Medical or Surgical Treatment for Haematemesis and Melaena

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Acute upper gastrointestinal (UGI) bleeding is a common reason for admission to hospital, accounting for 20,000 admissions annually in England and Wales. Despite changes in the management of these patients over the last 30 years, mortality rates have remained unchanged (Schiller *et al.*, 1970), probably due to the ever-increasing proportion of elderly patients admitted with UGI bleeding (Allan and Dykes, 1976).

An ideal treatment for patients with UGI bleeding would be one that actually stopped the bleeding, and in this respect medical treatment has little to offer, as it consists essentially of replacing lost blood in the hope that the bleeding will stop spontaneously. There are two drugs, however, that might prove useful in the management of these patients. The first is tranexamic acid, which has been shown in a controlled trial to reduce the necessity for emergency surgery from 24 per cent in untreated patients to 7 per cent in treated patients (Biggs *et al.*, 1976). The second drug is cimetidine, which probably has no effect on bleeding from chronic peptic ulcers, but does prevent bleeding from gastric erosions in patients with fulminant hepatic failure (MacDougall *et al.*, 1977), and might be effective in controlling already established erosive bleeding (MacDonald *et al.*, 1976).

Surgical treatment, on the other hand, can be expected to stop the bleeding in the majority of patients but, because of its risks, it should be used in certain patients only. The aim of the study described below is to analyse the causes of mortality in acute UGI bleeding to see if alterations in the selection of patients for surgery might improve overall mortality.

Patients

The patients studied were all those admitted with acute upper gastrointestinal bleeding to the City Hospital, Nottingham, between June 1975 and October 1977. All patients who were suspected on clinical grounds to be bleeding from the UGI tract were included. This study coincides with a study of the effects of different investigations on the outcome in UGI bleeding (Dronfield *et al.*, 1977), and hence about half the patients were investigated by fibreoptic endoscopy and half by barium radiology, while in a few patients no investigation was performed, for example where there was known malignant disease or where bleeding was trivial. The patients were admitted under the care of general physicians and usually transferred for surgical treatment if bleeding was severe and continuous or recurrent.

Deaths

Of the 484 patients, 55 (11.4 per cent) died in hospital (Table 1). These deaths have been divided into two groups, the unavoidable deaths being those that were unlikely to have been affected by alterations in the management of the bleeding, and the potentially avoidable deaths being those that might have been prevented had the management of the bleeding been different. Of the unavoidable deaths, 15 were due to inoperable malignant disease and 14 to a variety of medical conditions in patients in whom the bleeding was irrelevant and often trivial. A further 4 patients in this category died of bleeding, 2 of whom had hepatic cirrhosis and advanced hepatic failure, and died of uncontrollable variceal bleeding. The other 2 patients were severely shocked on admission to hospital, due to massive bleeding, and died shortly after arrival despite vigorous attempts at resuscitation.

Of the 22 potentially avoidable deaths, 14 were due to postoperative complications, as listed in Table 2, the

Table 1. Causes of death in patients admitted with acute UGI bleeding.

Unavoidable Deaths	
Inoperable malignant disease	15
Concurrent medical disease causing death (bleeding irrelevant)	14
Bleeding	4
Potentially Avoidable Deaths	
Postoperative from non-malignant causes	14
Uncomplicated bleeding	2
Bleeding: Surgery contra-indicated	6
Total	55 (11.4% of 484 patients)

Table 2. Causes of postoperative deaths.

Cardiorespiratory disorders	8
Peritonitis	3
Intraperitoneal bleed	1
Duodenal fistula	1
Uncertain	1
Total	14

commonest fatal complication being cardiorespiratory disease. Two patients died of uncomplicated bleeding, both succumbing to major bleeds on the day after admission when their condition had appeared stable. In a further six patients it was recognised that bleeding was severe, but operation was thought to be contra-indicated because of serious complicating diseases, and all six died of bleeding.

Age of patients dying

The age distributions of the patients admitted and of those dying are shown in Table 3. A substantial proportion of these patients were elderly, 58 per cent being over 60 years old and 37 per cent over 70. Death was much more common in these elderly patients, 20 per cent of patients over 70 dying compared with only 4 per cent of patients under 60 years old. The potentially avoidable deaths were virtually confined to elderly patients, only one such death occurring in a patient under 65 years old and he had severe rheumatoid arthritis and thrombocytopenia.

Table 3. Age distribution of patients admitted with and dying with acute UGI bleeding.

Age group	Total number of patients admitted	Number of patients dying (%)	Potentially avoidable deaths
< 30	49	0 (0)	0
30-40	37	1 (3)	0
40-50	29	2 (7)	1
50-60	86	5 (6)	0
60-70	105	12 (11)	3
70-80	124	24 (19)	14
> 80	54	11 (20)	4
Total	484	55 (11.4)	22

Operations

Details of the operations are shown in Table 4, having excluded the 15 patients with inoperable malignant disease. The overall operation rate was 21 per cent, most of the operations being performed on patients with bleeding duodenal or gastric ulcers, but a few patients with other conditions required surgery because of severe bleeding. These included two patients who had bleeding gastric carcinoma successfully resected and the five patients in the miscellaneous group had an oesophageal ulcer, anastomotic ulcer, bleeding jejunal diverticulosis, gastric leiomyoma and hepatic abscess rupturing into the duodenum.

