



TACO

**Transfusion-associated circulatory
overload**

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ISBT definition of TACO

- **TACO is characterised by any of the 4 of the following occurring within 6 hours of transfusion**
 - **Acute respiratory distress**
 - **Tachycardia**
 - **Increased blood pressure**
 - **Acute or worsening pulmonary oedema on CXR**
 - **Evidence of positive fluid balance**

Case History 1

- **Very sick pre-term infant, 12 months old**
- **Multiple congenital abnormalities**
- **For elective surgery, platelets 48**
- **Transfusion chart directed to transfuse "1 pool of platelets", no volume specified**
- **Nursing staff phoned doctor who stated had advised 15 ml/kg**
- **Interpreted as 50 ml/kg**
- **300ml platelets administered in 30 minutes**
- **Infant had cardiac arrest, died 2 days later**

Case history 2

- **80 year old female with fractured NOF and expressive dysphasia from previous stroke**
- **Pre op Hb was 9.5 g/dl**
- **Very little blood loss in theatre**
- **Post op Hb 3.9**
- **Patient tachycardic and hypotensive**
- **Given 6 units of red cells over 15 hours**
- **Post transfusion Hb was 18.2**
- **Pre transfusion sample diluted by IV infusion**
- **Patient died of cardiac failure**

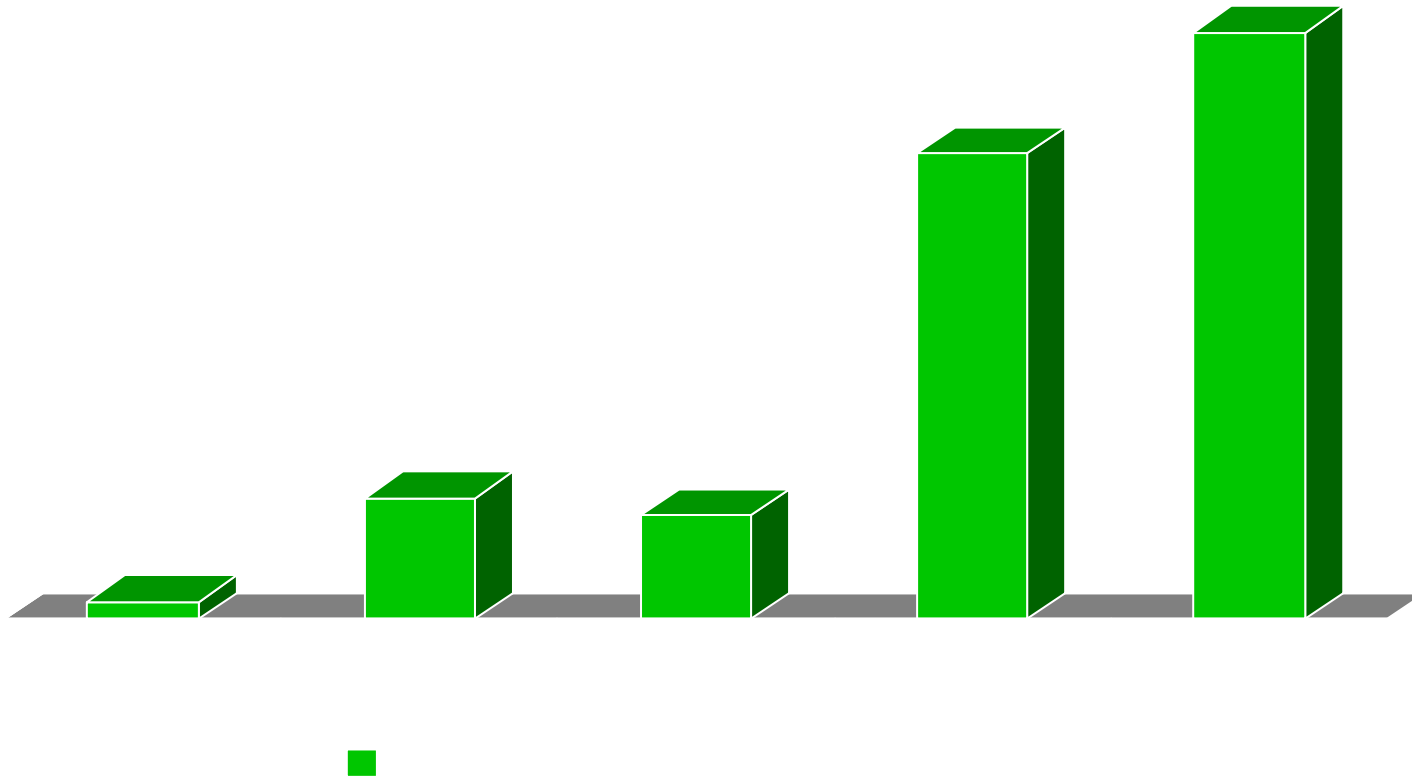
Case history 3

- **61 year old man on warfarin needed elective surgery**
- **INR 6.1**
- **Given IV vitamin K and 4 units FFP**
- **Another 3 units FFP transfused without another INR being performed**
- **Patient developed dyspnoea and wheeze**
- **Oxygen sat fell to 80%**
- **Surgery delayed**

How common is TACO?

| Country | Number of reports | Cases per 100,00 units transfused |
|--------------------|--------------------------|--|
| Canada | 223 | 18.8 |
| (Quebec) | 116 | 33.3 |
| Switzerland | 26 | 6.5 |
| Netherlands | 34 | 4.5 |
| Ireland | 34 | 18 |
| UK | 3 | 0.1 |

TACO reporting catches on!



