

## Evidence based management of haematemesis

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***This article is based on the National guidelines on the management of upper gastro intestinal bleeding, published by the Ministry of Healthcare and Nutrition.***

Haematemesis (vomiting of fresh blood) is a feature of acute upper gastrointestinal bleeding (UGIB) and is the presenting feature in 30-40 % of patients with UGIB. The amount of blood loss can vary from a few millilitres to litres and the initial management depends on the volume lost, as well as the underlying cause.

The management can be described in 3 steps.

1. Resuscitation
2. Identification of the cause and the site
3. Definitive management  
(variceal vs. non variceal)

### **Resuscitation**

The airway must be protected and aspiration prevented. A nasogastric tube can be used in a conscious patient with copious vomiting but a semiconscious or unconscious patient will need to be turned to the left lateral position, with an oropharyngeal airway or endotracheal intubation. If facilities are available, the adequacy of respiration should be assessed continuously with pulse oximetry or with blood gas analysis.

Two 14 FG (orange) cannulae should be inserted to both arms, and blood should be taken for full blood count (to assess the haemoglobin level, packed cell volume and platelets), PT / INR, cross matching, blood urea, serum electrolytes and liver function tests when suspecting hepatic pathology. The patient should be catheterized to measure the urine output.

The patient should be assessed to estimate the blood loss (table 1). If the patient is not in shock, a slow infusion of 0.9 % NaCl should be started to keep the cannulae patent.

If the patient is in shock he should receive 8 – 10 litres of oxygen/min via face mask and a rapid infusion of fluid with the aim of euvolaemic resuscitation as guided by a urine output of 0.5 – 1 ml/kg/hr. In most patients, 1 – 2 litres of crystalloids will correct the losses, but further replacement should include plasma expanders as this suggests that at least 20 % of blood volume has been lost.

If the bleeding is extreme or if the haemoglobin is less than 80 g/l, red cell concentrate should be transfused.

Omeprazole 80 mg should be given intra venous as a bolus and continued as 8 mg/hour over the next 72 hours.

### **Identification of cause and site**

A quick history and examination may be useful in identification of the cause and the site i.e. dyspepsia or NSAID use (peptic ulcers), episodes of vomiting prior to haematemesis (Mallory Weiss syndrome), stigmata of chronic liver disease (variceal bleeding).

Upper gastro intestinal endoscopy will demonstrate the lesion as well as offer several treatment options.

### **Management of Non-Variceal bleeding**

Several endoscopic and pharmacological treatment modalities are available (Table 2).

Table 1: Estimation of fluid and blood losses in shock

|                                  | Class 1            | Class 2            | Class 3               | Class 4               |
|----------------------------------|--------------------|--------------------|-----------------------|-----------------------|
| <b>Blood loss ( ml )</b>         | Up to 750          | 750 - 1500         | 1500 - 2000           | > 2000                |
| <b>Blood loss ( % of total )</b> | Up to 15 %         | 15 – 30 %          | 30 - 40 %             | > 40 %                |
| <b>Pulse rate ( / min )</b>      | < 100              | 100- 120           | 120 - 140             | > 140                 |
| <b>Blood pressure</b>            | Normal             | Normal             | Decreased             | Decreased             |
| <b>Respiratory rate</b>          | Normal / Decreased | Normal / Decreased | Decreased             | Decreased             |
| <b>Mental status</b>             | Slightly anxious   | Mildly anxious     | Anxious , confused    | Confused , lethargic  |
| <b>Fluid replacement</b>         | Crystalloid        | Crystalloid        | Crystalloid and blood | Crystalloid and blood |

Table 2: Management options for gastric bleeding

| Treatment option             | Dose / Method   | Evidence base  |
|------------------------------|---|--|
| <b>Endoscopic</b>            |   |  |
| Injection                    | Adrenaline 1:10,000 in normal saline, injected first to quadrants around the bleeder, then in to the vessel | No single solution is superior to another (1)  |
| Application of heat          | 20 – 30 Joules repeatedly applied using heater probe or multipolar coagulation.                             | No difference of re-bleeding, surgery or mortality when compared to injection therapy (2, 3),  |
| Mechanical clips             | Clips applied to bleeding vessels, particularly useful for large vessels.                                   | 2 studies have shown that its superiority to injection or heater probe, but 1 study showed higher failure rates (4).<br>Combination with injection is <b>not</b> better than injection alone or clips alone (4, 5) |
| <b>Pharmacological</b>       |   |  |
| Omeprazole                   | 80 mg bolus<br>8 mg / hour for 72 hours.  | Reduced re-bleeding and need for surgery when compared to H <sub>2</sub> Antagonist or placebo (6).  |
| <i>H. pylori</i> eradication | Amoxicillin 1 g bd<br>Metronidazole 400 mg bd<br>Omeprazole 20 mg bd  | Reduce ulcer recurrence and re-bleeds (7, 8).  |

Bleeding not responding to both the above methods could be managed surgically. Gastric ulcers could be treated by excision of the ulcer or partial gastrectomy and duodenal ulcers could be managed with distal gastrectomy with Billroth I or II reconstruction, or under running the ulcer or the right gastro epiploic artery.

H<sub>2</sub> receptor antagonists, somatostatin/octreotide and antifibrinolytics cannot be recommended until further studies are available .

### **Management of variceal bleeding**

Management could be pharmacological, endoscopic, tamponade or surgery (Table 3).

*Table 3: Management of variceal bleeding*

| <b>Treatment option</b>            | <b>Dose / Method</b>  | <b>Evidence base</b>  |
|------------------------------------|---|---|
| <b><i>Pharmacological</i></b>      |   |   |
| Vasopressin                        | 20 units in 200 ml normal saline bolus, followed by 0.2 – 0.4 units / minute infusion.                        | Does not confer a survival benefit (9). However, Terlipressin improves survival(10).      |
| Somatostatin / Octreotide          |   |   |
| Recombinant factor VII             |   | Improved bleeding end points in severe cirrhotics (11).                                   |
| <b><i>Tamponade</i></b>            |   |   |
|                                    |   | Initially effective in 85%, but re-bleeding occurs (12).                                  |
| <b><i>Endoscopic treatment</i></b> |   |   |
| Banding                            | Placement of a rubber band around the varix thereby strangulating it.   | Lower mortality, re-bleeding, perforation and stricture formation than sclerotherapy (13) |
| Sclerotherapy                      | Ethanolamine or Polidocanol injected either intra-variceal or para-variceal to create fibrosis in the mucosa. |   |
| Cyanoacrylate glue                 | Liquid tissue adhesive that is injected to the varix and rapidly polymerizes into a hard glue.                | 90 % effective in the initial bleed (14)<br>More effective than sclerotherapy.            |
| <b><i>Surgical</i></b>             |   |   |
| Shunts                             | Decrease portal hypertension without compromising liver function.   | > 90 % effective.(15)   |
| Liver transplantation              |   |   |

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