

# About the diagnosis of acute transfusion-related reaction during cardiopulmonary bypass

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# **Acute transfusion-related reactions**

Serious adverse or unexpected reactions occurring in a patient within minutes or hours after transfusion

# Acute transfusion-related reactions

Immune



Febrile reaction  
Allergic/ Anaphylactic reaction  
Lung injury (TRALI)  
Hemolysis

Non Immune



Hemolysis  
Bacterial infection  
Hypothermia  
Metabolic reaction  
Citrate toxicity  
Circulatory overload (TACO)

**RBC**

**FFP**

**PTS**

# Transfusion-related reactions

National hemovigilance system

(European directive 2002/98/CE)

Symptoms - Clinical signs

Hemovigilance procedure



**Detection**



**Reporting**



Corrective measures

Preventive measures



# Rate of transfusion-related reactions



**National**

Underestimation

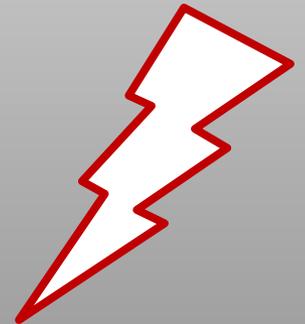
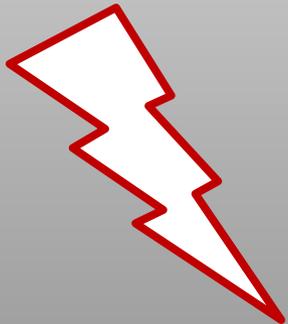
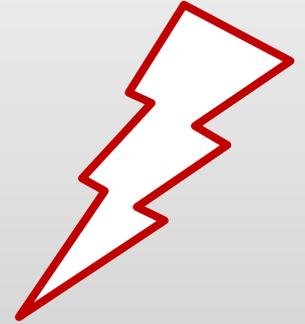
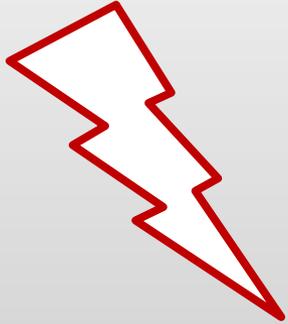
**International**

