




Transfusion Reaction Module 2




Signs and Symptoms of
Serious Transfusion
Reactions



BC Provincial Blood Coordinating Office
A program of the Provincial Health Services Authority



BC Transfusion Medicine
Advisory Group




Speaker

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Disclosure:
Dr. Chipperfield :

- Is the principal investigator of a randomized controlled trial using a novel instrument produced by LightIntegra Technology. She has no financial interest in the company.
- Received an honorarium from CSL Behring for attending an advisory board meeting.

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Contents of Module 2

- Goals and Objectives of the module
- Serious Reactions
 - Transfusion Associated Circulatory Overload (TACO)
 - Severe Allergic reactions or Anaphylaxis
 - Transfusion Related Acute Lung Injury (TRALI)
 - Bacterial Contamination
 - Acute Hemolytic Transfusion Reaction (AHTR)
 - Post Transfusion Purpura (PTP)
 - Transfusion-associated Graft vs Host Disease (TA-GvHD)
- **Note:**
 - Immunoglobulin- related serious reactions:
 - to be discussed in Module 4
 - Transfusion Associated Dyspnea (TAD)

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Goals and Objectives of Module 2

Goal:

- review the signs, symptoms and management of serious transfusion reactions

On completion of this module, you should be able to:

- recognize the signs and symptoms of a serious transfusion reaction
- apply appropriate management for a serious transfusion reaction
- direct the laboratory investigation of a serious transfusion reaction
- correctly identify and report the reaction type

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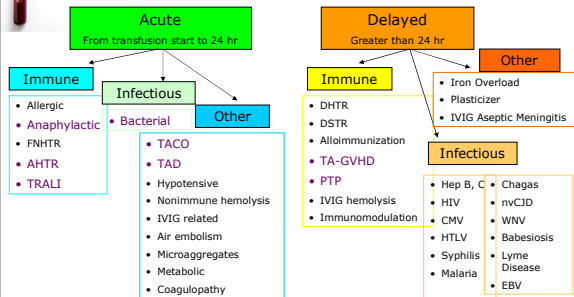
Key Points - Serious Reactions

- require hospitalization or prolongation of hospital stay
- directly attributable to the transfusion.
- signs and symptoms may overlap with those of low severity, common reactions.
- All transfusion reactions should be reported to the Transfusion Medicine Service (TMS/laboratory).
- It may be necessary to treat the recipient and/or provide additional components/products before an investigation is completed.
- Clinical management is required for all recipients.

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Serious Transfusion Reaction Types – a Classification Overview



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Signs & Symptoms of a serious transfusion reaction:

| System | Signs and Symptoms |
|----------------|--|
| cardiovascular | <ul style="list-style-type: none"> hypertension hypotension tachycardia shock <p>Drop in systolic blood pressure by ≥ 30 mm Hg AND systolic blood pressure below 80 mm Hg</p> |
| inflammatory | <ul style="list-style-type: none"> fever chills (sensation of cold) rigors (involuntary shaking) facial or tongue swelling <p>Oral temperature $\geq 38^\circ\text{C}$ AND an increase of $\geq 1^\circ\text{C}$ above pre-transfusion value</p> |

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Signs & Symptoms of a serious transfusion reaction:


| System | Signs and Symptoms |
|----------------------------|---|
| respiratory | <ul style="list-style-type: none"> dizziness dyspnea (shortness of breath) wheezing hypoxemia <p>Any of: <ul style="list-style-type: none"> SpO₂ < 90% on room air PaO₂ < 60 mm Hg on room air PaO₂/FIO₂ \leq 300 mm Hg Other clinical evidence of hypoxemia </p> |
| gastrointestinal/ renal | <ul style="list-style-type: none"> nausea/vomiting red or brown urine oliguria |

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Signs & Symptoms of a serious transfusion reaction:

| System | Signs and Symptoms |
|-----------|--|
| pain | <ul style="list-style-type: none"> headache joint/muscle pain, back pain, chest pain heat/pain at IV site |
| cutaneous | <ul style="list-style-type: none"> flushing skin rash jaundice diffuse hemorrhage |
| other | <ul style="list-style-type: none"> restlessness/anxiety |


