

2023 Annual SHOT Report – Supplementary information

Chapter 18b: Pulmonary Complications of Transfusion: (Non-TACO)

Additional data and case studies not included in the main 2023 Annual SHOT Report.

Table 18b.5: Transfers between categories

Final category									
Referral category	DEFER	TACO	TAD-C	TAD-IC	TRALI-TACO	TRALI2	WD-SEV	WD-UC	Total
FAHR	0	0	0	0	0	0	1	0	1
TACO	0	0	8	6	0	0	1	2	17
TAD	0	6	4	4	0	0	2	2	18
TRALI	1	4	3	1	1	5	0	3	18
TTI	0	0	1	0	0	0	0	0	1
Total	1	10	16	11	1	5	4	7	55

WD-SEV=withdrawn insufficient severity; WD-UC=withdrawn due to underlying condition

Table 18b.6: Summary of pulmonary complication deaths

Category	Imputability	Narrative
TAD-IC	1	Patient with osteomyelitis, cardiac and renal failure admitted with pulmonary oedema. Deteriorated during 1 st unit of red cells, response to diuretic not recorded. Considered likely fluid overload but insufficient information recorded to classify.
TAD-IC	2	Patient with metastatic breast cancer, Hb 48g/L, renal failure admitted with 'anaemia and dizziness'. Deteriorated during red cell transfusion with bilateral crackles and blood pressure rise but no oedema on chest X-ray. Diuretic not given. Fluid overload thought likely but insufficient criteria for TACO.
TAD-C	2	Patient with metastatic prostate cancer breathless 10 hours after transfusion in hospice. Pulmonary oedema on chest X-ray and raised CRP. No response to diuretic or antibiotics. Coroner review considered mixed picture of infection/fluid on background of chronic illness, insufficient criteria for TACO.
TAD-C	1	Patient with neutropenic sepsis and delirium developing fever, hypoxia and breathlessness 15 minutes into transfusion. No post-transfusion CXR. There was an improvement with diuretics. Insufficient criteria for TACO but fluid thought to be contributory in addition to underlying infection.
TAD-IC	1	Patient undergoing elective caesarean section. Massive transfusion following PPH with 4L of crystalloid on top of >20 units of blood products. Respiratory deterioration 2-6 hours post transfusion and needed prone ventilation. Pulmonary oedema was reported on chest X-ray, but insufficient information was reported to classify.

Table 18b.6: Cases meeting TRALI criteria

Category	Imputability	Narrative
TRALI2	1	Patient following liver transplant for paracetamol, 27RBC, 19FFP, 6 cryo, 3 plt, 2L fluid transfused over the preceding 24 hours. CXR 'bilateral coherent opacities and R basal consol/effusion.' not clinically fluid overloaded. Ventilated 30 days. Most likely ARDS imputability of transfusion impossible to assess but meets TRALI 2 criteria.
TRALI-TACO	3	Patient with preeclampsia but normotensive, low albumin, peripheral oedema had 1L postpartum haemorrhage during C section. 1 unit RBC. Dyspnoea 2-6 hours post transfusion. BNP 578, no haemodynamic changes. pO2 unchanged (FiO2 not recorded). CXR 'upper lobe diversion in keeping with cardiac failure, no pulmonary oedema'. Pulm oedema on CT next day. Full recovery. no response to diuretic. Cognate antibody HLA B45+.
TRALI2	1	Patient with AML and neutropenic sepsis developed resp deterioration shortly after granulocyte transfusion. RR was 25 pretransfusion. 3L pos fluid balance, BP rise 143 to 167. Bilateral CXR change but not reported to SHOT. Worse with diuretic. Invasive ventilation. ?granulocyte therapeutic effect but meets TRALI 2 criteria.
TRALI2	2	Patient undergoing plasma exchange for suspected TTP (eventually HUS). Respiratory deterioration on 3 successive occasions during exchange with Octaplex. CXR progressive worsening bilateral 'consolidation' and rising CRP but not thought to have pneumonia. Negative fluid balance and no TACO features, normal renal function. Does meet TRALI criteria.
TRALI2	1	Patient admitted with haematuria, thrombocytopenia, klebsiella sepsis. Pre CXR abnormal. 2RBC, 3plt, 2FFP + crystalloid colloid. 10 mins after starting transfusion, Peri arrest, fast AF, LBBB, hypoxic. No CV changes or diuretic response.
TRALI2	1	Teenager following allograft for sickle cell, on labetalol for Posterior reversible encephalopathy (PRES) /hypertension. 1h post HLA-matched apheresis plt developed increased O2 requirements, hypertension and seizures. CXR 'Generalised increase in interstitial markings with a mid-lower zone patchy consolidation. No effusion. In keeping with fluid overload.' Deterioration with diuretic. No cardiovascular changes. Improved after 48h resp support, peak needed 60% FiO2. Antibody tested and negative. Meets TRALI 2 criteria, possible neurogenic pulm oedema related to the PRES.

Submission rates for criteria necessary for classification

factor	%_complete
Resp state	31
Timing	98
Post transfusion SaO2	75
Post transfusion CXR	62

Table S4a: Factors necessary for TRALI categorisation

factor	%_complete
pre transfusion BNP	11
Fluid balance	27
Post transfusion BP	82
ECG	18
Echo	7
Name, dose and timing of diuretic	55
Volume of diuresis	27
Effect on respiratory systems	78

Table S4b: Factors useful for TACO categorisation

factor	%_complete	%_nil submitted
Pre transfusion	60	9
Post transfusion	65	9

Table S4c: Basic transfusion observations

factor	%_complete	%_yes if completed
TACO checklist	95	35
risks identified	33	56
TACO investigation	93	31
Features identified	25	88

Table S4d: Concordance with SHOT recommendations