

19 Uncommon Complications of Transfusion (UCT) n=15

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Definition:

Occurrence of an adverse effect or reaction temporally related to transfusion, which cannot be classified according to an already defined transfusion event and with no risk factor other than the transfusion, and no other explanation.

Serious reactions in this category are reportable to the European Union (EU) as 'uncategorised unintended responses'.

Key SHOT message

- It is important that uncommon and atypical complications seen in patients post transfusion continue to be reported to SHOT. This will help gain a better understanding of these complications, identify risk factors and develop risk reduction strategies

Abbreviations used in this chapter

COPD Chronic obstructive pulmonary disease

DAT Direct antiglobulin test

EU European Union

NEC Necrotising enterocolitis

PEA Pulseless electrical activity

pRBC Packed red blood cells

TANEC Transfusion-associated necrotising enterocolitis

UCT Uncommon complications of transfusion

UK United Kingdom

Recommendation

- Reporters are encouraged to continue to report cases with unusual reactions to transfusion

Action: All staff involved in transfusion

Introduction

Cases with reactions reported in patients with temporal relation to transfusions and cannot be classified into other categories are reported infrequently and are included in this chapter. Often several other contributory factors can be identified that may have resulted in the patient's reactions. Reporting and reviewing these will help in our ever-evolving understanding of transfusion complications and will help improve patient safety in transfusion by implementing appropriate risk reduction measures.

Death n=2

There were 2 deaths reported in this category, both with imputability recorded as 'possible'.

Case 19.1: Transfusion-associated necrotising enterocolitis (TANEC)

This was a case of an extreme preterm neonate (24 weeks) in the neonatal intensive care unit with a previous bowel perforation, post haemorrhagic hydrocephalus and had received multiple transfusions. Around 2-2.5 hours into the second transfusion, the neonate developed clinical features suggestive of necrotising enterocolitis with vomiting, increasing nasogastric aspirates, worsening abdominal distention and respiratory deterioration requiring ventilation. This led to multiorgan failure and death.

Case 19.2: Multiple ongoing issues

A woman in her 60s was admitted with chronic obstructive pulmonary disease (COPD), cor pulmonale, alcoholic liver disease with gastrointestinal bleeding. She received one unit of red cells uneventfully and developed acute dyspnoea with no rise in temperature an hour into the second transfusion 2 days later. This was followed by sudden deterioration with a pulseless electrical activity (PEA) arrest. Pre- and post-transfusion compatibility testing showed negative direct antiglobulin test (DAT), negative antibody screen and crossmatch-compatible unit. The patient had begun to bleed spontaneously, and gastric re-bleeding was suspected. Resuscitation attempts failed.

Major morbidity n=1**Case 19.3: TANEC**

This was a suspected case of TANEC in a preterm neonate who developed symptoms after approximately 25mL of a red cell transfusion and had bleeding per rectum approximately 90 minutes post transfusion with worsening tachycardia. The neonate underwent surgical removal of part of the ileum after being transferred to a tertiary care centre.

The imputability for this case was thought to be possibly related to the transfusion (imputability 1).

Transfusion associated necrotising enterocolitis

TANEC has been described as necrotising enterocolitis (NEC) that arises within 48 hours of a blood transfusion and is thought to be multifactorial in origin. Several cases have been reported to SHOT over the years and there are 2 reports from 2019. TANEC has been recorded in the United Kingdom (UK) in the very low birth weight neonatal population. While numerous observational studies appear to demonstrate an association between packed red blood cell (pRBC) transfusions and NEC, the limited numbers of randomised controlled trials do not support a causal relationship between pRBC transfusion and NEC. Results from a recent large multicentre observational cohort study reported that severe anaemia and not pRBC transfusion was associated with NEC. Further work is needed to clarify causation, pathophysiology, and possible mechanisms of prevention of TANEC (Gephart 2012; Patel et al. 2016; Hay et al. 2017 and Faraday et al. 2020).

Other cases n=12

A variety of cases ranging from nonspecific pains and headache following transfusion to isolated fever/chills and some with hypertensive reactions have been reported in the other cases included in this category.

Details of these cases can be viewed in the supplementary information on the SHOT website (<https://www.shotuk.org/shot-reports/report-summary-and-supplement-2019/>).

Learning point

- Patients experiencing signs and symptoms consistent with an acute transfusion reaction must be evaluated promptly and treated expeditiously



Conclusion

Transfusion reactions range from bothersome yet clinically benign to life-threatening reactions and can be acute or delayed. The nature of the reaction may not be immediately apparent, because many reactions begin with nonspecific symptoms such as fever or chills. In addition, patients receiving transfusions often have complex underlying clinical conditions, the symptoms of which may mimic a transfusion reaction. Thus, a patient experiencing signs and symptoms consistent with an acute transfusion reaction must be evaluated promptly and treated as expeditiously as possible to minimise the impact of the reaction. Input from specialist transfusion medicine colleagues from the relevant UK Blood Service may be needed.

References

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