How can we prevent TACO?

- **Appropriate use**
- **Recognise patients at risk**
- **If risk present, transfuse slowly**
- **Have protocol for investigation and treatment**

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Who is at risk?

- **Under 3 years old**
- **Over 60**
- **Low body weight**
- **Intercurrent illness**

Symptoms and signs

- **Chest symptoms**
- **Tachycardia**
- **Raised JVP**
- **Peripheral oedema**
- **Blood pressure may rise**
- **Cyanosis may be present**
- **Headache may progress to convulsions**

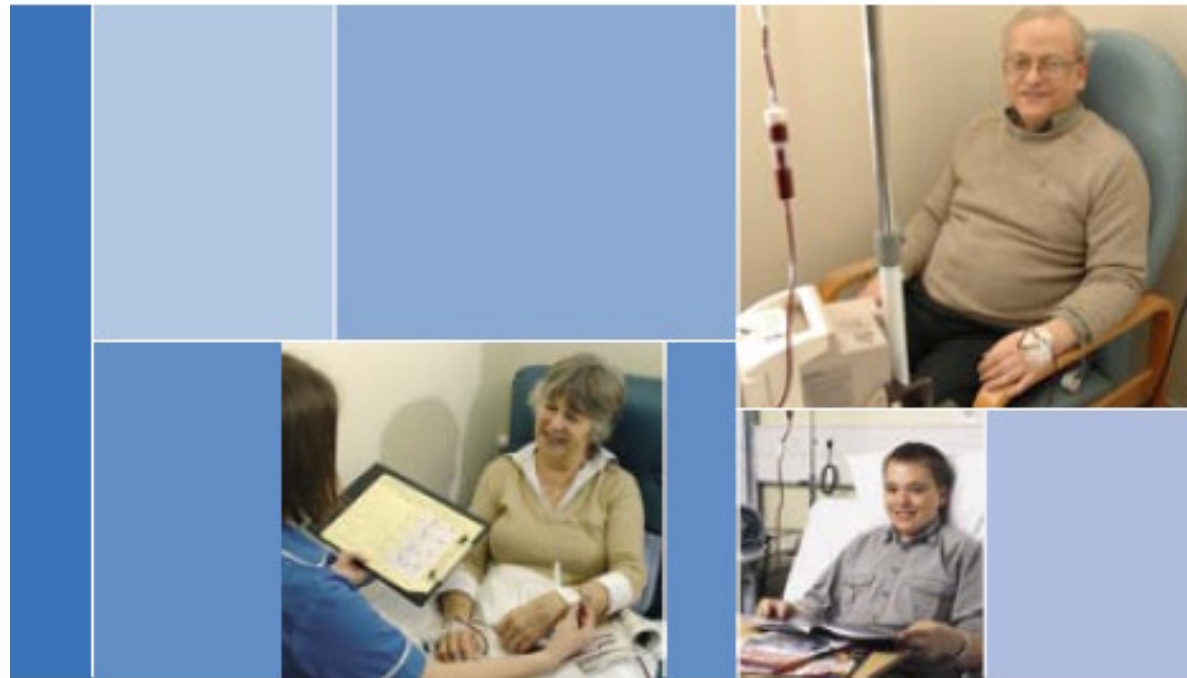
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Management of patients at risk

- **Transfuse slowly**
 - Even $< 1\text{ml/minute}$ in some cases
 - Space units over time
- **Consider pre-transfusion diuretics**
- **Watch fluid balance**
- **Monitor patient closely for at least 24 hours**

Will I need a blood transfusion?



IMPORTANT PATIENT INFORMATION

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Investigation



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- **CXR may indicate presence of fluid, but does not distinguish from TRALI**
- **Echocardiogram may be helpful**
- **If intubated, pulmonary artery occlusion pressure or composition of pulmonary oedema fluid may be useful**
- **Brain natriuretic peptide may have a role**
- **Much will depend on clinical circumstances**

Management

- **Stop transfusion**
- **Diuretics**
- **Oxygen**
- **Cardiac support**
- **Consider ITU and assisted ventilation**

Review

- **At HTT**
- **Was diagnosis right?**
- **How could TACO have been prevented?**
- **Lessons to be learned**

The near future

- **SHOT is now requesting TACO reporting as a distinct category**
 - 4 cases so far in 2008
- **As we receive reports, we will learn more about epidemiology of TACO**
- **It is likely that reports will increase**
- **Need more published studies**

The future?

- **TACO is likely to be seen as a significant hazard of transfusion**
- **Awareness may change some of our current transfusion practices**