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Overlap of Signs & Symptoms Serious or Common Low-severity Acute Transfusion Reaction


| Signs and Symptoms | Differential Diagnosis |
|---|--|
| Hives / itching | Allergic – low or high severity Anaphylaxis |
| Fever | FNHTR, AHTR, TRALI, sepsis (bacterial contamination) |
| Hypotension | Anaphylaxis, AHTR, septic shock, less likely TRALI |
| Sense of doom, flank pain, hemoglobinuria | AHTR |
| Shortness of breath | TACO, TRALI, TAD allergic/anaphylactic - bronchospasm |

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Clinical Staff immediately phone the TMS/lab if:

- there is a patient/component/product identity error
- **or if the patient has any of:**
 - new onset red/brown urine
 - sudden onset of hypoxemia:
 - SpO₂ <90% on RA or
 - PaO₂ < 60mm Hg on RA or
 - PaO₂/FIO₂ ratio ≤ 300
 - sudden onset of hypotension (≥30 mm Hg drop in systolic BP and a systolic BP below 80 mm Hg)
 - if they suspect bacterial contamination of the blood component/product




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Laboratory Staff immediately phone the on-duty pathologist when:

The TMS laboratory will immediately contact the on-duty pathologist if they receive a **report** of a transfusion reaction with the following:

- recipient or component/product identity check error
- suspected bacterial contamination of the component/product
- sudden onset of hypoxemia
- sudden onset of hypotension
- new onset of red/brown urine (if hemoglobinuria is reported in recipient's post-transfusion urine sample)



The TMS laboratory will immediately contact the on-duty pathologist if:

- the transfusion reaction investigation shows abnormal results in the Primary Investigation
- additional component/product is requested and the investigation has not been completed
- per facility policy

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Case Study 1- SOB

- 75 year old male
- 1 unit of RBC transfused over 2 hours
- Report of shortness of breath, chest pain, and anxiety within 30 minutes of completion. Afebrile.

| | BP | Pulse | T (C) |
|----------|--------|-------|-------|
| Baseline | 130/85 | 85 | 36.2 |
| Reaction | 150/90 | 98 | 36.4 |


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BC Data

| Reaction Type | Year | | | | | |
|-------------------------------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
| | 2008 (N=911) | | 2009 (N=789) | | 2010 (N=795) | |
| | Total | % | Total | % | Total | % |
| TACO | 23 | 2.5% | 7 | 0.9% | 24 | 3.0% |
| Severe Anaphylactic / Anaphylactoid | 6 | 0.7% | 1 | 0.1% | 4 | 0.5% |
| Acute Hemolytic | 2 | 0.2% | 3 | 0.4% | 5 | 0.6% |
| Possible TRALI | 2 | 0.2% | 2 | 0.3% | 0 | 0 |
| TRALI | 0 | 0 | 0 | 0 | 0 | 0 |


Data source: Central Transfusion Registry
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TACO Symptoms and Signs

| Symptoms include: | Signs include: |
|--|--|
| <ul style="list-style-type: none">• non-productive cough• dyspnea | <ul style="list-style-type: none">• tachypnea/orthopnea• pulmonary edema• raised jugular venous pressure• hypertension• cyanosis• and tachycardia |


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TACO

| | |
|---------------------|--|
| Cause | <ul style="list-style-type: none">• volume overload• rapid infusion rate• complicating pre-existing patient condition |
| Onset | <ul style="list-style-type: none">• within 6 hours of completion of transfusion• relates to patient's condition, volume administered and administration rate |
| Frequency | <ul style="list-style-type: none">• 1/700 transfusion recipients• 1/100 "at-risk" patients (risk of cardiac overload, history of previous transfusion reactions, and/or unstable condition) |
| Results of reaction | <ul style="list-style-type: none">• acute pulmonary edema• cardiac arrhythmia• death |

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TACO

Prevention is key, particularly for at risk patients:

| | |
|------------------------------|---|
| Vulnerable patients include: | <ul style="list-style-type: none">• risk of cardiac overload (CHF, COPD, ARF, severe anemia),• history of previous TACO, and/or• unstable condition• pediatric |
|------------------------------|---|


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TACO Recommendations:

| | |
|------------------------|---|
| "At-risk" patient | <ul style="list-style-type: none"> • Give each unit of red cells slowly (50 mL/hour) <ul style="list-style-type: none"> – maximum rate is 4 hours from removal from temperature controlled storage – units may need to be split • The patient may require additional diuretic therapy (for example I.V. furosemide). • Oxygen may be required. • Closely monitor the patient for signs and symptoms of TACO. |
| Differential diagnosis | TRALI, TAD |


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Case Study – Further Investigation

- History of cardiac disease
- Patient received platelets 1 hour before the red cells (volume about 250 mL)
- Patient had angina prior to the red cell transfusion and was self-medicating with nitroglycerin.
- Symptoms resolved 1 hour after reaction noted.
- Lab investigation is normal/negative.
- Clerical check OK.

