The Laboratory Role in Massive Haemorrhage

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Laboratory Responsibilities

- Duty of care for patient (gate keeping)
- Professional requirement to support the clinical team
- Provide major input into Trust transfusion policies
- Clinical governance role
- Regulatory compliance role
- Resource management role
Duty of care for patient

- All lab staff must be fully competent and conversant with MHP
- Must not be obstructive when blood products are requested
- Must prioritise this work above all other requests
- Must be allowed to challenge inappropriate activation if the clinical team appears to lack understanding of the MHP
Female, age 70 on Gastroenterology ward for 24 hours. Clinical details provided were: Abdo pain, looks pale, tachycardia.

Routine bloods sent to Haematology gave a Hb of 3.6g/dl – all other parameters for FBC and Coagulation screen were normal.

The Hb result was phoned and the Nursing staff were asked about the status of the patient – melaena was reported but no frank bleeding.

The lab then received a call from the SHO asking for the MHP to be activated.

The lab challenged the request validity as there had been no Registrar involved in the decision.

The Registrar then came on the line and confirmed the request for MHP activation.
Clinical example of gate keeping role (2)

- 6 x RBC, 4 x FFP & 1 Platelets issued as per protocol.
- Lab informed the Consultant Haematologist and expressed their concern.
- Consultant Haematologist contacted the clinical team and after intervention:
  - 4 units RBC transfused.
  - 1 unit of FFP transfused, further FFP infusion suspended.
  - 3 units FFP unused and subsequently wasted
  - 1 unit platelets unused and returned to stock.
- Audit revealed lack of awareness of the MHP activation trigger
- Further investigation revealed lack of awareness of the optimal use of FFP.
- Patient was subsequently treated successfully for the melaena.
Support for the clinical team (1)

- Should be empowered to act in an advisory capacity within their competency and knowledge.
- Must provide MHP packs within the time frame specified by the policy.
- May remind the clinical team that products have not been collected from the point of issue.
- May remind the clinical team that supporting lab tests (e.g. FBC and Coag. Screen have not been repeated after an appropriate time.
- May need to provide specialist advice in the event of serological complications
Support for clinical team (2)

- Ensure continuous availability of O Negative blood at key locations.
- Ensure 24/7 capability of fully automated blood group result within 30 minutes of sample receipt.
- Ensure capability to issue MHP Pack 1 within 40 minutes of sample receipt.
- Continue to prepare and issue subsequent MHP packs until stood down by the clinical team (conveyor principle)
Typical MHP process flow (lab) (1)

- Clinical trigger for MHP activation
- Activation phrase used when lab alerted
- Sample received and testing started
- Emergency O Neg blood issued
- FFP thawing commences (4 packs)
- FFP and 1 platelet pack allocated to patient on LIMS.
- Group specific red cells (6 packs) selected and allocated to the patient on LIMS then all products labelled – MHP pack 1 issued.
- Antibody screening tests should be just coming to completion at this time – should be available prior to release of MHP pack 1
Typical MHP process flow (lab) (2)

- Preparation of MHP pack 2 commences immediately
  - FFP thawing commences
  - Group specific red cells selected and allocated etc.
  - Platelets allocated and all packs labelled
- MHP pack 2 issued
- Preparation of MHP pack 3 commences immediately as above but adds 2 packs cryoprecipitate
- Sequence is repeated until told to stand down
Common problems with process (lab perspective)

- Clinical team not familiar with process (communications problem)
- Sample quality problems
- Emergency O Neg blood continues to be transfused despite MHP 1 being available
- Blood products left in transport box and subsequently wasted
- Failure to record fate of units or update fluid chart
- Unexpected atypical antibody detected during lab testing (Nightmare scenario!!)
Clinical example of atypical antibody scenario (1)

- Female 52 years old, cold endoscopy case
- Traumatic perforation during procedure
- Catastrophic blood loss
- MHP activated correctly and sample despatched quickly
- 4 units of O Neg blood issued direct to endoscopy
- Patient O Pos – ANTIBODY SCREEN POSITIVE +++
- Antibody identification implemented (30 min.)
- New sample requested and clinical team updated.
- Further 4 units of O Neg blood issued directly to endoscopy
Clinical example of atypical antibody scenario (2)

- Antibody identified as anti –E and anti-Jk(b) combination.
- All 50 units of group O blood in stock screened for the absence of the E and Jk(b) red cell antigens.
- 20 units of O Pos red cells negative for the E and Jk(b) antigens ordered from NHSBT by blue light delivery.
- Only 3 suitable units were found in the current hospital stock after screening. These were issued uncrossmatched as patient *in extremis*. 4 x FFP and 1 unit of platelets issued.
- On arrival of new stock MHP 2 and then MHP 3 issued sequentially.
- Bleeding stopped by surgical intervention.
- Patient made a full recovery.
- GP retested the patient 2 weeks later and further antibodies (ant-S and anti-Fy(a)) were now present in addition to those already detected.
Input into Trust Major Haemorrhage Policy

- NPSA/2010/RRR017 states that the Trust MHP should be owned by the HTC
- Lab can advise on realistic timeframes for the release of MHP packs for incorporation into the policy
- Lab can make an impact assessment of not stocking pre-thawed FFP (just in case)
- Lab can make an impact assessment of not stocking unassigned platelets (just in case)
- Provision of audit evidence for each activation event
- Implementation of actions arising from audit findings
- Seek advice and consensus view of MHP triggering parameters.
Clinical Governance/Regulatory Compliance

- Incident reporting and investigation
- Reporting to SHOT
- BSQR – appropriate use, storage and fateing of products
- MHRA reporting via SABRE website