>
</tbody>
</table>

Mild chest pain (93%), transient fever (50%), dysphagia (24%), odynophagia (13%) and non bleeding ulcers (13%) were the minor complications observed in our patients. Major complications e.g; bleeding during the procedure occurred in 6, requiring blood transfusion, Sengstaken infusion, and SB tube in 2 patients. Bleeding ulcers were seen in 5%, 3 patients developed distal esophageal narrowing significant enough to need repeated dilatation.

Other major complications were hepatic encephalopathy (HE) in 2 patients, spontaneous bacterial peritonitis (SBP) in 2 and 1 patient had pulmonary infection. Four patients died during follow-up, 1 due to SBP, another from uncontrolled bleeding due to post sclerotherapy ulcer, and 2 patients died due to liver failure (Table 3).
Table 3: Complications in patients who had sclerotherapy with 50% alcohol.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transient chest pain</td>
<td>93%</td>
</tr>
<tr>
<td>Transient fever</td>
<td>80%</td>
</tr>
<tr>
<td>Odynophagia</td>
<td>13%</td>
</tr>
<tr>
<td>Non-bleeding ulcers</td>
<td>13%</td>
</tr>
<tr>
<td>Bleeding ulcers</td>
<td>5%</td>
</tr>
<tr>
<td>Bleeding requiring additional measures</td>
<td>6%</td>
</tr>
<tr>
<td>Stricture needed dilatation</td>
<td>3%</td>
</tr>
<tr>
<td>Bacterial peritonitis</td>
<td>2%</td>
</tr>
<tr>
<td>Hepatic encephalopathy</td>
<td>2%</td>
</tr>
<tr>
<td>Pulmonary infection</td>
<td>1%</td>
</tr>
<tr>
<td>Hepatic encephalopathy</td>
<td>2%</td>
</tr>
<tr>
<td>Mortality</td>
<td>5%</td>
</tr>
</tbody>
</table>

DISCUSSION

Sclerotherapy for bleeding esophageal varices has become the standard treatment. After the invention of fibroptic endoscope, this procedure is widely accepted and considered cost effective. We used 50% alcohol, effective results were seen by Khan et al. and Sarine et al. previously. Other sclerosants used are 5% ethanolamine oleate, sodium tetradeyl sulphate, polidocanol, and histoacryl. The combined use of tissue adhesive (histoacryl) and sclerosant material (5% ethanolamine oleate or polidocanol) were found to result in rapid eradication, lower rebleeding rate and lower hospital mortality.

Combination of paravariceal and intravariceal sclerotherapy was rendered, a technique which has been used previously to achieve rapid obliteration of varices with equal efficacy. Control of bleeding was achieved in 43 (86%), similar results were reported by others. We used octreotide (sandostatin) before and after the procedure in actively bleeding patients and found it effective, several studies have shown sandostatin to be effective in the control of active bleeding.

Obliteration of varices was observed in 54 (64%), 6 mean sessions of treatment were required to achieve obliteration. Sarine et al. also reported similar results with 50% alcohol previously (Table 3). On follow-up of one year, we observed recurrent bleeding in 10 (13%) and recurrence of varices in 30 (35%) patients, whereas Sarine et al. reported rebleeding rate of 28% with 50% alcohol. It has been observed that rebleeding rate is reduced if obliteration of varices is achieved early by weekly injection sclerotherapy. However, incidence of life threatening complications is reported to increase with frequent sessions.

Minor complications, chest pain (93%), fever (50%) and transient dysphagia (24%), were seen commonly. Because of their frequent occurrence and transient effect, these are considered side effects rather than complications.

Esophageal ulcers were seen in 18% and were responsible for rebleeding in 5%, post-sclerotherapy ulcers are usually linear and deep, Sarine et al noted ulcers in 10% of their 40 patients. Similar results were seen by others. Higher incidence of post sclerotherapy ulcers (78%) is observed with frequent follow-up sessions.

Rebleeding from a large ulcer bed over a varix is difficult to manage, we injected above and below the ulcer site and were able to control bleeding in 4 of such patients, in 2 we placed S.B tube, in 1 patient the site was subjected to esophageal transection as bleeding could not be controlled.

Strictures requiring dilatation developed in 4% of our patients. Higher rate of strictures (8% and 13%) were seen by sarine et al, Stiegmann et al., respectively. Comparison of different sclerosing agents have shown similar efficacy but rate of complications was found to be more with STD. Use of sucralfate or ranitidine was found to decrease the frequency of post-sclerotherapy complications.

Hepatic encephalopathy was seen in 2, bacterial peritonitis in 2, and pulmonary infection in 1 patient. the results were similar to other studies. Rolando et al and Bac et al have not found any beneficial effect of prophylactic antibiotics to control post-sclerotherapy bacteremia or frequency of infection, the higher risk of infection was considered due to the effect of bleeding rather than sclerotherapy. We did not use prophylactic antibiotics in our patients for emergency or elective procedures.

Mortality rate of 5% was seen in our patients; 2 died because of liver failure, 2 due to spontaneous bacterial peritonitis and 1 because of uncontrolled bleeding. Shah et al have reported mortality rate of 7.9% whereas, higher mortality rates have been reported in other studies.

CONCLUSION

Sclerotherapy is an established way of dealing with threatening problem of esophageal variceal bleeding. Our study corroborates with the results of
other trials in terms of efficacy and complications. We recommend this as first line treatment for variceal bleeding.

REFERENCES

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