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Case Study – Conclusion

| | Result |
|-----------------------------|---|
| Pathologist Conclusion | Transfusion associated circulatory overload |
| Relationship to transfusion | Definite / Probable Possible / Doubtful |
| Severity | Non-severe (grade 1) |
| Outcome | Minor (no sequelae) |

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Case Study 2 - Hypotension and

- 68 year old male post op CABG
- Four units plasma transfused after pump

On transfer to CSICU:

- Hypotension unresponsive to fluid, PRBC and vasopressors
- Minimal CT out-put





image courtesy of medscape.com

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Severe Allergic reaction or Anaphylaxis- Symptoms and Signs

| Symptoms include: | Signs include: |
|--|---|
| <ul style="list-style-type: none">• skin itching• dyspnea• wheezing• chest or abdominal pain• nausea | <ul style="list-style-type: none">• urticaria/pruritus• bronchospasm• hypotension• vomiting• periorbital and laryngeal edema• erythema |


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Severe Allergic reaction or Anaphylaxis

| | |
|---------------------|---|
| Cause | <ul style="list-style-type: none"> Anaphylaxis occurs when IgE antibodies (usually patient's) combine with the corresponding (donor) antigen. Some patients with severe IgA deficiency can develop antibodies to IgA and severe anaphylaxis may occur if transfusion exposes them to IgA. |
| Onset | <ul style="list-style-type: none"> within the first hour |
| Frequency | <ul style="list-style-type: none"> 1/1,600 platelet pools 1/23,000 red cell units |
| Results of reaction | <ul style="list-style-type: none"> potentially fatal (3% of cases) disseminated urticaria and severe bronchospasm may result from reaction |

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Severe Allergic reaction or Anaphylaxis

Suggested treatment and recommendations:

| | |
|------------------------|---|
| For all patients | <p>Stop the transfusion. Do NOT restart.</p> <p>Return the unit to the TMS for further investigation. Send EDTA samples.</p> <p>Provide medical treatment as indicated by symptoms and severity of the reaction.</p> <ul style="list-style-type: none"> Laryngeal /Lower Respiratory Tract symptoms may require epinephrine. Other symptoms may require IV diphenhydramine 25 - 50 mg. |
| Differential diagnosis | <ul style="list-style-type: none"> reactions to other allergens such as tape, latex, or drug coincidental clinical conditions TRALI or TACO with dyspnea |

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Severe Allergic reaction or Anaphylaxis

Suggested treatment and recommendations:

| | |
|-----------------------|---|
| Future transfusion | <p>Consider IgA deficiency:</p> <ul style="list-style-type: none"> send pretransfusion sample for quantification of immunoglobulins and Anti-IgA levels assess family history <p><i>Note: CBS does assays for low level IgA and IgA antibodies.</i></p> |
| IgA deficient patient | <p>Requires:</p> <ul style="list-style-type: none"> washed RBC IgA deficient plasma-containing components <p><i>Note: IgA deficient plasma protein products are not available.</i></p> |


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Severe Allergic reaction or Anaphylaxis
Suggested treatment and recommendations:

| | |
|--|--|
| IgA deficient patient with documented Anti-IgA | <ul style="list-style-type: none"> Requires any plasma OR cellular product to be from an IgA deficient donor. |
|--|--|

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Case Study 2 – Further Investigation

- No bronchospasm reported
- Rapid response to combination therapy (antihistamine, epinephrine and steroid IV)
- Multiple concurrent exposures - ?alternate allergens

- No prior transfusion history
- Testing for IgA deficiency - negative


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Case Study 2 – Conclusion

| | Result |
|-----------------------------|--|
| Pathologist Conclusion | Allergic reaction |
| Relationship to transfusion | Definite / Probable Possible / Doubtful |
| Severity | Severe (grade 2) |
| Outcome | Minor (no sequelae) |

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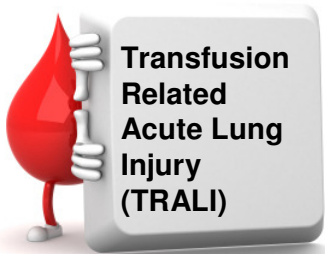



Case Study 3 - SOB

- 48 year old female, endstage liver
- Transfused 3 units plasma for INR 2.3, post variceal bleed
- SOB developed 2.5 hours after second bag plasma (apheresis unit), SaO2 dropped to 84% on RA (BP stable, HR 100)


What is the differential diagnosis?
What critical investigation(s) must be done?

