Transfusionists Talk – Transfusion Made Bloody Easy

TRANSFUSION REACTION PATIENT CARE: JUST A LITTLE FEVER …

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Pre/Post Transfusion Knowledge Questions and the Answers with Rationale

1. Wilma, an 80-year-old female, day 2 post-surgery for a hip fracture has just received 1-unit RBC transfusion. You are about to check her transfusion completed vital signs, when she tells you “My stomach is kind of upset, and my lower back is really sore”.
You notify Wilma's physician of these post-transfusion comments.

The physician’s reply: (select all applicable)

a) What are her vital signs right now compared to pre and during the transfusion?

b) Those complaints are consistent with her post-surgery status (likely related to limited immobility, constipation), I am not concerned.

c) Monitor vital signs q1h for 4 hours; report any changes ASAP.

d) Notify TML, send TML the clamped empty blood bag, send blood samples for group & screen, CBC, bilirubin, LDH, AST, haptoglobin, reticulocyte count, blood film, send next voided urine for urinalysis.

Answer: a), c).

Rationale:

a) In the clinical scenario of blood transfusion, a reaction is always a possibility. Patient assessment, specifically signs/symptoms and vital signs (temperature, blood pressure, pulse, respiration, oxygen saturation) is critical and must be evaluated in the context of previous and pre-transfusion.

b) Signs/symptoms should always be evaluated, and potential transfusion related association considered. Signs/symptoms should not be dismissed.

c) In this hypothetical scenario, the patient has some potential reaction signs/symptoms. If her vital signs are unchanged and stable, additional monitoring is prudent. A reaction may occur during the transfusion or within 4 hours following completion of the transfusion (dyspnea reactions may occur during or up to 24 hours following completion of transfusion). Presenting signs/symptoms may evolve quickly.

d) Notifying TML as well as further testing might be indicated. Given the signs/symptoms are not life-threatening, additional patient assessment should be completed prior to initiating testing.

2. Wilma:

Vital Signs	Temperature (°C)	BP (mmHg)	Pulse (per minute)	Respirations (per minute)	Oxygen Saturation (%)
25 minutes pre-transfusion	37	120/68	76	16	97
15 minutes after start transfusion	37.2	116/70	80	16	96
Transfusion completed	38	110/62	88	16	96

Your co-worker reports Wilma said she feels "chills" and has been given warm blankets.

On review of vital signs & the symptoms, physician's reply: (select all applicable)

a) Her temperature did not increase by greater than 1^{O} C; this is not a transfusion reaction.

b) Notify TML, send TML the clamped empty blood bag, send patient blood culture (from a different peripheral site).

c) Initiate broad-spectrum IV antibiotics, immediately after patient blood culture drawn.

d) Notify TML, send TML the clamped empty blood bag, send blood samples for group & screen, CBC, bilirubin, LDH, AST, haptoglobin, reticulocyte count, blood film, send next voided urine for urinalysis.

Answer: b), c), d).

Rationale: Also refer to the TTISS-ON Acute Transfusion Reaction Chart

a) Fever, in the context of transfusion reactions, is defined as temperature of at least 38^{0} C and an increase of at least 1^{O} C from pre-transfusion and/or rigors (shaking chills). Wilma's temperature change does meet this criterion. Also, a mild fever has the potential to increase rapidly.

b) Wilma's clinical situation as above would be considered a high-risk fever. TML will notify Canadian Blood Services to have the co-components from this RBC donation tracked (and subsequently quarantined or notification of MRP). TML will culture the residual blood in the bag (as feasible, if the bag was not previously discarded in biohazardous waste). The patient should have blood cultures drawn from a different peripheral site.

c) Administer broad-spectrum IV antibiotics should as soon as the patient blood cultures have been drawn. If the transfused blood was contaminated, bacterial sepsis is imminent. Do not wait for blood culture results to initiate antibiotics. Bacterial sepsis is attributed to transfusion if the identical bacteria is cultured from the blood and the patient.

d) TML will re-confirm blood group and screen testing on the transfused blood and on the patient's new blood sample. TML will validate these test results identically match the pre-transfusion testing results. If an error occurred and the patient was transfused incompatible blood, serious significant hemolysis (red blood cell breakdown) may occur. The tests for CBC, bilirubin, LDH, AST, haptoglobin, reticulocyte count, blood film are a hemolysis work up. The urinalysis is checked to detect potential hemoglobinuria (the broken-down red blood cells lead to hemoglobin into the urine; dark, red coloured urine).

Additional patient care is supportive per prescriber's order:

- Broad-spectrum IV antibiotics, as noted previously
- Antipyretics
- Monitor for hypotension, renal dysfunction, DIC (Disseminated Intravascular Coagulation)
- IV fluid, aggressive hydration to maintain good urine output
- Vasopressors
- Oxygen and respiratory support

References:

Please refer to the references listed in the presentation.