

A SIX MONTH STUDY OF UPPER GASTROINTESTINAL HAEMORRHAGE AT SINGAPORE GENERAL HOSPITAL

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SYNOPSIS

A 6 month prospective study was carried out at the Singapore General Hospital for all patients treated for upper gastrointestinal haemorrhage. Overall mortality was 10% in the 235 patients studied. Patients with stress ulceration and those bleeding from oesophageal varices had the worst prognosis. No mortality occurred amongst the duodenal ulcer patients and the younger gastric ulcer patients. Mortality in gastric ulcer patients aged 60 and over was 12%. These results are comparable to those achieved in the best centres overseas.

INTRODUCTION

Although the management of bleeding peptic ulcers has advanced considerably in recent years, overall mortality for upper gastrointestinal haemorrhage (UGIH) have, apparently, remained steady. This is probably due to an increase in the proportion of elderly patients as well as to continuing high mortality in patients with oesophageal varices and in patients with stress ulceration (1, 2). Mortality rates bleeding peptic ulcers, excluding stress, are now 2% or less in the best centres (2, 3, 4). It seems appropriate at this time to assess treatment results at the Singapore General Hospital. We have, undertaken a prospective study on all UGIH patients treated from 1st October 1981 to 31st March 1982 with particular reference to mortality in different age and diagnostic groups.

MATERIAL AND METHODS

All patients treated for UGIH over the 6-month period — 1st October 1981 to 31st March 1982 — were studied. There were 228 patients treated for 235 episodes of UGIH — 5 patients were admitted on two separate occasions and one patient on three. Seventeen of these episodes of UGIH commenced while the patients were already in hospital being treated for another condition. There were 173 males and 55 female in the whole series.

The patients were treated along conventional lines in the various medical and surgical units of the hospital by the staff of the respective units. Management could therefore have varied in detail from unit to unit. All deaths during the same admission were regarded as being due to the haemorrhage (5). One 74-year-old lady was treated by partial gastrectomy for her bleeding gastric ulcer. Although she was discharged ten days after admission, she had to be readmitted four days later for an intra-abdominal abscess from which she succumbed. This patient was regarded as a post-operative death.

RESULTS**A. Investigation of bleeding source.**

Gastroscopy was used as the initial investigation in 167 episodes of haemorrhage (71%). Barium meal was carried out as the first investigation in 17 patients (7%). Fifteen patients proceeded straight to laparotomy following resuscitation (6%). Thirty-six patients (15%) were not investigated for the following reasons: severe underlying disease — 15 patients; diagnosis already known — 6 patients; refused investigation — 9 patients; other reasons — 6 patients.

Twenty-six patients had a barium meal following endoscopy. In 2 patients this was because the endoscopy was technically unsatisfactory. In 12 patients, the initial endoscopy was normal or showed only acute lesions. Two of these turned out to have duodenal ulcers missed on the initial endoscopy. In 22 patients, the barium meal and endoscopy findings were identical.

Of the 167 patients who were endoscoped, 52 had their endoscopy within 24 hours of admission (31%), whereas 115 had their endoscopy more than 24 hours after admission (69%). In 2 patients, one in each group, the endoscopy was technically unsatisfactory because of excess blood. Excluding these two patients, the 51 patients endoscoped within 24 hours had a positive diagnosis made on 47 occasions (92%) compared to 97 positive diagnoses in 114 patients (85%) in the group endoscoped more than 24 hours after admission. This difference was not statistically significant.

Interestingly, acute lesions were found in fewer patients endoscoped within 24 hours (7 out of 52 = 13%) compared to those endoscoped more than 24 hours after admission (19 out of 114 = 17%). Again, the difference was not statistically significant.

B. Mortality due to various causes of haemorrhage.

The final diagnosis of the 235 patients are listed in Table 1. Half of the patients bled from peptic ulcers. Apart from a low incidence of Mallory-Weiss tears, these figures are comparable to those from other series world-wide. Overall mortality was 10%. Patients with oesophageal varices and those patients not investigated had the highest mortality — 35% and 44% respectively.