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Transfusion Related Acute Lung Injury (TRALI)

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TRALI – Symptoms and Signs

Rapid Onset (within 6 hours of transfusion) of:

| Symptoms include: | Signs include: |
|---|---|
| <ul style="list-style-type: none">• breathlessness• coughing | <ol style="list-style-type: none">1. bilateral pulmonary infiltrates2. and acute dyspnea with<ul style="list-style-type: none">– hypoxemia– tachypnea– tachycardia– hypotension– fever |

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CBS Criteria to Investigate TRALI


All of:

- transfusion within 6 hours of TRALI
- new CXR findings with bilateral infiltrates
- hypoxemia (any of)
 - ❑ SpO₂ <90% on RA or
 - ❑ PaO₂ < 60mm Hg on RA, or
 - ❑ PaO₂/FIO₂ ratio ≤ 300
- no evidence of circulatory overload

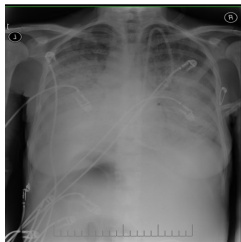
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Chest X-ray of TRALI Patient

Normal CXR



TRALI CXR




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Slide courtesy of Canadian Blood Services

TRALI – Causes (common theories)

| | |
|-------------------------------|---|
| Antibody hypothesis | <ul style="list-style-type: none"> • Anti HLA (I or II) or anti-human neutrophil antigen (HNA) in donor plasma, reacts with corresponding antigen present on recipient leukocytes. (In 10% of cases, the antibody is of recipient origin.) |
| Neutrophil priming hypothesis | <ul style="list-style-type: none"> • Lipid inflammatory mediators in the product prime and activate recipient neutrophils to cause capillary leak/injury. • Patient's clinical condition may predispose. |
| Speculative | <ul style="list-style-type: none"> • direct pulmonary endothelial damage • immune complex formation • cytokine and or complement activation |


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TRALI

| | |
|---------------------|--|
| Onset | within 6 hours of transfusion start (often within 2 hours) |
| Frequency | 1/1,200 to 1/5,000 (plasma-containing transfusions) <ul style="list-style-type: none"> • TRALI is associated with components with a higher plasma content, such as frozen plasma. • Rates may decrease as CBS changed to predominantly male donor plasma for frozen plasma |
| Results of reaction | 72% of reported cases require mechanical ventilation 5 to 10% of cases are fatal |

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TRALI

Suggested treatment and recommendations:

| | |
|--------------------------------|---|
| For all patients | Stop the transfusion. Do NOT restart. Return the unit to the TMS for further investigation. Send EDTA samples. |
| Contact | The pathologist should contact CBS as soon as the lab is notified of a possible TRALI case. |
| CBS TRALI investigation | As soon as possible: <ul style="list-style-type: none"> • Complete the CBS TRALI form. • Collect the TRALI investigation samples. • Send form and samples to CBS. |
| Respiratory distress treatment | <ul style="list-style-type: none"> • High concentration of oxygen may be required. • Mechanical ventilation may be required. • IV fluids and vasopressors may be indicated. • Diuretics and steroids are not believed to be useful. |


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Case Study 3 - Further Investigation

- No prior hypoxia, no cardiac history
- Bilateral crackles on exam, no fever
- Preexisting ascites, no jugular venous distension, no edema
- CXR – bilateral pulmonary infiltrates
- Admitted to ICU; maintained on high flow O₂, did not require intubation, improvement within 24 hours
- TMS : clerical checks okay, negative investigation
- Reported immediately to CBS: female donor (AB), companion unit quarantined, CBS investigation pending


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Case Study 3 – Conclusion

| | Result |
|-----------------------------|---|
| Pathologist Conclusion | TRALI |
| Relationship to transfusion | Definite / Probable / Possible / Doubtful |
| Severity | Life-threatening (Grade 3) |
| Outcome | Minor / No sequelae |

