

# **SHOT – Platelet Transfusions**

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**Caring Expert Quality** 



## What?

- What can you get wrong?
- What side effects can occur?

Avoidable	Unavoidable
• ABOi	Bacterial contamination
• TACO	• TRALI
<ul> <li>Lack of anti-D</li> </ul>	Allergic/hypotension
<ul> <li>Delays</li> </ul>	Febrile non-haemolytic reaction
<ul> <li>Given based on wrong information or unnecessal</li> </ul>	Viral Transmission rily
<ul> <li>Handling and storage error</li> </ul>	ors

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#### More severe/concerning

Туре	2017 Nos	Deaths	Major Morbidity
1. Bacterial contamina- tion	1 (poss)	0	3 day-old pool, to female in 50s with AML, on chemo. N = 0. Pre-existing peri-anal abscess, on antibiotics. 4-hrs post-transfusion: collapse, confused, septic. $T = 40$ ; $\downarrow BP + O_2$ ; $\uparrow HR$ . Recovered 1 week. Staph capites found in anaerobe. (Bacterial screening samples "pinged" after platelets had been transfused.)
			<pre>Context – 1996-2017: •Screening ≠ 0 risk •8 near misses since screening started (2001-18) – 7 from 8 = platelets •44 TT bacterial information to patients; 11 died; 37 from 44 were platelets</pre>



#### More severe/concerning

Туре	2017 Nos	Deaths	Major Morbidity
2. TRALI	1	0	<ul> <li>Platelet pool – 10-y-o female with ALL – recovered.</li> <li>HLA/HNA antibody negative.</li> <li>Context <ul> <li>2 other TRALIs this year (with red cells);</li> <li>100 TRALIs between 2003-17; 17 from 100 died.</li> </ul> </li> </ul>
3. TACO	?	0	<ul> <li>Not given breakdown of red cells vs. platelet for TACO; but 0 from 7 deaths involved platelets.</li> <li><u>Context</u></li> <li>92 TACO altogether this year;</li> <li>7 deaths – definitely due to transfusion;</li> <li>20 major morbidity – 16 had pre-existing fluid overload – 2 had no risk factors at all</li> <li>More common in older, non-acute bleeding patients;</li> <li>45% had fever with TACO</li> </ul>

TACO Checklist	Red cell transfusion for non-bleeding patients	If 'yes' to any of these questions
	Does the patient have a diagnosis of 'heart failure' congestive cardiac failure (CCF), severe aortic stenosis, or moderate to severe left ventricular dysfunction? Is the patient on a regular diuretic?	Review the need for transfusion (do the benefits outweigh the risks)?
	Is the patient known to have pulmonary oedema? Does the patient have respiratory symptoms of undiagnosed cause?	<ul> <li>Can the transfusion be safely deferred until the issue can be investigated, treated or resolved?</li> <li>Consider body weight dosing for red</li> </ul>
$\diamond$	Is the fluid balance clinically significantly positive? Is the patient on concomitant fluids (or has been in the past 24 hours)? Is there any peripheral oedema? Does the patient have hypoalbuminaemia? Does the patient have significant renal impairment?	<ul> <li>cells (especially if low body weight)</li> <li>Transfuse one unit (red cells) and review symptoms of anaemia</li> <li>Measure the fluid balance</li> <li>Consider giving a prophylactic diuretic</li> <li>Monitor the vital signs closely, including oxygen saturation</li> </ul>

Due to the differences in adult and neonatal physiology, babies may have a different risk for TACO. Calculate the dose by weight and observe the notes above.





	Туре	2017 Nos	Deaths	Major Morbidity
4.	Allergic	55	0	<ul> <li>Less with pools in PAS: only a third as many;</li> <li>22 severe (= urgent resus);</li> <li>33 moderate (= wheeze/angioedema/↓BP).</li> <li>Context</li> <li>Red cells caused 44 allergic reactions:</li> <li>22 severe – 22 moderate.</li> </ul>
5.	Hypoten- sion	2	0	<ul> <li>No details of cases.</li> </ul>
6.	Febrile	21	0	<ul> <li>Moderate = &gt;2°C or &gt; 39°C±rigors;</li> <li>Severe = admitted or significant treatment</li> <li>Apheresis &lt; pooled platelets.</li> </ul>

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Туре	2017 Nos	Deaths	Major Morbidity
7. Viral and other TTI	2	1 (due to under- lying condition)	<ul> <li>HAV x1: donor unwell 2 days before apheresis platelet donation; 1 week later was in hospital; bakery linked to HAV. 1 recipient, in 50s with renal cancer and neutropaenic sepsis. Had HAV immunity but some transient HAV RNA. Died of underlying condition.</li> <li>HEV x1: apheresis platelet – probable source of HEV. <u>Context</u></li> <li>1 other HEV – with FFP, part of plasma exchange.</li> <li>No malaria (only 2 in 20 years – last was 2003; 1 died).</li> <li>1996-2017 figures:</li> <li>33 TTI to 40 patients</li> <li>HAV = 4; HBV = 12; HCV = 2; HEV = 13 (1 died); HIV = 4; HTLV = 2; Parvo = 1; vCJD = 4.</li> </ul>

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	Туре	2017 Nos	Deaths	Major Morbidity
8.	ABOi	2	0	<ul> <li>1 clinical error – WBIT; A platelet to B patient – fine.</li> <li>1 lab error – O platelet to A patient – near miss.</li> <li>Context <ul> <li>1x ABOi red cell transfusion;</li> <li>1x FFP.</li> </ul> </li> </ul>
9.	Lack of anti-D causing sensitisation in female of child-bearing age	0	0	<ul> <li>Nil with platelets this year.</li> </ul>



Туре	2017 Nos	Deaths	Major Morbidity
10. Delays	0	0	<ul> <li>None specifically with platelets – all were predominantly red cell delays (± platelet/FFP).</li> <li><u>Context</u></li> <li>4 deaths (1 definite, 3 probable) due to red cell delays.</li> </ul>
11. Handling and storage errors	1	0	<ul> <li>Platelet transfusion when expired – was 2 hours after expiry; because wrong expiry date set by Lab</li> <li><u>Context</u></li> <li>1 red cell transfusion when sample was &gt;72hrs old.</li> </ul>



Туре	2017 Nos	Deaths	Major Morbidity
12. Avoidable	15	0	<ul> <li>Given based on wrong information = 6: <ul> <li>3x Lab error – platelet clumps;</li> <li>1 other – wrong platelet result (cause unknown);</li> <li>2x WBIT – wrong platelet result of 6 (was 188)</li> <li>patient admitted from nursing home for platelet transfusion, on wrong result.</li> </ul> </li> <li>Given wrongly for diagnosis of TTP.</li> <li>2 unnecessary platelet transfusions for NG tube insertions;</li> <li>6 others unnecessary for procedure; or given early, but procedure cancelled (MF with platelet = 40; for liver biopsy, but cancelled).</li> </ul>





## **Conclusion:**

 Balance of clinical risks – when needed, platelets are needed!

 Context for types and frequency of reactions: some avoidable, others not really.