Does multiple injection sclerotherapy have a role in the long-term management of oesophageal varices?

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Summary

Sixty-nine cirrhotic patients were treated by injection sclerotherapy for bleeding oesophageal varices, with an emergency hospital mortality, from all causes, of 29%. The treatment of 35 of these continued with elective, long-term injections alone: 9 have so far survived more than 3 years, the longest being 5 years 4 months. The risk factor for rebleeding per patient month was 0.03 and, with its minimal complications, long-term sclerotherapy can be recommended as an alternative to portasystemic shunts for all grades of liver disease.

Introduction

The treatment of bleeding oesophageal varices poses two therapeutic problems: the management of the acute variceal haemorrhage and prevention of recurrent bleeding.

Although injection sclerotherapy has been found to be effective in stopping bleeding in an emergency (Novis *et al.*, 1976; Crafoord and Frenckner, 1939; Macbeth, 1955; Johnston and Rodgers, 1973; Terblanche, Northover and Bornmann, 1979), its use in the long-term management of patients with recurrent variceal haemorrhage is still debatable, especially when compared with portasystemic shunts. Prospective randomized trials of portacaval shunting (Reuff *et al.*, 1976) showed no significant prolongation of survival in shunted groups when compared with medically treated controls. Although initial results found that the Warren distal spleno-renal shunt minimized the incidence of postoperative encephalopathy (Rikkers *et al.*, 1978), recent reports have shed doubt on its selectivity (Smith, 1979) and the shunt

occlusion rate overall is about 10% (Mehigan, Zuidema and Cameron, 1980).

Repeated injections have also been used to sclerose varices. Terblanche *et al.* (1981) and Clark *et al.* (1980) have recently shown that although injection sclerotherapy in the short term does not eliminate further episodes of haemorrhage, the frequency of rebleeding is reduced when compared with non-injected controls.

We have reviewed our experience of patients presenting with variceal haemorrhage, treated by repeated injection sclerotherapy only, during a long-term follow-up of up to 5 years.

Patient selection and methods

A total of 69 patients with haemorrhage from oesophageal varices secondary to cirrhosis have been treated by emergency injection sclerotherapy using general anaesthesia, a rigid Negus oesophagoscope and intravascular injection of ethanolamine (Johnson, 1977). Fifty-nine of these had at least one emergency injection (within 24 hr of a bleed), the remaining 10 having sclerotherapy as an elective procedure, from 48 hr to 1 week after the bleeding had stopped, but during the same admission. Six patients required further operative procedures due to persistent bleeding: there were 3 Boerema-Crile procedures and 3 oesophageal transections using the stapling gun. Because of long-term follow-up problems, but after bleeding had been controlled by emergency sclerotherapy, 3 further gun transections and 12 elective shunts were performed (8 Grade A).

Thirty-five of the 59 patients treated by at least one emergency injection, who survived for 6 weeks or longer after the initial bleed were then treated by repeated injection sclerotherapy if they were able to attend for regular, closely supervised follow-up,

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including elective endoscopy, or if they were considered unfit for shunting. Elective injections were performed at each endoscopy until all the varices were thrombosed and subsequently if further varices developed during the follow-up period.

The aetiology of the varices varied, with 29 cases of cryptogenic cirrhosis, 1 primary biliary cirrhosis, 1 schistosomiasis, 11 chronic active hepatitis and 27 with alcoholic cirrhosis. The ages ranged from 11 to 74 years, with 64% being in the 60–70 age-group.

Using a modified Child's classification (Pugh *et al.*, 1973), of the 69 patients treated there were 33 Grade A, 20 Grade B and 16 Grade C.

Results

Sixty-two patients were available for study because 7, after receiving emergency injection treatment, moved away from the area and were lost to follow-up. Our results of emergency injection sclerotherapy are similar to those from other centres (Table 1); the slightly higher mortality is because we have not included those with non-cirrhotic portal hypertension.

