The role of the Serious Hazards of Transfusion Reporting Scheme in identifying changes in transfusion reaction patterns associated with new components.

Introduction

All establishments in the UK who transfuse blood to patients are mandated to report transfusion reactions to the Serious Hazards of Transfusion (SHOT) reporting scheme. This scheme was initiated in 1996. In 2015 more than 2.5 million blood components were issued and 3963 reactions reported. SHOT therefore provides continued surveillance of blood transfusion practice and is well placed to identify any changes in the incidence of reactions whatever the cause.

Type & Incidence of Acute Transfusion Reactions 2015

Allergic reactions are frequently reported. Out of 296 acute transfusion reactions (ATR) 122 were pure allergic and of these 58 were severe. See SHOT ATR table below and the International Haemovigilance Network/ International Society for Blood Transfusion (IHN/ISBT) ATR classification which is used by SHOT.

<table>
<thead>
<tr>
<th>SHOT Acute Transfusion Reactions 2015</th>
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<tbody>
<tr>
<td><strong>Febrile</strong></td>
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<tr>
<td>Moderate</td>
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<tr>
<td>Severe</td>
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<td>Total</td>
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Introduction of platelet additive solution to pooled platelets

In 2015 in England platelet additive solution (PAS) was used to replace plasma in concentrates made from platelet pools with full implementation by July 2015. Apheresis platelets remained suspended in plasma. Using adult data for England only and corrected for the total number of pooled and apheresis platelets issued, a reduction in the incidence of allergic reactions to pooled platelets of 50% (1.6122) compared to 2014 (1.3171) was identified. There was no significant difference in allergic reactions linked to apheresis platelets (1.5414 and 1.5494 respectively). Febrile type reactions associated with both types of platelet component increased in 2015 compared to 2014. In pooled platelets the increase was 14% (1.8571 and 1.7535 respectively) and in apheresis platelets the increase was 47% (1.2541 and 1.17325 respectively). The lack of a clear effect of PAS on febrile type reactions may be because these are caused by the accumulation of cytokines post storage and not directly related to plasma. Our results are in keeping with published studies (Tobian et al 2014, Cohn 2014, Cazenave et al 2011, Yanagisawa et al 2013).

Percentage of Moderate / Severe Allergic Reactions 2014 vs 2015

Percentage of Moderate / Severe Febrile Type Reactions 2014 vs 2015

Key Message

SHOT data and published studies indicate that the use of platelets suspended in platelet additive solution (PAS) are associated with a reduction in allergic response. Hospitals should consider preferential use of platelets suspended in PAS in patients with a history of this type of reaction. If reactions continue then platelets re-suspended in 100% PAS can be supplied.

References: