TRALI – multiple suspects for a crime

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Introduction

- Transfusion-related acute lung injury (TRALI) is a life threatening complication of transfusion characterized by the development of acute respiratory distress associated with non-cardiogenic pulmonary edema, occurring within 6 h after receiving a blood transfusion.
- TRALI has been associated with transfusion of virtually all blood components. Donors involved in a TRALI event should be screened for the presence of HLA Class I and II and HNA antibodies and the transfusion recipient assessed for the presence of the corresponding antigens. Donors involved in a TRALI event should be deferred from donating blood.
- We report the case of a 56 year old woman admitted for acute myeloid leukemia and petechiae, who initiated symptoms of dyspnea, tachycardia and vomiting during the administration of a pool of platelets. She died a few hours later from respiratory failure. TRALI was diagnosed.

Material and Methods

- Donors anti-HLA antibodies specificity was performed with LABScreen™ Single Antigen (One Lambda), anti HNA antibodies were analyzed with LABScreen™ Multi (One Lambda) and recipient HLA typing was performed by PCR-SSO LIFECODES HLA Typing Kits (HLA-A,B,C, DRB1, DQB1 and DPB1 – Immucor).

Results

- HLA genotyping of the <u>patient</u> : A*01, 02; B*07,08; C*07; DRB1*04,17; DQB1*02,08; DPB1*06,13.

Anti HLA antibodies - Median Fluorescent Intensity

Patient HLA Genotyping

A*01,02
B*07,08
C*07
DRB1*04,17
DQB1*02,08
DPB1*06:13

	Donor 1	Donor 2	Donor 3	Donor 4
A1	2107			
A36	1432			
B8	3579			2897
DR4			1067	
DR7			1441	
DR10	1023			
DQ7		1153		
DQ8			1823	
DP1			3394	1066
DP5			1307	
DP6			1118	
DP10			1043	
DP14			1509	

- Anti-HLA antibodies were identified in all donors, with maximum Median Fluorescent Intensity ranging from 3579 to 1023.
- Patient specific antibodies were identified in 3 out of the 4 donors: <u>donor 1</u> anti- HLA- A1 and HLA-B8, <u>donor 3</u> anti- HLA- DR4, DQ-8 and DP-6, and <u>donor 4</u> anti- HLA B8.
- None of the donors had anti HNA antibodies.

Conclusion

- It is noteworthy that anti-HLA antibodies against some of the patient's antigens were identified in 3 donors, thereby straining the identification of the donor or donors responsible for the TRALI event.
- The finding of multiple female donors with the theoretical ability to elicit TRALI might suggest reappraisal of the criteria for the selection of blood donors in order to prevent TRALI.