Of the 35 patients on long-term sclerotherapy treatment only 18 had alcoholic cirrhosis. There were 12 with a modified Child's Grade A (7 alcoholic), 12 Grade B (5 alcoholic) and 11 Grade C (6 alcoholic), the grading being given at the time of emergency admission. All patients were advised to stop drinking alcohol, in the hope that abstinence might increase the subsequent survival, but biochemical tests, such as urinary alcohol levels, were *not* used to detect compliance.

The long-term follow-up results of these 35 patients are given in Table 2. At present there are 11 patients who have survived for 2 years and longer, the longest being 64 months, with a mean of 41.4 months (13.4 s.e. mean). Of these, there were 7 Grade A, 1 Grade B and 3 Grade C. Figure 1 shows the treatment schedule. A total of 74 injections was performed, 33 as emergency and 41 elective.

For the 35 patients, the risk factor for bleeding per patient month (the total number of bleeds divided by the total length of follow-up in months) was 0.03.

Complications

There were no deaths following elective injections. Retrosternal discomfort, lasting for 16–24 hr was experienced by the majority of patients following injection and Sengstaken intubation. A stricture at the injection site at the lower end of the oesophagus occurred in 2 cases, one after 4 injections, the other after 12. So far, neither has needed dilatation.

Discussion

Although this is not a controlled trial, it is encouraging to see that long-term repeated injection sclerotherapy has played a part in enabling 11 patients to survive a minimum of 24 months, and 9 for 36 months. These compare favourably with the published figures for portacaval shunts. Rikkers *et al.* (1978), found in a trial of non-emergency shunts,

TABLE 1. Comparison of results (%) of emergency treatment in three centres

	Charing Cross* (n = 59)	Belfast** (n = 117)	Cape Town*** (n = 66)
Definitive control per admission	89	93	95
Hospital admission mortality	29	18	28
Proportion of patients with extra-hepatic blocks (non-cirrhotic)	None	25	9

*This study; **Johnston and Rodgers (1973); ***Terblanche *et al.* (1979).

TABLE 2. Follow-up of 35 patients treated by injection only

	No. of patients	Deaths	Mean Mortality Time	Causes of Death	Nos of Rebleeds
6 weeks–12 months	19	4	2.5	Pancreatitis Liver failure Rec. bleeding Not determined	22
13 months–24 months	5	2	13.5	Not determined 1 CVA	5
24 months +	11	3	39.0	3 hepatic failure	0

FIG. 1. Treatment schedule for 11 patients surviving for longer than 24 months with injection sclerotherapy only. ■, elective; ▼, emergency.

with a maximum follow up of 6 years, an overall mortality of 38% of 26 selective shunts (12% operative mortality) and 28% of 29 non-selective shunts (10% operative mortality). The mean time of the fatalities was 26.7 months and 12.8 months respectively. The comparative figure from our study with a 5½ year follow-up is 25% of 35 patients at a mean time of 20 months. (The long-term sclerotherapy patients, like the shunt patients, have already survived the initial bleed). As patients chosen for shunts had a better average Child's grading than the sclerotherapy patients, it is clear that sclerotherapy gives as good, if not better survival than either form of shunting.

The best results in patients selected for distal spleno-renal shunting give a risk factor for rebleeding per patient month of 0.002 for a 1–51 month follow-up (Hutson *et al.*, 1976). Our risk factor of 0.03 over a follow-up period up to 64 months for patients in Grades A, B and C, compares favourably with Clark's figures over a shorter follow-up period (25 months).

Although preliminary trials with injection sclerotherapy are encouraging, its true value is difficult to assess, because there is, as yet, no agreed classification of the severity of varices, and the aetiology of the cirrhosis varies considerably from place to place. Controlled trials against other forms of treatment present problems of patient selection. For example, a

trial against distal spleno-renal shunting could only include those with good liver function and even the encouraging results with beta-blockers are so far in selected good risk patients (Lebrec *et al.*, 1981).

We conclude that recurrent long-term sclerotherapy with its very low mortality from elective injection, is a valid alternative to shunting. For those with poor liver function, sclerotherapy is the best method available.

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