Table 4. Operations performed.

Diagnosis and Operation	Number of patients	Post-operative deaths
Duodenal ulcer		
vagotomy ± drainage	48	4
partial gastrectomy	5	1
Gastric ulcer		
oversewn/wedge resection ± vagotomy	6	3
partial gastrectomy	27	4
Mallory-Weiss tear oversewn	3	1
Gastric erosions oversewn	2	0
Gastric carcinoma resected	2	0
Miscellaneous	5	1
Total	98	14

Age of operated patients

The age distributions of the patients operated on and of those dying postoperatively are shown in Table 5, excluding the 15 patients with inoperable malignant disease. The operation rate in patients under 40 years was low, but the rates in the groups of patients above 40 all exceeded 20 per cent. The postoperative deaths, however, were virtually confined to elderly patients, with a postoperative mortality rate of 3 per cent in patients under 60 and 5 per cent in patients under 70, compared with 29 per cent in patients over 70 years old.

Table 5. Age distribution of operated patients and of those dying postoperatively.

Age group	Number of patients admitted	Number of patients operated (%)	Postoperative deaths (% of operations)
< 30	49	2 (4)	0 (0)
30-40	37	3 (8)	0 (0)
40-50	28	6 (21)	1 (17)
50-60	82	25 (30)	0 (0)
60-70	99	24 (24)	2 (8)
70-80	122	26 (21)	8 (31)
> 80	52	12 (23)	3 (25)
Total	469	98 (21)	14 (14)

Discussion

A striking finding in this study is the high proportion of elderly patients admitted with acute UGI bleeding. Allan and Dykes (1976) found that the proportion of patients over 60 years old admitted to hospital in this country with acute UGI bleeding had increased from 2 per cent early this century to 48 per cent in their series, and this has risen further to 58 per cent in the present series. It is also important to note that the commonest causes of potentially avoidable mortality in this series were postoperative complications, and that these fatal complications were almost exclusively in elderly patients.

This high postoperative mortality rate in elderly patients with acute UGI bleeding has been reported in other series. Jensen *et al.* (1972) recorded a mortality rate of 33 per cent in patients over 70, and Blake and Lynn (1976) found a rate of 44 per cent in patients over 75.

Postoperative mortality rates are reduced if vagotomy and pyloroplasty with simple oversewing of the ulcer are employed instead of partial gastrectomy (Schiller *et al.*, 1970; Clarke *et al.*, 1972). This form of operation is standard practice for bleeding duodenal ulcer in Nottingham, but partial gastrectomy remains the commonest

operation for bleeding gastric ulcer. Three of the six patients in this series who had their gastric ulcer simply oversewn or locally resected died postoperatively, compared with only 4 of 27 undergoing partial gastrectomy, but this may well be due to the fact that only very ill patients were treated by the more conservative operation.

There are two ways in which the selection of patients with acute UGI bleeding for operation might be altered to try to improve the overall mortality rate. First, operation could be performed earlier, as recommended by Schiller *et al.* (1970), so that the patients would be in a better condition to withstand the dangers of surgery. This policy would increase the number of patients subjected to surgery, for there is no reliable means of predicting which patients will continue to bleed. Thus, more patients would be at risk of postoperative death and the overall mortality rate might be increased. An alternative would be to adopt a more conservative surgical approach, which might benefit elderly patients as this study suggests, though in patients under 70 years of age current operative policies appear to be correct. This approach would also be supported by the finding that death from uncomplicated bleeding is rare.

There are regrettably no controlled studies comparing different policies of patient selection for surgery and the conclusions based on the figures above remain speculative. The most promising means of reducing mortality rates in UGI bleeding would be some effective non-surgical method of controlling bleeding so that emergency surgery could be avoided.

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Book Review

Developments in Cardiovascular Medicine. Edited by C. J. Dickinson and J. Marks. MTP Press, Lancaster, 1978. Price £8.95.

In the summer of 1978 the Royal College of Physicians celebrated the 400th Anniversary of the Birth of William Harvey by a four-day meeting that included a symposium at which leading scientists reviewed the recent advances in and the present position of cardiovascular science, and leading historians described the life of William Harvey and his times. the meeting was unique in its scope and scholarship and the lectures have now been published in this book.

The contents clearly show the remarkable advances that have been made in the diagnosis and understanding of cardiovascular disease in the last few years. The contents describe techiques unknown at the last Harveian Celebration some twenty years ago, namely, computed tomography, echocardiography, local cerebral blood flow by radioactive techniques, programmed stimulation of the heart to determine the origin and treatment of arrhythmias, and newer concepts of the failing heart and its management.

Part of the symposium was devoted to factors influencing the distribution of salt and water in cardiac disease and modern views on the action of digitalis, while Guyton described essential cardiovascular regulation—the control linkages between bodily needs and circulatory function.

Also included are masterly and most interesting reviews of Harvey and his work by Gweneth Whitteridge, and medicine in the court of Charles I by Hugh Trevor-Roper.

It would be difficult to select any part of this book as better than the rest as all the chapters are outstanding. It should be read with considerable enjoyment by all those interested both in the history and the advances in cardiovascular disease.

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