Transfusionists Talk – Transfusion Made Bloody Easy

MAJOR TRANSFUSION REACTIONS
KEEP CALM & CARRY ON PROBLEM SOLVING …

March 25, 2026

Pre/Post Transfusion Knowledge Questions and the Answers with Rationale

1. Characteristics of an acute hemolytic transfusion reaction (AHTR) include (select all applicable):

a) All AHTRs are preventable, the cause is always an error.

b) The first sign of an AHTR is often fever (+/- chills, rigors).

c) One of the risks of receiving uncrossmatched blood is an AHTR.

d) For an AHTR, a key management strategy is aggressive hydration, while avoiding volume overload; maintain urine output > 1 mL/kg/hr.

Answer: b), c), d).

Rationale:

a) This answer is incorrect.
AHTRs related to ABO-incompatibility are caused by an error.
AHTRs related to non-immune factors are also caused by an error/malfunction.
However, development and evanescence (falling below the sensitivity threshold of testing methods) of clinically significant alloantibodies are not related to an error.
The limited supply of ABO group specific platelets, leading to group O platelets transfused to non-group O patients is also not related to an error.

b)
The first sign of an AHTR is often fever, potentially related to red blood cell membrane lysis and release of free hemoglobin.

c)
Transfusion of uncrossmatched blood to a patient who has clinically significant alloantibodies can lead to an AHTR, though rarely. A blood sample for group and screen testing should be collected ASAP in massive hemorrhage scenarios where uncrossmatched blood is transfused. In massive hemorrhage scenarios, as long as bleeding has not stopped, risk of an AHTR related to uncrossmatched blood appears to be low.

d)
In an AHTR, a key management/patient care strategy is aggressive hydration, while avoiding volume overload, maintaining urine output > 1 mL/kg/hr. Hydration to maintain good urine output supports kidney function when the kidney is stressed w ithfree hemoglobin in the circulation.

2. Transfusion Associated Circulatory Overload (TACO) symptomatology includes (select one, most appropriate response):

a) Respiratory distress (including decreased oxygen saturation), and hypotension.

b) Respiratory distress (including decreased oxygen saturation), and hypertension.

c) Respiratory distress (including decreased oxygen saturation), hypotension, and possibly fever.

d) Respiratory distress (including decreased oxygen saturation), hypertension, and possibly fever.

Answer: d)

Rationale:

Respiratory distress is the primary symptom of TACO.
Hypertension generally follows as the pumping action of the heart attempts to compensate for the volume overload. Very rarely, if the patient develops cardiogenic shock, hypotension might develop. About 1/3 of TACO reactions include fever. It remains unclear why fever occurs in some patients and not in others. There has been a suggested association between volume stress and fever.

References:
Please refer to the references listed in the presentation.