A 31-year-old woman is brought into A&E after a road traffic accident. She has fractured her pelvis and sustained abdominal trauma which requires surgical exploration. In the ambulance, her pulse was 125 (regular but thready) and BP was 80/30 mmHg. She looks pale and her abdomen is visibly distended. An Hb result from a blood gas analyser shows a level of 6.2.

1. How would you manage her immediate need for a blood transfusion?
(a) She should be cross-matched immediately and only receive blood of the identical blood group.
(b) She should receive blood of group O, irrespective of rhesus D group.
(c) She should receive blood of group O which is also rhesus D negative.
(d) She should receive enough blood to bring her haemoglobin into the normal range before going to theatre.

2. In theatre she requires more blood. The transfusion laboratory reports that her blood group is A positive. Which blood should she not receive?
(a) B positive
(b) A positive
(c) A negative
(d) O positive
(e) O negative

3. After surgery, which successfully stopped the bleeding, the anaesthetist notices that her urine turns very dark in colour. She is also becoming jaundiced. Blood tests show acute renal failure and disseminated intravascular coagulation with a prolonged activated partial thromboplastin time (APTT) and prothrombin time (PT). A full blood count shows her Hb has dropped to 5.9. A direct antiglobulin test (Coomb’s test) is positive. What is the likely cause for her deterioration?
(a) Sepsis
(b) Re-bleeding from the surgical site
(c) Acute drug reaction
(d) Haemolytic transfusion reaction

**Answers**

**Question 1**

(c) She should receive blood of group O which is also rhesus D negative.

*Explanation:*
She is a woman of child-bearing age. Therefore, in addition to receiving blood with the ‘universal donor’ ABO group (group O), she should receive rhesus D negative blood in case she is also rhesus D negative thereby avoiding the development of anti-D antibodies which can put subsequent pregnancies at risk. The final option is false – if she is bleeding profusely into her abdomen, a blood transfusion may never raise her Hb to the normal range without surgical intervention.

**Question 2**

(a) B positive

*Explanation:*
As she is rhesus D positive, she can receive rhesus D positive or negative blood products. However, as she is group A, she will have circulating anti-B antibodies. She should therefore *not* receive group B or AB red cells.

**Question 3**

(d) Haemolytic transfusion reaction

*Explanation:*
The positive antiglobulin test, dark urine, jaundice and falling haemoglobin in spite of successful surgery all indicate acute haemolysis. In someone who has received multiple units of blood, the most likely cause is an acute haemolytic transfusion reaction due to an ABO mismatched unit.