Denominators variability

Product quality variability

Definitions variability

Transfusion practices variability



## Rate of transfusion-related reactions

Fresh frozen plasma

6/100.000

Viro-inactivated

Red blood cells

17/100.000

Deleucocyted

Platelets

33/100.000

Viro-inactivated Deleucocyted

# Detection of acute transfusion-related reactions

## Symptoms - Clinical signs

Chills

Rigors

Urticaria

Chest/Abdominal pain

Nausea/Vomiting

Malaise/Blackout

Dyspnea

Flush

Rash

Jaundice

Tachycardia

Arythmia

Hyper/Hypotension

Shock

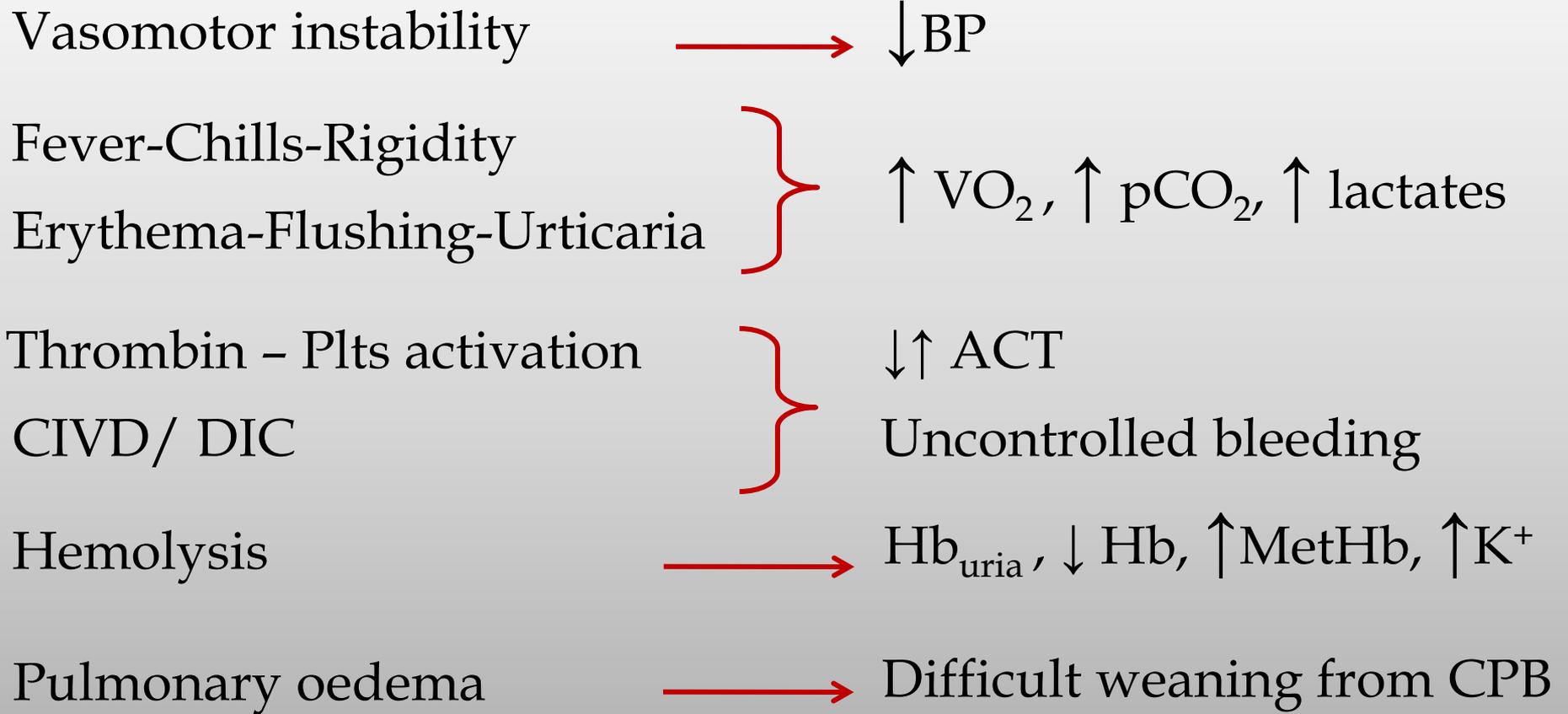
Fever

Hemoglobinuria

Hemoglobinemia

Oliguria, anuria

Uncontrolled bleeding



# Conclusions

1. Avoid transfusion

2. Delay transfusion => after wean off CPB

3. In case of transfusion

Check identity of patient vs patient identity on blood product label

During CPB :

Urine output - Urine color

Hb - Met Hb values

Blood pressure

K<sup>+</sup>

VO<sub>2</sub>

pCO<sub>2</sub>, lactates

Before, during and after transfusion

Any suspicious change ?

Transfusion effectiveness ?

Uncontrolled bleeding ?

Difficult to wean off CPB ?

Maybe nothing...

Maybe another thing...

Maybe something.

1. Avoid transfusion

2. Delay transfusion => after wean off CPB

3. In case of transfusion

Check identity of patient vs patient identity on  
blood product label

4. In any suspicion of a transfusion-related reaction:

➤ Stop transfusion

➤ Notify physician and blood bank

➤ Residual blood product(s) to blood bank

➤ Collect blood sample

The risk of a severe transfusion reaction is low  
Detection is difficult in the setting of CPB

BUT

Detection and report are essential measures  
in a hemovigilance goal

Better informed patients, nurses,  
physicians and laboratory personnel  
resulting in quality patient care

**Thank you for your attention**