TACO recognition and risk reduction
Paula Bolton-Maggs, Medical Director, SHOT

Haemovigilance, surveillance of adverse reactions and events related to transfusion of blood components, was triggered in the early 1990s following recognition that viral infections were transmitted by the blood supply and the sense that serious errors, particularly ABO-incompatible transfusions, were also occurring with no knowledge of the size of the problem. Serious Hazards of Transfusion, the UK reporting scheme, has now accrued 20 years of data. As blood components have become safer (including measures to reduce bacterial infection and transfusion-related lung injury), infection transmission is very rare and a larger proportion of incidents relate to error (87% in 2016). The most common causes of death and major morbidity are pulmonary complications, especially transfusion-associated circulatory overload (TACO). Review of deaths related to transfusion 2010 to 2016 noted that 61/115 were due to pulmonary complications, 53 to TACO, 5 to transfusion-related acute lung injury and 3 to transfusion-associated dyspnoea (a category for pulmonary reactions that cannot be otherwise classified). In 2016 six of the fourteen deaths from TACO were considered to be preventable. For the past two years SHOT has recommended that all patients should be risk-assessed for TACO prior to transfusion, reviewing in particular cardiac status and evidence of current heart failure, underlying pulmonary and renal impairment or disease. The SHOT TACO checklist has been widely adopted. It is important to take into account the underlying diagnosis (do not transfuse for iron/B12/folate deficiency) and the patient weight. Use the recognised haemoglobin triggers and do not transfuse more units than necessary, check the patient/Hb after each unit if possible.

TACO is under-recognised. In 2017 a national comparative audit in England recruited more than 4000 patients from 157 hospitals. These were >60 years of age and received at least one unit of red cells. 90% of these patients had additional risk factors (other than age), most commonly positive fluid balance, concomitant IV fluids or a low albumin level. Only 2% of inpatients who had at least one additional risk factor documented by the auditor had the risk of TACO documented in the notes. Few were reviewed between units. 107 inpatients and 7 outpatients developed worsening respiratory symptoms. 12 patients were diagnosed with TACO but only 4 were reported to SHOT.