

## Hospital Practice

# Specialized gastrointestinal units for the management of upper gastrointestinal haemorrhage

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**Summary:** In 1986, 292 patients were admitted to a joint medical-surgical gastrointestinal unit with upper gastrointestinal haemorrhage. Fourteen patients died (4.8%) a mortality considerably lower than recorded in most series.<sup>1–10</sup> The low mortality may result from the use of a specialized gastrointestinal unit to which all patients with upper gastrointestinal haemorrhage are admitted and managed with strict protocols for resuscitation, transfusion and surgery.

### Introduction

Despite technical advances in diagnosis and management and trends in the optimal timing of surgery, the average mortality from upper gastrointestinal (GI) haemorrhage has changed little over the last 50 years remaining around 10%.<sup>1–10</sup> The use of special units and/or teams to manage these patients has been a frequently suggested means of improving outcome<sup>3,5,10,11,13–16</sup> and it is of note that in the early series reporting improved survival, the use of a defined unit was a common factor.<sup>12,15</sup>

Hunt *et al.*<sup>13</sup> showed an improvement in mortality from 9% to 2.4% after setting up a specialized GI unit to manage patients with upper GI haemorrhage. In 1985, we set up a similar unit and devised strict protocols for management. An audit of results for 1986 is reported.

### Patients

In 1986, 575 patients were admitted to a joint medical-surgical 12-bed GI unit in a district general hospital, 292 (50%) with upper GI haemorrhage [114 (39%) were aged over 65 years].

It was hospital policy that all patients with upper GI haemorrhage were admitted to the GI unit under the care of one of 2 gastroenterologists. A strict management protocol was used priming junior staff to recognize those patients at greatest risk (see Appendix). Close medical-surgical liaison existed with all patients being seen by the duty surgical registrar on admission.

Patients included in the series had to have a clear history of haematemesis and/or melaena. Coffee ground vomiting was considered a GI bleed only if witnessed by the admitting staff.

Endoscopy was performed on the GI unit within 36 hours of admission. Diagnoses at endoscopy are shown below (Table I).

### Results

Fourteen out of 292 patients died giving an overall mortality rate of 4.8%. The operative rate was 16% (47/292). Of the 14 deaths, 9 were attributable primarily to upper GI bleeding – 2 had varices, 2 duodenal ulcer, and 3 gastric ulcer. In a further two the diagnosis was not established – one an 85 year old woman with dementia and heart failure who

**Table I** Upper gastrointestinal haemorrhage: endoscopic diagnosis

Diagnosis	No	(%)
Duodenal ulcer	64	(21.9%)
Benign gastric ulcer	60	(20.5%)
Gastritis	40	(13.7%)
Duodenitis	18	(6.2%)
Oesophagitis	17	(5.8%)
Mallory-Weiss tear	18	(6.2%)
Oesophageal varices	14	(4.8%)
Benign oesophageal ulcer	13	(4.5%)
Carcinoma of stomach/oesophagus	10	(3.4%)
Others	10	(3.4%)
No abnormality found	28	(9.6%)
Total	292	

was not endoscoped or considered fit for surgery; the second was a 76 year old man admitted in shock and who suffered a cardiac arrest after 5 hours in hospital (no post-mortem available). In the 4 other deaths, the GI bleed was a complicating factor in other major conditions – 2 acute myocardial infarctions, an AIDS case with pneumocystis pneumonia and a ruptured aortic aneurysm. One further patient had predominantly lower GI bleeding and was found to have ischaemic bowel at laparotomy.

The mortality results for different diagnoses were as follows – duodenal ulcer 2/64 (3.1%), gastric ulcer 3/60 (5.0%) and oesophageal varices 2/14 (14%).

## Discussion

In our series, the overall mortality is considerably lower than average. Our patient population is similar to that of other series with respect to diagnosis and age distribution.<sup>6,7,10</sup> The operative rate is probably lower than average. We believe therefore that the main factor in the lower mortality noted is the use of a specialized joint medical-surgical GI unit. Medical and nursing staff on this unit are primed to recognize those patients at greatest risk from their bleed and there is a meticulous and enthusiastic approach to managing these patients. There is close medical-surgical liaison with joint care of all patients.