Table 1: Mortality and causes of haemorrhage in 235 episodes of UGIH

	Number (%)	Deaths	(% fatality)
Duodenal Ulcer	66 (28)	0	(0)
Gastric Ulcer	43 (18)	3	(7)
Other Peptic Ulcer	8 (3)	0	(0)
Acute Lesions	26 (11)	0	(0)
Oesophageal varices	17 (7)	6	(35)
Gastric Carcinoma	8 (3)	0	(0)
Mallory-Weiss	4 (2)	0	(0)
Others	6 (3)	0	(0)
No cause found	25 (11)	0	(0)
Not investigated	32 (14)	14	(44)
	235 (100)	23	(10)

C. Stress haemorrhage

Stress haemorrhage was defined as haemorrhage commencing when the patient was already in hospital, being treated for another complaint (2). Seventeen out of our 235 patients satisfied this definition (7%). Their characteristics are shown in Table 2. Forty-seven per cent of these patients were considered to be terminal or too ill to be investigated. The mortality is much higher than that for the non-stress group.

Table 2: Stress Haemorrhage Patients

	Stress haemorrhage patients	Non stress haemorrhage patients
Number	17	218
M : F ratio	14:3	166:52
Age (mean + S.D.)	55.5 + 12.6	50.3 ± 18.2
Not investigated	8 (47%)*	29 (13%)*
Deaths	10 (59%)**	8 (4%)**

*P < 0.001

**P < 0.001

D. Peptic ulcer patients.

In this series, 117 patients bled from peptic ulcer. Excluding 2 with stomal ulcer and 6 with both gastric and duodenal ulcers, the other patients had either duodenal or gastric ulcer. Their characteristics are shown in Table 3. Gastric ulcer patients were older, more likely to be admitted in shock, to rebleed after admission, and to require surgery. No mortality occurred in the duodenal ulcer and the young gastric ulcer group (less than 60 years) but there were 3 deaths (12%) in the older gastric ulcer group. All three deaths occurred after surgery. (Table 4).

Table 3: Gastric and Duodenal Ulcer Patients

	Gastric Ulcer	Duodenal Ulcer
Number	43	66
M : F	11 : 32	14 : 52
Age	57.3 ± 17.6	44.6 ± 17.8
Admitted in Shock	9/43 = 21%	6/66 = 9%
Number rebled	5/32 = 16%*	5/53 = 9%*
Number operated on	15/43 = 35%	16/66 = 24%

* Some patients proceeded to surgery without rebleeding

Five deaths occurred in patients admitted because of gastrointestinal haemorrhage but who were not investigated. The reasons for not investigating were: terminal malignancy — 3; concomitant myocardial infarction — 1; died on arrival in hospital — 1. It is possible that some of these patients might have bled from peptic ulcer.

Surgery was required in 32 patients including one patient with both gastric and duodenal ulcers. The indications for operation were: past history of ulcer disease — 15; rebleeding — 7; admitted in a shocked state — 8; others — 2. The operations carried out were: vagotomy and drainage — 7; partial gastrectomy — 24; under-sewing only — 1.

Table 4: Mortality of Gastric and Duodenal Ulcer Patients Related to Age

	Gastric Ulcer	Duodenal Ulcer
Number < 60 years	17	51
Number ≥ 60 years	26	15
Deaths < 60 years	0	0
Deaths ≥ 60 years	3 (12%)	0

E. Patients admitted to Medical or Surgical Wards.

Patients treated initially in the Surgical Units outnumber those treated in the Medical Units in the ratio 6:4 (Table 5). The surgical patients tended to be older but the severity of haemorrhage as judged by the haemoglobin on admission and the proportion of patients requiring blood transfusion was similar in the two groups. More patients treated in surgical wards were operated upon. The higher mortality in the medical patients was due to inclusion of more stress haemorrhage patients.