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Case Study 4 - Fever

- 55 year old male receiving platelets
- After ~30 mL complains of severe chills
- RN observes rigors; vitals include:


| | BP | Pulse | T (C) |
|----------|--------|-------|-------|
| Baseline | 110/82 | 85 | 36.7 |
| Reaction | 85/50 | 105 | 39.5 |

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Bacterial Contamination


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Bacterial Contamination Symptoms and Signs

| Symptoms include: | Signs include: |
|---|---|
| <ul style="list-style-type: none"> chills shortness of breath nausea | <ul style="list-style-type: none"> rigors fever hypotension tachycardia vomiting collapse |


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Bacterial Contamination

| | |
|---------------------|---|
| Cause | Infusion of a unit contaminated with bacteria |
| Onset | Often within 15 minutes after transfusion start Always within 24 hours |
| Frequency | 1/1,000 to 1/3,000 (platelet concentrate) 1/50,000 (RBC unit) |
| Results of reaction | Shock Acute Renal Failure DIC Death frequency: Platelet pools: 1/40,000 RBC unit: 1/500,000 |


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Suspect bacterial contamination of the product if the patient shows these signs or symptoms:

1. Fever defined as an oral temperature $\geq 38^{\circ}\text{C}$ **AND** $\geq 1^{\circ}\text{C}$ rise in temperature above the pre-transfusion baseline **PLUS** any of the following signs and symptoms:
 - rigors (involuntary shaking)
 - nausea or vomiting
 - dyspnea (shortness of breath)
 - hypotension (systolic BP drop of $\geq 30\text{mmHg}$ below the pre-transfusion baseline)
 - tachycardia (pulse rise $> 40\text{bpm}$ above the pre-transfusion baseline)
 - shock
- OR**
2. Fever defined as an oral temperature $\geq 39^{\circ}\text{C}$ **AND** $\geq 1^{\circ}\text{C}$ rise in oral temperature above the pre-transfusion baseline **with no** other signs and symptoms
- OR**
3. Fever not responding to antipyretics
- OR**
4. A high suspicion of sepsis even in the absence of fever

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Bacterial Contamination

Suggested treatment and recommendations

| | |
|---|---|
| For all patients | Stop the transfusion. Do NOT restart. Return the unit to the TMS for further investigation. Send EDTA samples per facility instructions. |
| For all patients with suspected transfusion transmitted bacterial contamination | Monitor the patient closely Aerobic and anaerobic blood cultures should be set up on the patient and the component/product. Patient may need aggressive supportive therapy, including broad spectrum antibiotics. DO NOT WAIT FOR RESULTS OF BLOOD CULTURES PRIOR TO STARTING ANTIBIOTIC THERAPY. |

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Bacterial Contamination

Suggested treatment and recommendations

| | |
|----------|---|
| Contact: | The pathologist, or designate, should contact CBS or the manufacturer as soon as the TMS/lab is notified of a possibly contaminated unit. CBS/manufacture/facility should quarantine related components/products until results are known. |
|----------|---|

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Case Study 4- Further Investigation

- No prior symptoms of infection, Antibiotics initiated
- Lab: Visual inspection of stoppered unit - small clumps. Checks ok, Negative spin and DAT.

| | |
|---|--|
| ✓ Unit cultured | ✓ Unit culture and Patient culture positive for <i>Acinetobacter</i> spp ✓ Species isolate confirmed identical by PCR |
| ✓ Patient blood cultures (drawn prior to initiated Abi) | |

Despite prompt Abi therapy, patient went on to complicated hospital course with sepsis, prolonged ICU stay..


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Case Study 4 – Conclusion

| | Result |
|-----------------------------|---------------------------|
| Pathologist Conclusion | Bacterial contamination |
| Relationship to transfusion | Definite |
| Severity | Life threatening (3) |
| Outcome | Major, Long term sequelae |

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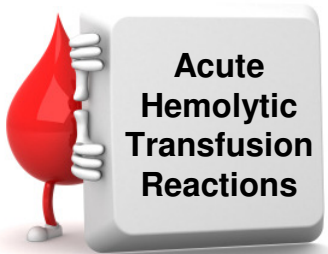



Case Study 5 – Red Urine

- 38 year old female in OR
- 6 hours into procedure, anesthesia team notes red urine in catheter bag
- Monitored vitals remain stable
- 2 units PRBC have been transfused, the most recent 2 hours ago


What may have happened?
How can this be confirmed?

