

Fatal Adverse Reactions Associated with Transfusion of Blood Components ISTARE 2006-2013

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Background

- Advances in transfusion medicine have increased the public's trust in the benefit of transfusion
- Efforts to preventing the occurrence or recurrence of unexpected or undesirable events of transfusion play an important role in maintaining this efficacy.

Aim

- One of the aims of IHN's international database for the surveillance of all procedures in blood donation and transfusion is the **assessment of the morbidity and mortality of transfusion**

Methods

2006-2013

Collection of data on fatal adverse reactions (FARs)

Incidence per 100,000 blood components issued for transfusion and diagnostic category

2012-2013

Imputability level (1 possible, 2 probable, 3 definite)

Associated blood component (RBCs, Plasma, Platelets whole blood derived and apheresis, multiple components)

Additional information and root cause Analysis (if available)

Deaths which occurred as an outcome of a patient's underlying pathological condition have not been included

Results

Period 2006-2013

Participating countries : 28

(35% outside Europe)

Total number of deaths: 409 (0.35% of all ARs)

Incidence : 0.3:100,000

(issued blood components)

2006-2013

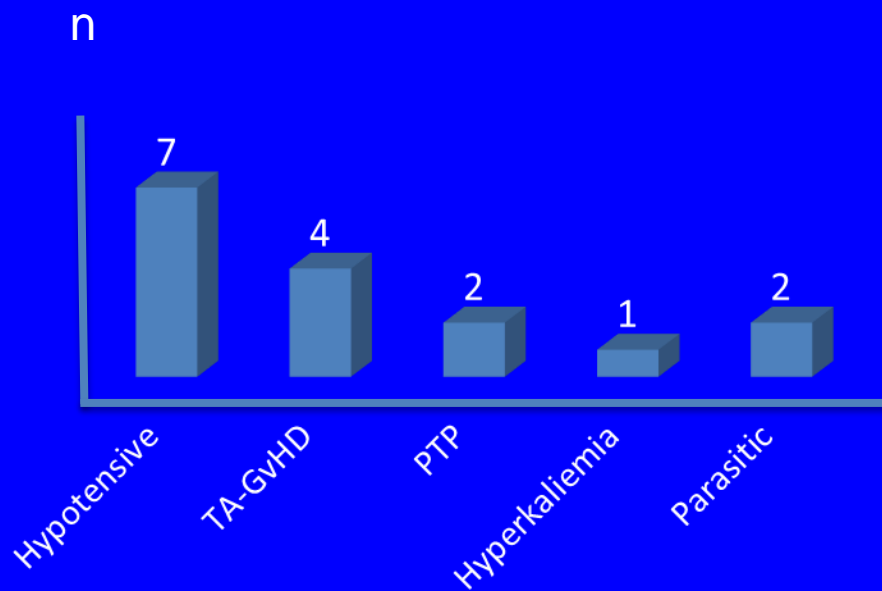
Most common

Type	%
TACO	24.9
TRALI	18.2
TAD	12.3
Allergic	11.8
AHTR	7.4
TTBI	3.7
Other	10.3
UCT	4.2



Respiratory
55%

Less frequent

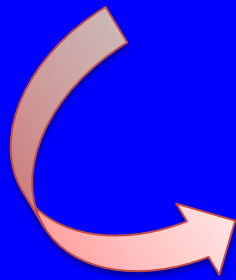


Deaths attributed to Respiratory ARs
Incidence 0.17 per 100,000 issued blood components

