TRANSFUSION REACTIONS AND BLOOD MANAGEMENT TECHNIQUES: A PILOT STUDY IN THE NETHERLANDS

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Aim

In 2007 the TRIP (Transfusion Reactions in Patients) Dutch National Hemovigilance Office published guidelines prepared by its governing board regarding hemovigilance and blood management techniques (autologous blood techniques for reducing allogeneic transfusion) on www.tripnet.nl. These guidelines recommend reporting of transfusion reactions and incidents occurring with these techniques to TRIP. A pilot was launched to make an inventory of types and incidence of transfusion reactions (TR) and incidents.

Method

Ten hospitals were approached to participate on a voluntary basis. They were asked to report transfusion reactions and incidents occurring with the use of blood management techniques from July 1 2008 to December 31 2009 along with data regarding applications of blood management techniques. A reporting form was drawn up to facilitate reporting by hospital personnel to the hospital hemovigilance officer. The TRIP reporting forms were modified to accommodate this pilot study. Most reports were submitted via the online reporting system.

Results

Four pilot hospitals submitted a total of 47 reports: 25 TR (imputability possible, probable, certain) and 22 incidents. Three reports were assessed to be serious (grade 2). The number of reports submitted per hospital varied from 0 to 31. The transfusion reactions and incidents are summarised in *Table 1, 3 and 4*. Of the 10 hospitals (only 7 hospitals participated in the 2008 ramp-up phase) 6 were able to supply numbers of applications of blood management techniques. Three of these hospitals also submitted reports, 1 hospital submitted reports but did not supply data of applications, 2 had nil to report. Four hospitals neither supplied data of applications nor submitted reports.

Table 1 *Pilot reports of transfusion reactions and incidents (definitions of TRIP categories on www.tripnet.nl)*

TRIP category	Drain blood	Cell-saver	PAD[$]	Total
FNHTR	11		1	12
Allergic reaction		2		2
Anaphyl. reaction	2			2
TACO	1*		1*	1
Other reaction	7	1		8
Other incident	19	3		22
Total	39	6	2	47

[$] preoperative autologous donation
*patient received both PAD and drain blood

Table 2 *Total number of reports per reporting year related to blood management techniques[#]*

	TR (pilot)	Incident (pilot)	Total (pilot)
2004	1	0	1
2005	2	1	3
2006	5	1	6
2007	3	1	4
2008	13 (7)	12 (10)	25 (17)
2009	21(18)	12 (12)	33 (30)

[#] total includes reports from pilot hospitals

Table 3 *Summary of reported serious (gr 2) reactions*

Anaphylactic reaction	Orthopedic patient, 54 yrs, on recovery ward: < 30 min after reinfusion of 550 ml unwashed drain blood: red, itchy skin with urticaria, hypotension RR 70/40, saturation ↓ 84%. Imputability possible
TACO	Orthopedic patient, 15 yrs, postoperative transfusion of 1 unit PAD red blood cells, followed by 450 ml unwashed drain blood: acute dyspnea. Chest X-ray shows volume overload. Imputability probable
Other reaction	Orthopedic postop. patient, 68 yrs: shortly after reinfusion of 500 ml unwashed drain blood, collapse with brief convulsion and nausea. During reinfusion of 2nd unit of drain blood: acutely unwell, nausea, slight rise in temperature, RR stable. Imputability possible

Table 4 *Summary of reported other incidents (pilot)*

Drain blood	n
Clotting of reinfusion system leading to loss of drain blood	5
Reinfusion of drain blood via IV line without filter	2
Reinfusion bag accidentally fell, drain blood lost	4
No collection time recorded, reinfusion procedure abandoned	2
Malfunctioning of reinfusion system, leading to (part of) drain blood being wasted	6
Cell-saver blood	
Insufficient anticoagulant added to cell-saver blood, procedure stopped, blood wasted	2
Suction tube not properly connected, clotting in suction device, procedure stopped	1

Conclusions

- A variety of transfusion reactions were reported (3 serious) and it seems likely that there is some underreporting.
- The considerable number of reported incidents shows a need for implementation of standard operating procedures and in some hospitals training of staff involved with blood management techniques.
- Reliable calculation of incidence of transfusion reactions and incidents is not possible from these data as they are too incomplete and many hospitals cannot supply denominators (number of applications).
- Hemovigilance concerning blood management techniques needs implementation on a wider scale in The Netherlands.