Management of bleeding varices – gastroenterologists perspective

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Journal of the Ceylon College of Physicians, 2000, **33**, 50-54

Introduction

The wide spread introduction of fibreoptic endoscopy has revolutionised the approach to the management of upper gastro intestinal (GI) disorders world wide, where such facilities are available, thus enhancing the diagnostic precision. In Sri Lanka, such facilities are restricted only to a handful of institutions and in a vast majority the significant upper GI symptoms such as dyspepsia, haematemesis and malena are treated blindly due to lack of resources and trained personnel. The approach to the rational management of various upper GI disorders would differ depending on the aetiology and therefore blind therapy purely on clinical assessment could be inappropriate in many occasions resulting in unnecessary costs with high morbidity and mortality without altering long-term complications of the disease.

This article based on a symposium lecture delivered at the annual academic sessions of the Ceylon College of Physicians 1999, on the management of oesophageal variceal bleeding deals with a concise management guide and a detailed comparative analysis of the treatment modalities available to a gastroenterological physician in the modern era.

• Initial management

(a) ***Rapid assessment of the haemodynamic status***

This constitutes the essential first step in the management. A blood loss of 500 ml will generally cause no circulatory changes except in the elderly, those who have anaemia and cardiovascular disease. The most sensitive indices of hypovolaemia will be a sinus tachycardia and a postural drop of the systolic blood pressure more than 20 mm Hg.

(b) ***Resuscitation***

This includes the establishment to intravenous accesses using two large bore cannulae. In the ideal situation a CVP line will help to identify rebleeding while guarding against over transfusion. Volume replacement should be completed by using collides initially followed by whole blood. Ideally, 6 units of blood should be ready in hand. The presence of liver disease would mean the availability of FFP and platelets for transfusion if needed. Steps should be taken to ensure a patent airway and breathing.

• Investigations

(a) ***Haematological***

Hb and PCV within first few hours are poor indicators of volume depletion as haemoconcentration precedes haemodilution, which can go up to 24 hours. A full blood count and a clotting profile should be done at the earliest.

(b) ***Biochemical and other ancillary investigations***

These include liver function tests, blood urea, serum creatinine, blood sugar, ECG and a chest X ray.

(c) ***Endoscopy***

This should be the investigation of choice that should be performed as soon as possible, once the condition stabilised, with resuscitation equipment at hand.

• Treatment

Treatment of the index bleed

(A) *Endoscopic treatment*

(a) Injection sclerotherapy.
(b) Banding ligation.

(B) *Medical treatment*

Vasoactive drugs

(a) Vasopressin:

• Decreases the blood flow into the splachnic circulation. The intravenous infusion is given at the rate of 0.4 u/min and extravasation should be avoided. Generally used in conjunction with nitrate patches, twice daily. The aim is to keep the systolic BP ≥ 100

Mm Hg, to protect the cerebral and cardiac circulation without affecting the splachnic flow. Continuous ECG monitoring is essential and contra indications include IHD and cerebrovascular disease.

(b) Glypressin:
Is a synthetic a analogue of vasopressin which has a longer action with fewer side effects and delivered at a rate of 2mg, 6 hourly, intravenously, concurrently with nitrates.

(c) Somatostatin or octreotide:
Virtually have no side effects and exert a modest effect on the portal pressure altering the blood flow.

A concise comparative account on the endoscopic therapy and vasoactive drugs is given in the discussion.

(C) *Mechanical methods – baloon tamponade*

This procedure should be attempted only if sclerotherapy and medical treatment have failed. It controls bleeding in over 90% of the cases. Four channel tubes are currently used. As pressure necrosis could set in within 88-72 hrs., other measures should be attempted after 12-24 hrs. The complications of the procedure includes pressure necrosis, oesophageal perforation and aspiration.

(D) *Radiological Intervention*

The procedure consists of creation of a Trans-Jugular Intrahepatic Porto-Systemic Shunt (TIPSS). Used where there is continuous bleeding after sclerotherapy and with gastric variceal bleeding. This procedure is mainly performed by the interventional radiologists.

(E) *Surgery*

The techniques include oesophageal transection, devascularisation procedures and splenectomy. Emergency surgical shunts are virtually no longer used.

Prevention of recurrent bleeding – secondary prophylaxis

The modalities include;

(A) Long term sclerotherapy and banding ligation.

(B) Pharmacotherapy:

(a) Non selective beta blockers – propranalol and nadalol. Addition of ISMN converts non-responders to responders.

b) Prazocin has shown some promising results.

(C) Surgery:
The role of TIPSS is unclear.

Primary prophylaxis

Only pharmocotherapy with beta blockers is the treatment of choice. Sclerotherapy and surgery are contraindicated. The role of the banding ligation has not been elucidated.

Discussion

Bleeding from oesophageal and gastric varices is the main squelae of portal hypertension although cirrhosis is the major cause, about 20%-25% patients with portal hypertension in developing countries like India suffer from non cirrhotic portal hypertension – non cirrhotic portal fibrosis (NCPF)[1] and extra-hepatic obstruction (EHO) of the portal/splenic vein. At the time of diagnosis, varices are present in 60% of the de-compensated cirrhotics and 30% of compensated cirrhotics[2]. In a large study, in the natural history of cirrhosis, about 8% of the patients developed varices each year[3]. Mortality of the first variceal bleeding is about 30%-50% in most studies. The risk of re-bleeding and death are high in the first six weeks and decrease thereafter becoming virtually equal to that before bleeding[4].