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Acute Hemolytic Transfusion Reactions


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Acute Hemolytic Transfusion Reactions

| Symptoms include: | Signs include: |
|--|---|
| <ul style="list-style-type: none"> chills feeling of apprehension agitation pain at IV site flushing pain in chest, back or abdomen shortness of breath nausea | <ul style="list-style-type: none"> fever hypotension hemoglobinuria/-emia, bleeding from puncture sites collapse vomiting |


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Acute Hemolytic Transfusion Reactions

| | | |
|-----------------------|--|-----------|
| Onset | Always within 24 hours Often within minutes of initiation of transfusion | |
| Frequency (RBC units) | Transfuse wrong blood to patient (error rate) | 1/14,000 |
| | Transfuse wrong blood to patient and blood is ABO INCOMPATIBLE (reaction rate) | 1/38,000 |
| | Fatal (reaction rate) | 1/800,000 |
| Results of reaction | >50% of ABO incompatible transfusions result in serious morbidity, most commonly: <ul style="list-style-type: none"> Acute Renal Failure Disseminated Intravascular Coagulation (DIC) <10% result in Death | |

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Acute Hemolytic Transfusion Reactions - Causes


Causes Blood group incompatibility between recipient and blood component/product due to error during:

- patient identification at sample collection
- patient identification at transfusion
- TMS/lab processes
- product identification or labelling

Mechanical hemolysis due to:

- faulty blood warmer
- incorrect storage conditions
- incorrect IV fluids


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Acute Hemolytic Transfusion Reactions Suggested treatment and recommendations:

| | |
|----------------------|--|
| For all patients | <p>Stop the transfusion. Do NOT restart. Return the unit to the TMS for further investigation. Send transfusion reaction samples and form. If applicable, contact the Health Authority TMS team Monitor the patient closely. Seek expert hematologist /nephrologist advice.</p> |
| For patient with DIC | <p>In addition to all measures above, treat bleeding in DIC with appropriate blood components .</p> |


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Acute Hemolytic Transfusion Reactions Suggested treatment and recommendations:

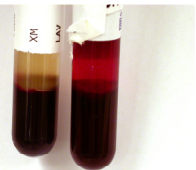
| | |
|---|---|
| Severe reaction | RARELY, consider an exchange transfusion. |
| For patient with hypotension and/or renal complications | <ul style="list-style-type: none"> • Monitor urine output. • Attempt to maintain urine output at > 100mL/hour. • Suggest consult with Internal Medicine/Nephrology and Hematology. • Consider: <ul style="list-style-type: none"> – NaHCO³ to keep urine pH >7 – use of diuretics – normal saline and D5W 1:1 3000 ml/m²/day – vasopressors (goal MAP of 60 mmHg) – mannitol (20%, 100 mL/m² over 30-60 min, then 30 mL/m²/h for next 12 hours) |

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Case Study 5 - Further Investigation

- Units retrieved from OR biohazard bin: one unit bears a tag with wrong patient name
- Unit is A, patient known to be O
- TMS: clerical checks confirmed mismatched
- Recollected specimen:
 - Spin pictured
 - patient group O (MF with anti A)
 - DAT positive (MF)
- Error at time of transfusion; failure to follow checking procedure



- Patient developed DIC & ATN requiring dialysis
- ICU support

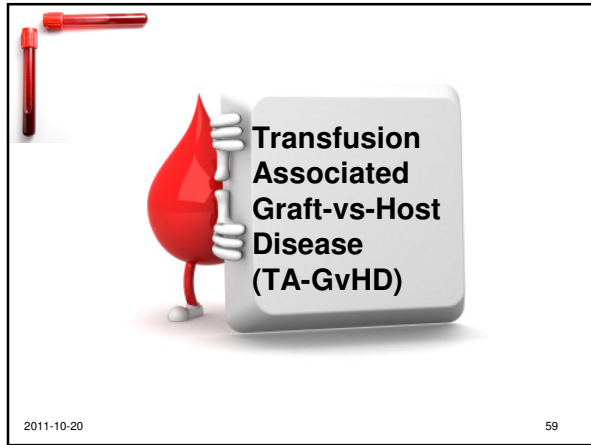
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Case Study 5 – Conclusion

| | Result |
|-----------------------------|--|
| Pathologist Conclusion | Incompatible Transfusion, Unintentional, ABO |
| Relationship to transfusion | Definite |
| Severity | Life threatening (grade 3) |
| Outcome | Major, Long term sequelae |