2012-2013

Responding countries : 13

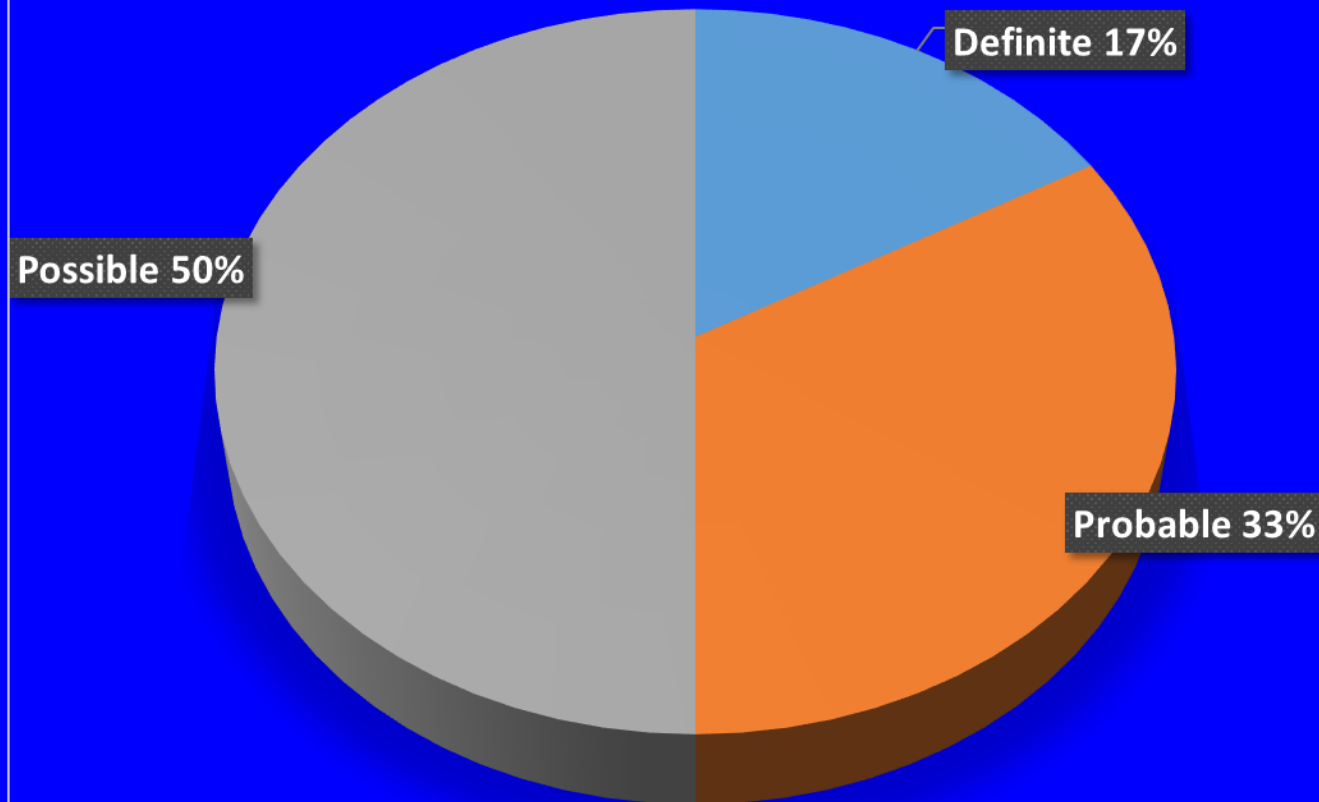
Fatal cases : 85



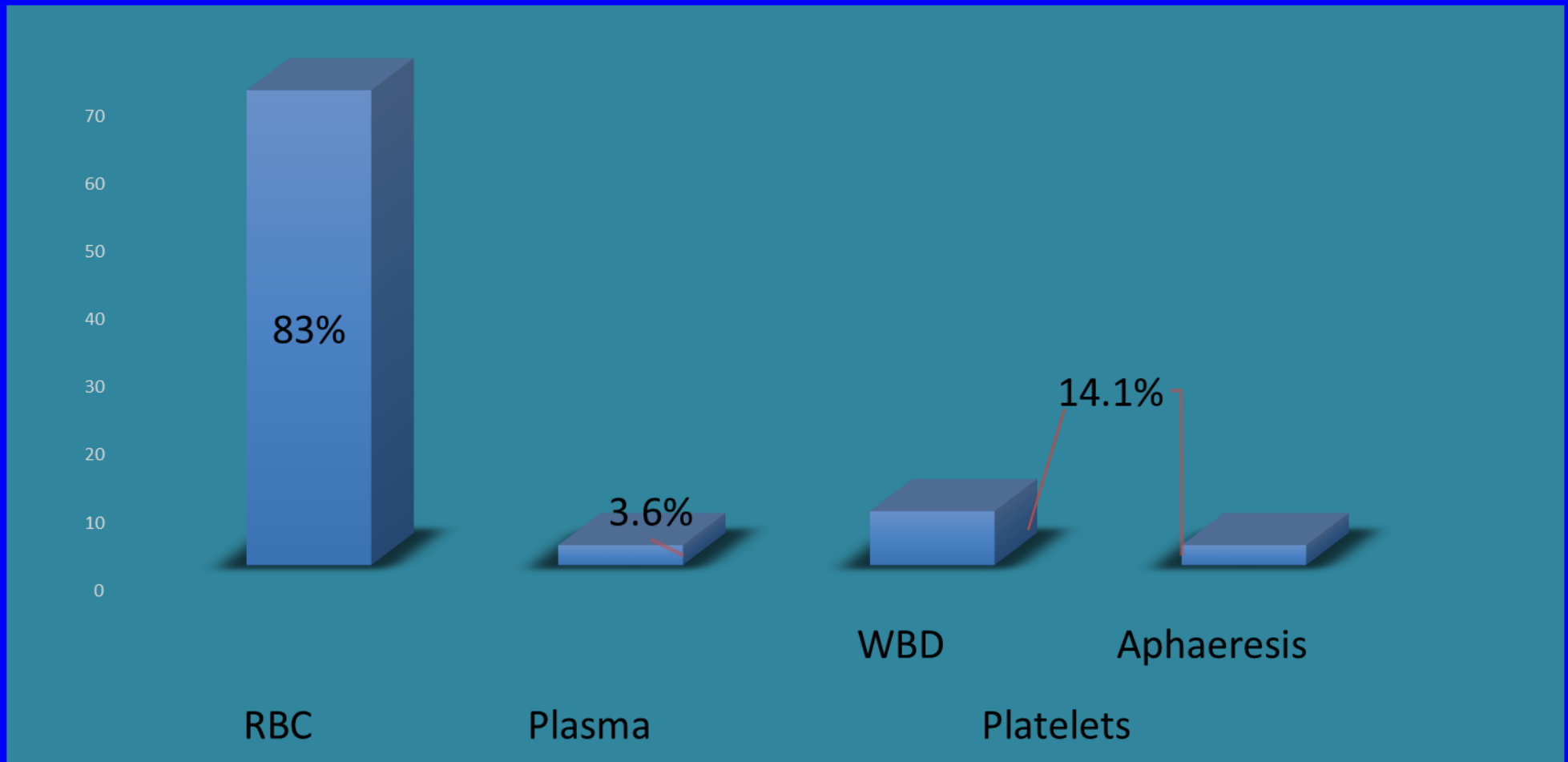
Information	Cases
Imputability	59
Associated blood component	84
Root cause analysis	48

Fatal cases (n=59)

Imputability levels



Fatal ARs associated with 27.8 million blood components issued, 2012-2013 (n=84)



TTBI Cases	Pathogen	RBC	Plasma	Platelets		Imput	Same pathogen			Comments RCA
				WBD	Apheresis		patient	product	donor	
1	Serratia	x				2	Yes	Yes	No	AML
1	Serratia	x				2	Yes	Yes	No	Surgery
1	Serratia	x	x SD plasma			2	Yes		-	Inconclusive
1	E. Coli				x	2	Yes	Yes	unable	AML and DIC
1	E.Coli				x	3	Yes	Yes	In urine	Transforming Leukaemia
1	Strept			x		3	Yes	Yes	unable	Gastric Ca Myelodysplasia
1	Fungus*				x	1	Yes	No		AML
1	?			x		?		?		unknown
1	?	x				1				unknown
Total	7	4	1	2	3	2(1),4(2) , 2(3)				

* Pathogen detected also in other patients transfused with apheresis platelets in one hospital

Fatalities from 13 countries in 2012-2013

n= 85

- Incidence of AHTR per 100,000 RBCs was 0.08
- Three AHTR cases associated with multiple components
- Two DHTR cases observed in SCD patients with history of alloimmunization(multiple and double all- Ab respectively)
- 80% of the TRALI cases were attributed to transfusion with RBCs

Conclusion

- The incidence of Fatal ARs associated with transfusion is **very low**
- 55 % of all deaths are related to the **Respiratory** ARs
- Three deaths per 1,000,000 blood components issued for transfusion are attributed to **Sepsis**
- Imputability shows **variation** among countries
- Association of death with transfusion or comorbidities remains an unresolved clinical dilemma
- The most frequent fatalities (**TACO, AHTR**) were not attributed to the quality and safety of blood component, but were pathological reactions, in some cases potentially preventable by improved clinical transfusion practice

Acknowledgements

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