Table 5: Medical and Surgical UGIH Patients

	Medical	Surgical
Number	95	140
M : F	71 : 24	107 : 33
Age (Mean ± S.D.)	45.2 ± 18.5	54.4 ± 16.4
Hb on admission (mean ± S.D.)	10.3 ± 3.2	9.9 ± 3.3
Number (%) requiring transfusion	47 (49%)	80 (57%)
Number (%) operated upon	8 (8%)	37 (26%)
Deaths (%)	14 (15%)	9 (6%)

F. Influence of Race.

As compared to the racial composition of the population of Singapore, as well as to the racial composition of all in-patients in Singapore hospitals, there was an excess of Chinese patients and a relatively paucity of Malays patients in the present series. This was particularly marked when only patients who have bled from peptic ulcers were considered. This trend has been noted in previous studies (6, 7, 8).

Table 6: Race and UGIH

	All	Chinese	Malay	Indian	Others
All UGIH	235	216 (92%)	8 (3%)	9 (4%)	2 (1%)
Peptic Ulcer	117	112 (95%)	3 (3%)	1 (1%)	1 (1%)
Non-ulcer UGIH	118	104 (88%)	5 (4%)	8 (7%)	1 (1%)
All hospital admissions		77%	12%	9%	2%
Singapore Population		77%	15%	6%	2%

DISCUSSION

In the Singapore General Hospital, patients presenting with upper gastrointestinal haemorrhage may be admitted to either the medical or the surgical unit on call. Since these

patients were not comparable in all respects, only a study covering UGIH patients in every Unit will give a representative overall picture.

It used to be thought that mortality from bleeding peptic ulcers have not improved in recent years despite advances in diagnosis and treatment. It has recently been shown, however, that there has indeed been a real improvement in mortality, at least in peptic ulcer patients (1, 2). The improvement has been limited to the older patients, since mortality in younger patients has always been low. However, mortality remains high in the variceal group and the stress haemorrhage group.

Mortality from peptic ulcer patients in the Singapore General Hospital — 12% in the older gastric ulcer patients and 0% in the younger gastric ulcer and the duodenal ulcer groups, are comparable to those from the best centres in the world (2, 3, 4). Nevertheless, there are areas for improvement in management. Relatively few patients are endoscoped within 24 hours of admission to hospital. Whilst emergency endoscopy has not been formally shown to reduce mortality (9), it is generally considered to be an important aspect of optimal management (10). If all UGIH patients are treated in a combined medical — surgical high dependency ward with a standard protocol for investigation and management, better patient care may result (11). The large number of patients undergoing emergency gastrectomy is also an area for reflection. It has been previously suggested that as a lower risk operation vagotomy may be more appropriate in haemorrhage patients (1). As mortality has become minimal, except in the older patients, our efforts should probably now be concentrated on reducing morbidity, for example, length of hospital stay.

It is unlikely that mortality in the stress ulcer group can ever be significantly reduced. Most of these patients have severe, often terminal, underlying disease and UGIH is merely one part of the total illness. The mortality of bleeding oesophageal varices remains high but with newer methods of management, for example, endoscopic variceal sclerotherapy, improved results may be hoped for in the future.

It has been shown in previous studies that the Chinese in Singapore tended to have more ulcer disease compared to the Malays. This is again borne out by the present study. There is as yet no data to indicate whether this difference is due to genetic or environment factors.

Salicylates are known to be associated with UGIH. We have not attempted to study analgesic intake in our patients in this study. The large number of proprietary medications and Chinese herbal medicines containing salicylates, and the fact that a lot of our patients are unaware of the nature of the medications they take, make history taking unhelpful in this context. A study utilising urinary analgesics is however at present being undertaken to study the contribution of analgesics to UGIH in Singapore.

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