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TA-GvHD Symptoms and Signs

| Symptoms include: | Signs include: |
|--|---|
| <ul style="list-style-type: none">• diarrhea• skin rash | <ul style="list-style-type: none">• profound pancytopenia• abnormal liver function• bone marrow failure |


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TA-GvHD

| | |
|-----------|---|
| Cause | Donor lymphocytes in the transfused component engraft and recognize the immunocompromised recipient as foreign. May occur in the immunocompetent recipient following directed donation or in populations with limited HLA diversity. |
| Onset | 2 to 50 days post transfusion (commonly 8 – 10 days in immunosuppressed patient) |
| Frequency | very rare |


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TA-GvHD

| | |
|---------------------|--|
| Prevention | Prevention is key. Irradiate cellular blood components for at-risk groups Refer to TMAG Guidelines for Irradiation of Products (http://www.pbco.ca) |
| Results of reaction | Almost always fatal. Mortality rate >90% within 3 weeks of onset |

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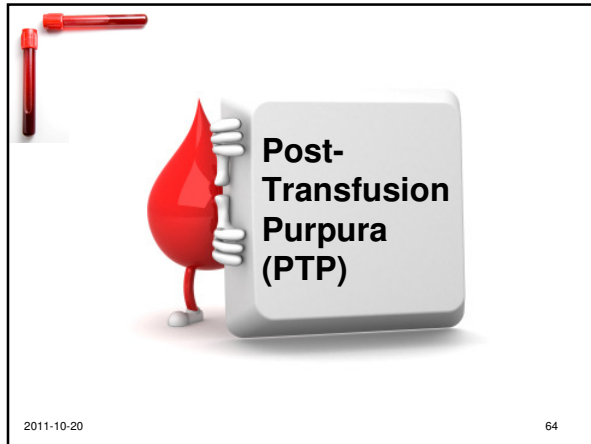
TA-GvHD

Suggested treatment and recommendations:

| | |
|---------|---|
| General | There is no effective treatment. Prevention by use of irradiated cellular blood components is essential . |
|---------|---|


Refer to TMAG Guidelines for Irradiation of Products
(<http://www.pbco.ca>)

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| Symptoms include: | Signs include: |
|--|--|
| <ul style="list-style-type: none">• bruising• bleeding• chills | <ul style="list-style-type: none">• low platelet count• petechia• hematoma• fever• rigors• bronchospasm |


| | |
|---------------------|---|
| Cause | <ul style="list-style-type: none">• patient's platelet-specific alloantibodies trigger an immune reaction which also destroys patients own platelets• most often seen in female patients |
| Onset | 5 to 10 days post platelet transfusion (sometimes > 3 weeks) |
| Frequency | very rare |
| Results of reaction | <ul style="list-style-type: none">• recovery usually within 7 to 48 days to recovery• can be fatal (8% mortality) |



PTP
Suggested treatment and recommendations:

| | |
|------------------------|--|
| Samples to CBS | Collect samples for CBS <i>before</i> starting IVIG therapy. |
| Diagnosis | Presence of platelet allo-antibody, and corresponding lack of platelet antigen in patient. <ul style="list-style-type: none"> • almost all platelet antigens have been implicated. <ul style="list-style-type: none"> most commonly: HPA-1a (PIA1) rarely: antibody with HLA specificity |
| Differential diagnosis | ITP, sepsis, DIC, drug, marrow aplasia, HIT etc |

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PTP
Suggested treatment and recommendations:


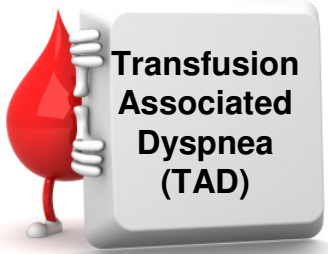
Treatment: **Consult with hematologist.**

Usually a self-limited disease, but consider:

- IVIG 500 mg/Kg/day - up to 10 days or 1.0 gm/Kg/day for 2 days
 - may respond quickly (one dose reported)
- plasmapheresis (~12 days to respond)
- steroids (prednisone 2 mg/Kg/day)


