

TACO and other complications of transfusion

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Haemovigilance definition

- Surveillance procedures from the collection of blood and its components to the follow up of the recipients
- To collect and assess information on unexpected and undesirable effects resulting from the therapeutic use of labile blood components
- And to prevent their occurrence or recurrence

Haemovigilance in the UK

MHRA

Medicines & Healthcare Products Regulatory Agency

- Competent Authority' for the **BSQR 2005**
 - QMS in blood establishments and hospital blood banks.
- Competent Authority for the **Medicines Act 1968**
- Competent Authority for the **Medical Devices Regulations 2008**
- **STATUTORY** reporting

SHOT

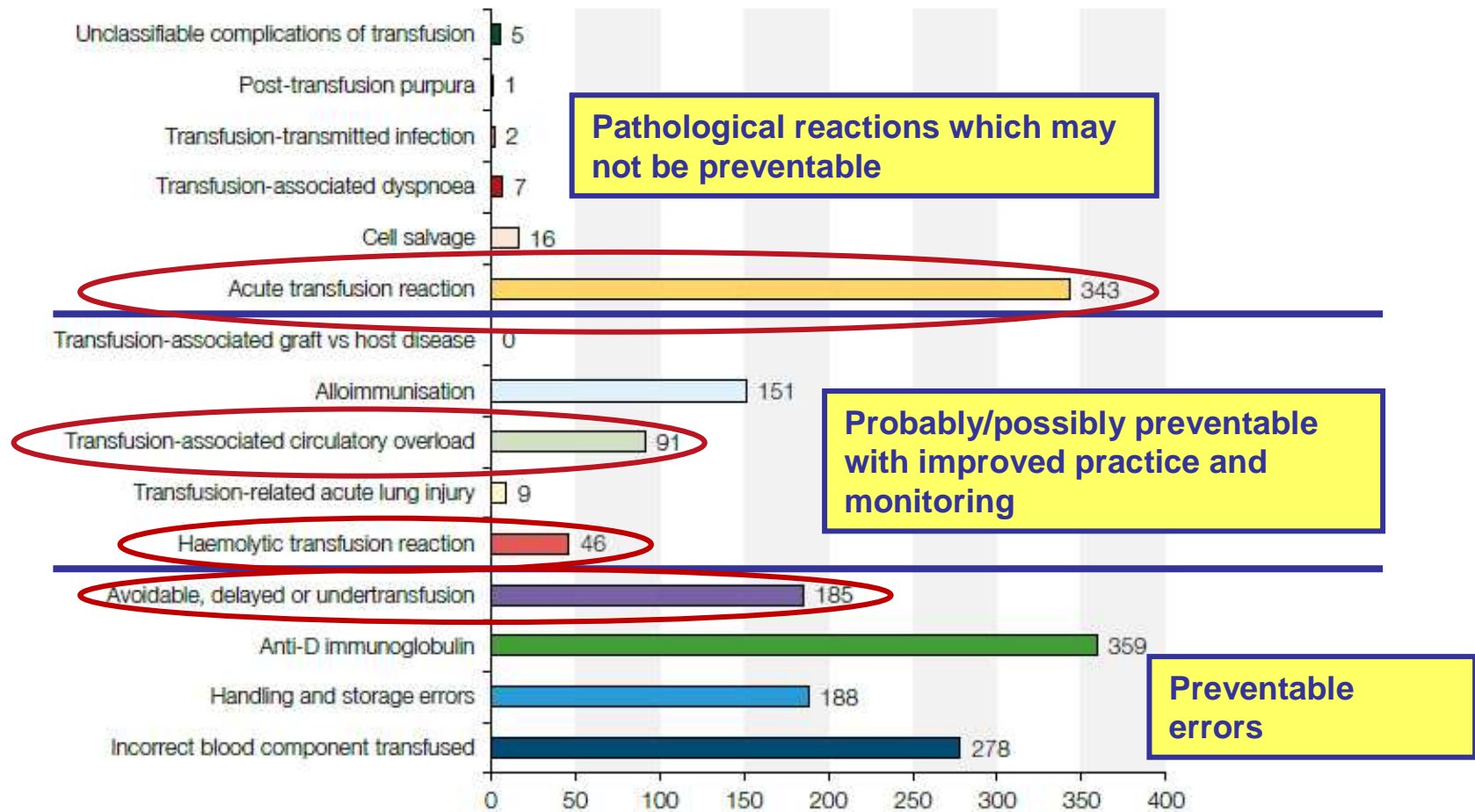
Serious Hazards of Transfusion

- Confidential enquiry
- Serious adverse reactions/events AND near misses all of which occur in **BOTH** a laboratory and **CLINICAL** environment.
- **PROFESSIONALLY MANDATED** reporting

