19. Autologous Transfusion

Definition

Any adverse event or reaction associated with autologous transfusion, including intraoperative and postoperative cell salvage (washed or unwashed), acute normovolaemic haemodilution (ANH) or preoperative autologous donation.

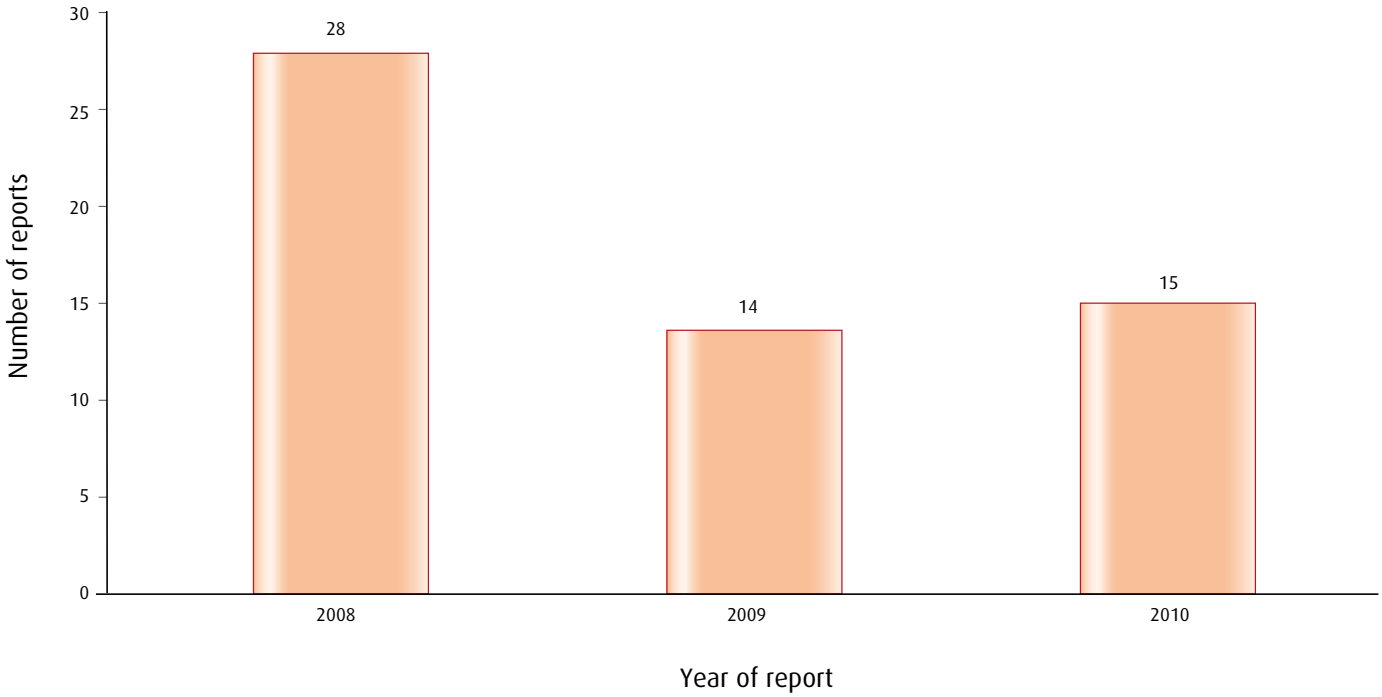
DATA SUMMARY

Total number of cases	**15**	*Implicated components*		*Mortality/morbidity*	
		Red cells	**15**	Deaths due to transfusion	**0**
		FFP	**0**	Deaths *probably/likely* due to transfusion	**0**
		Platelets	**0**	Deaths *possibly* due to transfusion	**0**
		Other (granulocyte)	**0**	Major morbidity	**1**
		Unknown	**0**		

Gender		*Age*		*Emergency vs. routine and core hours vs. out of core hours*		*Where transfusion took place*	
Male	**10**	≥18 years	**15**	Emergency	**1**	A&E	**0**
Female	**5**	16 years to <18 years	**0**	Routine	**13**	Theatre	**0**
Not known	**0**	1 year to <16 years	**0**	Not known	**1**	ITU/NNU/HDU/recovery	**0**
		>28 days to <1 year	**0**				
		Birth to ≤28 days	**0**	In core hours	**10**	Wards	**0**
		Not known	**0**	Out of core hours	**5**	Community	**0**
		Total	**15**	Not known	**0**	Outpatient/day unit	**0**
						Not known	**15**

