2020 Annual SHOT Report – Supplementary information

Chapter 18a: Transfusion-Related Acute Lung Injury (TRALI)

Since the release of the 2020 Annual SHOT Report, it has been brought to our attention that one of the cases included as TAD-C in the latest SHOT report was classified incorrectly and should be "Equivocal TRALI". The team had reported the wrong antibody specificity when they submitted their report on Dendrite, but the patient does in fact have cognate antibodies- HLA DR4, DR53 and DQ8. This is Case 18c.5: Imputability 1 (possible) in the 2020 Annual SHOT Report – it was clarified that the case met criteria for "type II TRALI" as per the consensus redefinition criteria. As the antibodies found during investigation for TRALI were submitted incorrectly and were indeed cognate antibodies this becomes a case of 'Equivocal TRALI' - case summary is included again here for information. Please note that this takes the total number of antibody-positive TRALI cases reported in 2020 to 3.

Case 18a.3 (what was included as Case 18c.5 in the 2020 Annual SHOT Report)

A woman in her mid-20s was admitted to the maternity unit having suffered an eclamptic seizure at home at 27+5 weeks gestation. Intrauterine fetal demise was diagnosed due to a large abruption. She then underwent an emergency caesarean section, was coagulopathic and developed severe PPH. She received several blood components: four units of FFP, four pools of cryoprecipitate, four units of packed red cells and one unit of platelets. After leaving theatre, she was transferred to ICU. At this point a positive bacterial culture (BactAlert) from the platelets had been reported to the Blood Service consultant who then contacted the clinical area to inform them of potential contamination. There were no infective issues reported at the time. The organism was later identified as Propionibacterium acnes. The patient did not recover as would be expected postoperatively. Her CXR showed non-specific diffuse ground glass shadowing consistent with ARDS. There were no positive blood cultures from the patient. A head CT 4 days after surgery showed changes consistent with PRES. The chest CT showed ARDS. She deteriorated and was increasingly difficult to ventilate so was transferred for ECMO and improved slowly. A possible diagnosis of TRALI was considered 4 days after the transfusions. HLA DR4, DR53 and DQ8 antibodies were detected that were cognate to the patient.

Additional tables – not included in the main 2020 Annual SHOT Report

Table 18a.3: Patient characteristics and component details

TRALI case number	Sex/age	Diagnosis	Reason transfused	Transfused components				Implicated component (concordant antibody)	Interval between transfusion and symptoms
				RBC	Plt	FFP	Cryo/ other		
1	F/80	Essential thrombocythaemia	R4 Chronic transfusion dependent anaemia	2				RBC	2-6 hours
2	M/70	Anaemia secondary to chronic GI haemorrhage, liver disease, kidney disease, thrombophilia,	R4 Chronic transfusion dependent anaemia	2				RBC	0-2 hours
3	F/20	Eclamptic seizure at 27+5 weeks gestation with intrauterine death	C1 Clinically significant bleeding and fibrinogen <1.5g/L (<2g/L in obstetric bleeding)	4	1	4	4	FFP/CRYO	2- 6 hours

Table 18a.4: Clinical characteristics and radiological features of cases reported as TRALI

TRALI case number	TRALI probability	Revised Consensus	Other risk factors	Symptoms/signs						
				Fever or rigors	Reduced blood pressure	Dyspnoea or tachypnoea	Signs of fluid overload	Reduced pO2	Stable resp condition >12hrs	Chest X ray
1	Equivocal	Type II	Infection	N	N	Y	N	PO2 8.2 KPa	Y	Bilateral pulmonary oedema but also dense consolidation in the right upper lobe
2	Equivocal	Type I	none	N	N	Y	N	SaO2 87%	Y	Extensive bilateral airspace shadowing with blunting of the costophrenic angles. Appearances of pulmonary oedema
3	Equivocal	Type II	Massive haemorrhage	N	N	N	Y	SaO2 88%	Y	Ground glass shadowing on CT scan

Table 18a.5: Treatment, outcomes, investigation results and likelihood of case being TRALI

	TREATMENT			TRALI INVESTIGATION RESULTS			
TRALI case number	**Treatment**	**ITU admission**	**Outcome (imputability)**	**Donor antibody**	**Patient antibody**	**Reason given by reporter for suspecting TRALI**	**TRALI classification**
1	Diuretics, IV fluids	N	Death probably related to the transfusion (imputability 2)	HNA 1b (autoantibody) Not detectable on archive sample but present on subsequent donor sample		Presenting condition. patient was well post transfusion although heart rate did increase by 50% during transfusion. Coroner referral was made with suspected TRALI as cause of death so this needs to be explored further. Trust is also completing RCA as potential TACO. Advised by NHSBT to report as TRALI due to sudden death and pending outcome of investigations.	Equivocal TRALI
2	Steroids, Diuretics, Antihistamines, Bronchodilators	Y	Complete recovery	HLA B51, Cw15, DP6, DP10, DQ6, DQ8, DR4, DR13		Echo that's normal, no significant infectious symptoms, no CRP rise, no hypotension or rise in temperature, slow response to diuresis (72h), antibodies to patient antigen.	Highly Likely TRALI
3	Oxygen, mechanical ventilation, diuretics, ECMO	Y	Patient recovered and survived	HLA DR4, DR53 and DQ8.		ARDS on CT following massive transfusion for post-partum haemorrhage.	Equivocal TRALI