SHOT Headlines 2014

- **Deaths where transfusion was causal or contributory n=15**
 - 2 definitely related to the transfusion
(1 haemolytic transfusion reaction (HTR) ,1 Transfusion –associated circulatory overload (TACO))
- **Major morbidity n=169**
 - Mainly acute transfusion reactions (allergic/severe febrile)
- **TACO** was associated with **36 cases of major morbidity** and contributed to **6 deaths**
(1 definitely related, 3 probably related, 2 possibly related)
- In 42/91 (46.2%) cases of TACO the patient had a poor outcome
- **ABO incompatible red cell transfusions n=10**
 - 1 major morbidity
 - all due to clinical errors in collection and administration or administration alone

Cases reviewed 2014



Transfusion-associated circulatory overload (TACO)

Current ISBT definition:

Any 4 of the following within *6 hrs of transfusion

- Acute respiratory distress
- Tachycardia
- Increased blood pressure
- Acute or worsening pulmonary oedema
- Evidence of positive fluid balance

International definition currently under review as it is unsatisfactory

- * *SHOT have received reports of TACO up to 24 hours post transfusion*

Assessment for transfusion

- Are the full blood count results correct? Do they fit with the clinical picture?
- Does the patient need further investigations?
- Risk v benefit of transfusion
- Patient age, weight and general condition
- Does the patient have risk factors for TACO?
- Is conservative management more appropriate?
- Communication – identifies patients who may have specific requirements

Risk factors for TACO

- Age > 70 years although TACO is seen in younger patients
- Concomitant medical conditions e.g.
 - cardiac failure
 - renal impairment
 - fluid overload
 - hypoalbuminaemia
- Low body weight
- Too rapid transfusion

Please see addendum to BCSH guidelines on the administration of blood components (published 2012)

Case Study 1

- A 71 yr old female patient on regular transfusion support for auto immune haemolytic anaemia (AIHA) was admitted for a 2 unit red cell transfusion as a day case
- Transfused between 09:40 and 14:05hrs – average transfusion duration 2hrs 10mins
- Patient was known to have AF and bilateral valve disease
- The patient returned to another hospital unwell at 15:00hrs and at 15:10 became very short of breath with raised blood pressure
- Crash call made and patient re-admitted to acute hospital via A&E

Case Study 1

contd.

Key recommendation

Advice for patients

- Day case or outpatient transfusions: with the need for increased emphasis on day case and community care, patients receiving blood transfusions need to be given printed advice , be advised to report any symptoms or complications and provided with a 24-hour contact number

- Made a full recovery

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Avoidable, delayed or under transfusion – common issues

- Transfusion may not be the optimal management for all patients
- Incorrect full blood count results
 - dilute, poor sampling or wrong blood in tube
- Delayed decision making
- Communication failures
- Inappropriate management of iron or other haematinic deficiency

Case Study 2

- A full blood count sample was received on routine transport from a health centre
- The clinical details included 'shortness of breath' and the Hb was 45g/L
- As the sample was received after routine hours, the result was telephoned to the on-call GP service.
- The patient was not admitted to hospital until 6 days later
- A repeat Hb confirmed the low result, and resulted in an urgent request for a 3 unit red cell transfusion which was started within 2 hrs

Case Study 3

- 75 year old patient with unilateral swollen leg had a full blood count sample taken by the GP
- Result Hb 76g/L was relayed to the out-of hours (OOH) service provider
- The OOH had a consultation with the patient advising immediate admission to MAU and a 2 hour ambulance had been booked
- Patient was asymptomatic of anaemia
- Patient admitted to MAU and 2 unit red cell transfusion prescribed

Case Study 3

contd.

- Group and screen, crossmatch and full blood

Root cause of the error?

- 07
- 1st
- The sample was taken into a syringe and GP then walked 10 minutes from patients house to the surgery

The sample was decanted into a tube and then labelled

- **R**
- **06**
- It is thought the sample must have clotted in the syringe

- Unit stopped @ 11.20hrs when 1st received result from GP was spurious

Case Study 4

- A cross match blood sample was taken by the community team
- The result was determined to be different from the historic group
- The investigation showed the sample had been mistakenly taken from the person living next door to the patient (wrong blood in tube)
- The second individual had not questioned the nurse as he himself was awaiting a nurse to give him an injection

Haemolytic transfusion reactions

- These can be acute (within 24 hrs) or delayed (up to 14 days)
- Particularly common in patients with haemoglobin disorders
- The first presentation may be in the community

Case 5

- An elderly woman with myelodysplastic syndrome received 2 units of red cells on the haematology day unit with no ill effect
- Eight days later she began to experience loin pain and passed black urine, which continued for 5 days
- The primary care team prescribed antibiotics, but did not take a urine sample or report this to a haematologist
- It was not until 3 weeks later, when the patient returned to the day unit for an appointment that a DHTR (due to anti-c) was diagnosed

Reporting adverse incidents

- GMC 'Encouraging a learning culture by reporting errors'

http://www.gmcuk.org/guidance/ethical_guidance/27249.asp

- Duty of candour
- CQC now interested in transfusion events
- ABO incompatible transfusions are now 'Never events' – NHS England

Resources

Resources available on the web:

www.shotuk.org

- Annual reports and summaries
- Clinical and laboratory lessons
- Reporting definitions
- Benchmarking data
- Case studies
- SHOT bites