The mortality rate for the years immediately prior to the setting up of the unit was not recorded. However, a series of 587 patients from 1957–60<sup>17</sup> found a mortality of 7.7% excluding patients with carcinoma and oesophageal varices.

A number of authors have speculated as to the benefits of special units for managing upper GI haemorrhage – only 2, however, address the problem directly. The results of Hunt *et al.*<sup>13</sup> are mentioned above. A comparison of 3 GI units in

Australia,<sup>16</sup> each with impressive mortality figures but with varied surgical and transfusion policies showed the use of a special unit to be the single common factor in their improved mortality. Other evidence for the likely benefits of special units is evident indirectly from other series. Many series reporting improved survival by change to early diagnosis or an aggressive surgical policy also included a change to using a defined unit for managing their patients.<sup>12,15</sup> Devitt<sup>11</sup> in 1966 reviewed 50 fatal cases of upper GI haemorrhage and concluded that a 'haematemesis team' would best improve the management. In a review of management of upper GI haemorrhage in a district general hospital, Madden and Griffith<sup>10</sup> concluded that their disappointing mortality of 15% could be best improved by setting up a haematemesis and melaena unit in order to achieve the necessary co-ordination on appropriate surgical and medical management.

Finally, a recent review of the subject from Edinburgh<sup>18</sup> describes the running of a medical-surgical GI unit but does not provide data on upper GI bleeding. This review does, however, draw attention to the added benefits of such a unit with regard to management of other diseases, e.g. inflammatory bowel disease, and with respect to teaching, research and easy access to on-site investigative facilities.

Our series specifically addresses the use of a specialized unit in the management of upper gastrointestinal haemorrhage. We believe the management protocol to otherwise represent fairly standard medical and surgical care, and suggest the low overall mortality rate may be due primarily to the use of such a unit. Too much emphasis has been placed on the benefit of other advances in management, for example early diagnosis. Major improvements in mortality can be achieved by attention to simple details and good teamwork.

## Appendix

### Non-Variceal GI Bleeding Protocol

#### ALL PATIENTS TO BE ADMITTED ON GI BLEED PROFORMA SHEETS

History: ?Dyspepsia, smoking, alcohol. Drugs – aspirin, NSAIDS, beta-blocker, warfarin.

Past history: Ischaemic heart disease.

Examination: Pulse, blood pressure (?postural drop). Rectal examination ?melaena.

1. Insert peripheral line and take blood for haemoglobin, mean cell volume platelets, urea and electrolytes, clotting and cross-match 2–6 units depending on severity of bleed.

2. If NOT shocked, infuse 5% dextrose slowly. If SHOCKED, start with one unit 'Haemaccel' stat (maximum of 2) then use crystalloid. Change to blood as soon as possible.
3. **Transfusion criteria** = hypovolaemia or haemoglobin < 10 g/dl in setting of definite GI bleed. Keep a running total recorded in notes.
4. ALL patients over 40 to have electrocardiogram.
5. Chest X-ray only if clinically indicated.
6. **Central venous pressure line** to be inserted for combination of hypovolaemia with one or more of following – age over 60, ischaemic heart disease or beta-blockade.

7. Inform GI registrar and Duty Surgical Registrar and record names and times.
8. **Endoscopy:** plan for next list unless (1) suspect varices, (2) large GI bleed with continued bleeding (= hypovolaemia signs despite 4 units colloid or blood) – these need urgent endoscopy. Stigmata of recent bleeding indicates a 50% chance of re-bleed.
9. Keep nil by mouth, check urine, stool and vomit charts kept.
10. **Re-bleeding:** (= hypovolaemia, fresh haematemesis or haemoglobin drop of  $> 3$  g after interval when no evidence of bleeding.) Surgeon must be informed at each re-bleed and time recorded.
11. Always ensure minimum of 2 units available until 24 hours after last sign of bleeding.
12. **Surgical protocol** in general should be: Continued bleeding of 4 units blood and 1st re-bleed in patient over 60; continued bleed of 8 units blood or 2nd re-bleed in patient under 60.
13. Always 'hand over' the patient before going off duty.

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