The number of reports submitted under this category remains unchanged and as yet there are no data on the number of autologous procedures in the UK. There were no reports received during this reporting period relating to adverse events while undertaking ANH or preoperative autologous donation (PAD). Both these techniques are rarely undertaken and their use is not routinely recommended. The 15 reports were submitted by 9 different Trusts/Health Boards.

Figure 20
Number of autologous adverse events by year



Adverse events by type of autologous transfusion

Intraoperative cell salvage (ICS), 8 events; postoperative cell salvage (PCS), 5 events; combined, 2 events.

Adverse events by specialty

Orthopaedic, 7 events; cardiac, 3 events; urology, 2 events; neurosurgery, vascular and obstetrics, 1 event each.

Incidents

PCS

Patients in this category had varying reports of rigors, dyspnoea, hypertensive episode and feeling unwell and these 5 cases were all recorded as reactions as opposed to adverse events.

Case 1

Lack of patient identifiers on cell salvaged units

Two patients had undergone a total hip replacement (THR) and both were having postoperative cell salvage. The patients had units 'spiked' at the same time and both patients had rigors, temperature increase and vomiting within 15 minutes of the start of the unit. The reporter could not rule out the units were transposed as in both cases the drains were removed from the patient and taken to a treatment room to be primed through the giving set.

Learning point

- All cell salvaged units should be labelled with the patient core identifiers to reduce the risk of error on reinfusion. The autologous transfusion label has been designed by the UK Cell Salvage Action Group and supplied by the manufacturers to allow these criteria to be met.

Combined

The 2 combined incidents occurred in cardiac cases and reported clots in the reservoirs and these are recorded as adverse events.

ICS

These included 4 reactions, 3 adverse events and 1 machine failure. The machine failure was due to a faulty switch, which led to loss of suction. The adverse events were:

- 1 × thrombus formation, which occluded the reservoir
- 1 × blood collected, which was stored in fridge
- 1 × severe coagulopathy following reinfusion of 1110 mL of salvaged blood following an emergency Caesarean section. This case also received the following units of blood: 11 RBCs, 4 FFP, 4 cryoprecipitate, 1 platelets and 7.2 mg rVIIa, and was admitted to ITU.

In the reaction category:

- 1 × hypotension using an unwashed ICS system
- 3 × hypotension, all using leucodepletion filters and ACD as the anticoagulant.

The last three SHOT reports have all included hypotensive reactions involving ICS, the use of leucodepletion filters and the use of acid citrate dextrose (ACD) as the anticoagulant. This phenomenon has been recognised and noted in the Association of Anaesthetists Great Britain and Ireland (AAGBI) safety guideline on cell salvage[1] and in the MHRA 'One Liner'. [2] While an attempt has been made to analyse this phenomenon further, it appears that there are a number of other issues that were reported in the 2008 SHOT report, namely:

- The use of bedside leucocyte depletion filter (LDF), which is known to cause hypotension when used with allogeneic blood as previously recognised.[3]
- These patients may be hypovolaemic and therefore more susceptible to the vasoactive cytokines reinfused.
- All patients experienced transient but significant hypotension corrected by the cessation of infusion and/or vasopressors.
- No long-term sequelae of this hypotension were noted.

It is important that this is recognised as a possible adverse reaction and treated by discontinuation of the infusion of the salvaged red cells and appropriate vasopressors.

Learning point

- Monitoring of patients during the transfusion is as important for the reinfusion of red cells collected by ICS or PCS as it is for allogeneic red cells.

COMMENTARY

The number of cases reported of cell salvage related adverse events and reactions remained low, but without knowledge of the number of annual procedures in the UK these numbers cannot be interpreted.

Recommendation

- All ICS- and PCS-related adverse events and reactions should be reported to SHOT.

  Action: Cell salvage practitioners, blood conservation coordinators, HTCs

For active recommendations and an update on their progress, please refer to the SHOT website.