Little or no role for platelet transfusion

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Transfusion Associated Dyspnea (TAD)

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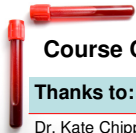


TAD

is characterized by respiratory distress within 24 hrs of transfusion which:

- does not meet criteria for TRALI
- does not meet criteria for TACO
- does not meet criteria for an allergic reaction
- is not explained by patient's underlying condition


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Course Contributors – Advisory Panel

| Thanks to: | Health Authority | Advisory Group |
|-----------------------|------------------|----------------|
| Dr. Kate Chipperfield | VCH | TMAG |
| Dr. Jason Doyle | IH | TMAG |
| Dr. Doug Morrison | FH | TMAG |
| Dr. Louis Wadsworth | PHSA | TMAG |
| Maureen Wyatt | IH | TRG |
| Donna Miller | VIHA | NRG |
| Shelley Feenstra | VCH | NRG |

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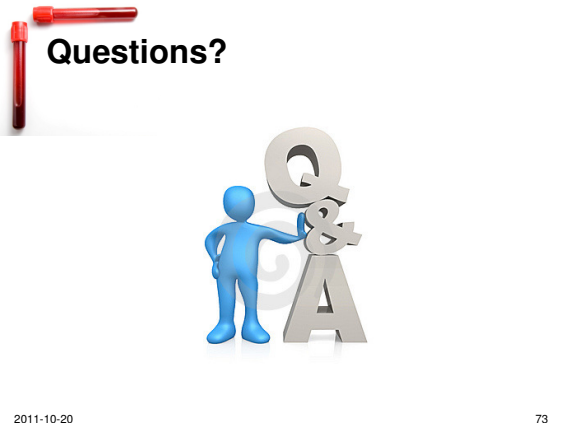
Included are members of:

- BC Transfusion Medicine Advisory Group (TMAG)
- BC Transfusion Transmitted Injuries Surveillance System Working Group (BC TTISS WG)
- Technical Resource Group (TRG)
- Nursing Resource Group (NRG)

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Questions?

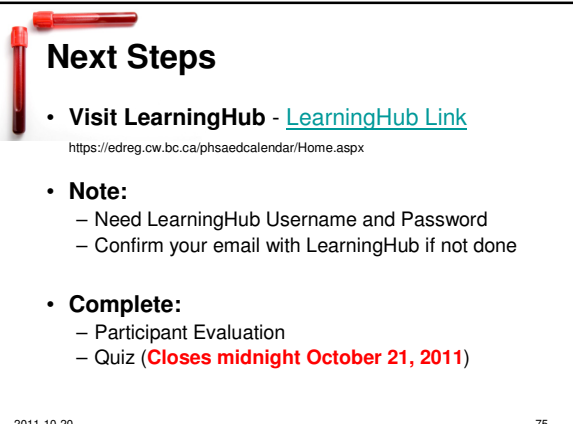
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Upcoming Live Webinars

| Date / Time | Topic | Speaker |
|--------------------------------------|--|--|
| November 3, 2011 12:00 to 1:00pm | Signs and Symptoms of Transfusion Reactions: Common Low-severity, Delayed Transfusion Reactions, Delayed Complications | Dr. Jason Doyle MD FRCP Consultant Pathologist, Transfusion Medicine for the Okanagan, IH |
| November 17, 2011 12:00 to 1:00pm | Immunoglobulin Related Reactions | Dr. Doug Morrison MD FRCP Medical Director, Transfusion Medicine Lab, FH |
| December 1, 2011 12:00 to 1:00pm | Transfusion Reaction Reporting and Surveillance | Dr. Louis Wadsworth MB FRCP(C) FRCPPath, Clinical Professor, Department of Pathology, UBC |
| December 15, 2011 12:00 to 1:00pm | Transfusion Reaction Annual Data Reports and Case Studies | Dr. Kate Chipperfield MD FRCP Regional Medical Leader, Blood Transfusion Medicine, VCH |

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Next Steps

- **Visit LearningHub - [LearningHub Link](https://edreg.cw.bc.ca/phsaedcalendar/Home.aspx)**
 https://edreg.cw.bc.ca/phsaedcalendar/Home.aspx
- **Note:**
 - Need LearningHub Username and Password
 - Confirm your email with LearningHub if not done
- **Complete:**
 - Participant Evaluation
 - Quiz (**Closes midnight October 21, 2011**)

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