It is now accepted that endoscopic sclerotherapy should be the first line of treatment for acute variceal bleeding[5,6], as well as prevention of recurrent bleeding[6,7]. Pool data shows a mortality rate of the procedure up to 1%-2%[8,9].

The initial sclerotherapy will control active bleeding in 90% of cases, and with repeated injections at one to three week intervals, the obliteration of varices can be achieved almost with the same frequency[10,11].

Endoscopic variceal band ligation which was introduced by Stiegmann in mid 1980s to treat oesophegeal varices is equally effective as sclerotherapy in controlling active bleeding[12]. Longterm results comparing band ligation to sclerotherapy reveal that banding requires less number of sessions for active eradi-

cation of varices (3.4 Vs 4.9), has less re-bleeding rates and lesser complication rates (2% Vs 22% and 24% Vs 56% respectively)[13,14].

Several studies have indicated that there is only a little difference between ligation and sclerotherapy in the control of active variceal bleeding[15]. However, in spite of high rate of achieving initial haemostasis the mortality rate remains high at 30-40%.

Primary gastric varices (GV) are said to be detected in 20% patients with portal hypertension[16]. The data suggests that gastric varices bleed less frequently (14%-16%)[17], but once it bleeds it is torrential and severe. High incidence of bleeding in both GV-1 and GV-2 types of varices[18]. Cirrhotics with GV bleeding on a higher risk of getting hepatic encephalopathy as compared to oesophageal variceal bleeding (25% Vs 3%)[18] which does not hold true for NCPF and EHO patients[16]. Sclerotherapy is effective for GV-1 varices and usually a single session is enough for these patients[16,19], but the response is poor and have a very poor rate of re-bleeding. Variceal obstruction with cyanoacrylate tissue adhesive had been used successfully and most studies have achieved control of bleeding in almost 100% of patients. Thrombin injection into GV seems to be a safe alternative, but studies have been small and uncontrolled. There is only limited literature on gastric variceal ligation.

Triglycyl-lysine-vasopressin (tGLVP), a synthetic derivative of vasopressin which lacks the harmful effects of the former alone or in combination with nitro-tri-glycerine is as effective as balloon tamponade[20] and somatostatin[21] in the control of acute bleeding. Somatostatin, when administered in a dose of 250μg per hour after a bolus dose of 250μg per hour, polled estimates showed a reduction in bleeding[22,23] with no improvement in mortality. When used as a continuous infusion for five days, it is as effective as emergency selerotherapy for controlling the initial bleeding and preventing early (5d) rebleeding[24]. Somastotatin is very effective in controlling early rebleeding[25] from varices oesophageal ulcers or oesophagitis[26] following selerotherapy. Octreotide is a synthetic derivative of the above which could also be used for the same purpose, but the results have been conflicting. Vasoactive therapy is the only treatment that can be administered as soon as the patient enters the hospital, without a need for specialised training. Furthermore, it is the only treatment that can be given for 5 days after therapeutic endoscopy when the risk of recurrent bleeding is at the highest. The currently available data of clinical trials on the vasoactive drugs are as follows. There appears to be no role for vasopressin alone (21 trials; overall control of bleeding 283/596, 41%; major complications 203/596, 34% often requiring withdrawal of the therapy) or combined with nitrates (7 trials, overall control of bleeding 113/210, 54% major complications 30/120, 14% often requiring withdrawal of the therapy) because of their poor efficacy in controlling bleeding, and the high incidence of major side effects associated with their use.

The failure of vasoactives to improve survival in patients with variceal bleeding in all but one of the studies (small RCT comparing placebo with glypressin)[27] probably stems from the design of the trial. The currently available data suggest that early treatment with glypressin and probably somatostatin but not octreotype may improve the survival. However these suggestions require confirmation.

Non selective beta blockers such as propranoloal and nadalol have been shown to be effective in preventing the first variceal bleeding[28] as well as recurrent bleeding[29,30], the indicator been a reduction of heart rate by 25% from the baseline. A recent study has shown a trend towards improved survival[30]. Beta blockers have to be continued indefinitely as secession of treatment after two years, has been associated with a recurrence of the risk of bleeding[31]. The combination of beta blockade and scelerotherapy gave better results than sclerotherapy alone as far as prevention of recurrent bleeding is concerned[31,32]. About 20%-30% are non-responders to beta blockers without any definite explanation[33]. Addition of nitrates (ISMN or ISDN) enhances the effect of beta blockers and this can be particularly useful for non responders[34,35].

Oesophegeal or gastric balloon tamponade tubes have been used sucessfully in the variceal bleeding. In a study comparing balloon tamponade, with somastotatin for oesophageal variceal bleeding, both were found to be equally effective[36].

The initial results with TIPS (Trans Internal Jugular Porto-Systemic Shunts) have been very encouraging[37,38,39]. Later, two problems of the procedure have been identified (a) hepatic encephalopathy and (b) stent stenosis and occlusion. Recently it has been suggested that TIPS should be used on an elective basis after the bleeding has been controlled by other means as using it in emergency situations is associated with an unacceptably high mortality[40].

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