CASE REPORTS

Acute upper gastrointestinal haemorrhage resulting in transient hepatic failure following liver resection

K. CHAO, F. H. G. BRIDGEWATER & G. J. MADDERN

University of Adelaide, Department of Surgery, The Queen Elizabeth Hospital, South Australia

Abstract

Background. Both acute stress ulcer and liver failure are well-known complications of hepatic resection. This case study documents how an episode of postoperative gastrointestinal haemorrhage can provoke transient hepatic failure. Case outline. A 66-year-old woman with no previous history of reflux oesophagitis or peptic ulcer disease underwent a right liver resection for a solitary metastasis. On the fifth postoperative day, with a small premonitory haematemesis, she was started on omeprazole intravenously. She subsequently required blood transfusion and endoscopy; a bleeding acute gastric ulcer was injected with adrenalin. She then progressed to acute liver failure with associated hepatic encephalopathy but made a full recovery. Discussion. Adverse effects of prophylactic H₂ receptor antagonists have included liver failure and hepatitis, and animal studies have shown inhibition of liver regeneration after hepatectomy. Proton pump inhibitors (PPIs) have an acceptable profile of adverse events and their effect on liver regeneration appears to be favourable. Given the serious potential for liver failure in the event of significant bleeding, a PPI is advocated for routine prophylaxis against acute stress ulceration in all major liver resections.

Key Words: Anti-ulcer agents, hepatectomy, peptic ulcer, liver failure

Introduction

In the last decade, major hepatectomy has become a safer operation with a decrease in both morbidity and mortality rates. Nevertheless a number of reports have demonstrated the potential for both acute stress ulcer and hepatic failure. This case report documents how a particular complication, acute gastrointestinal haemorrhage, can affect the subsequent postoperative course of a patient already compromised by the initial operation.

Case report

A 66-year-old woman presented for a right hepatectomy for a metastatic solitary liver lesion from a retroperitoneal malignant fibrous histiocytoma that had been resected in April 2001. A CT scan of the abdomen in August 2002 showed a new 6-cm hypo-dense lesion within the right lobe of the liver, involving segments V and VIII. The past history was unremarkable except for hypertension, and specifically there was no history of reflux oesophagitis or peptic ulcer disease.

A right hepatectomy was performed and 4 units of blood were given intra-operatively. On day 5, she had a small haematemesis, and a PPI (omeprazole 40 mg daily) was commenced intravenously. She had further episodes of haematemesis with a fall in haemoglobin to 0.99 mmol/L (6.4 g/dl) from the initial post-operative level of 1.86 mmol/L (12 g/dl), but she remained haemodynamically stable. Three units of blood were transfused. Endoscopy showed a 0.75-cm acute gastric ulcer with active bleeding. The ulcer was injected with 0.5 ml of adrenalin (1 : 10 000). On day 7, the patient developed melaena, her conscious state deteriorated and a “liver flap” became apparent. Liver function tests showed marked abnormalities and a diagnosis of hepatic encephalopathy secondary to liver failure was proposed. She became hypoxic and was transferred to the Intensive Care Unit for intubation and supportive measures. She was extubated after 2 days with her liver function gradually improving. The patient was discharged home on the 18th post-operative day.
Discussion

Upper gastrointestinal bleeding from acute stress ulcers can be encountered in various critical conditions, including major operations such as hepatic resection. Early reports described this complication quite frequently [1–3], but more recent articles have not always commented on this complication nor recorded its frequency. This apparent reduction may be due to prophylactic treatment, but such prophylaxis is not specified in the more recent series [4].

A prospective, randomised study showed that cimetidine was effective in preventing gastrointestinal bleeding in patients undergoing partial hepatectomy [5]. However, concern that cimetidine may induce liver failure or hepatitis was expressed. Furthermore, animal studies have shown that cimetidine therapy inhibits liver regeneration after a two-thirds hepatectomy [6].

In a clinical study by Yamashita and co-workers [7], pre-operative administration of methyl-prednisolone elevated anti-inflammatory cytokine interleukin (IL)-10 levels and suppressed inflammatory cytokines IL-6 and C-reactive protein in patients undergoing hepatic resection, which confirmed the ability to suppress surgical stress in patients undergoing hepatic resection. The practical relevance of this finding is unclear.

Animal experiments have shown omeprazole to stimulate liver regeneration after partial hepatectomy and that this often may be mediated by gastrin [8]. However, it must also be noted that on rare occasions both fulminant liver failure and hepatitis have also been reported with the use of this agent [9–11].

A review of the literature has not found any current recommendations for the use of a PPI as routine prophylaxis in liver surgery and it has not been an element of this unit’s protocol for hepatectomy. Initiation of PPI therapy on day 5 as in this case must be considered therapeutic rather than prophylactic and further bleeding before ulcer healing was not surprising. The overall incidence of adverse events with omeprazole is low and no drug-related adverse event has been found in patients with severe liver failure [12]. It is proposed that the ensuing liver failure in this reported case reflected insufficient residual functional liver mass to handle blood degradation products from the alimentary tract rather than an adverse event related to a specific PPI. The immediate onset of liver dysfunction with rapid recovery in spite of continued PPI therapy supports this concept.

The optimal regime for prevention of stress ulceration is debatable [13–16], but we propose that, given the serious potential for liver failure in the event of significant gastrointestinal bleeding, a PPI be used routinely as prophylaxis against acute stress ulceration in all major liver resections. Although there are no data to determine the duration of prophylaxis, it is suggested that it continue for the period of hospitalisation.

References