

Acute haemolytic transfusion reaction apparently caused by the 'enzyme-only' anti-E

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The indirect antiglobulin test (IAT) is regarded as a sensitive and reliable method for detecting all, even very weak, clinically significant alloantibodies in pretransfusion testing [1,2]. The enzyme test is no longer used routinely by most laboratories because the 'enzyme-only' antibodies have very little detection value and are considered as clinically irrelevant [3,4]. In this article we present a patient with acute haemolytic transfusion reaction (AHTR) caused by anti-E undetected by the IAT, but detected by the enzyme test.

The patient [male; 75 years of age with chronic lymphocytic leukaemia (CLL) and anaemia; group A Rh positive] had been transfused three times previously with red cells. On 19 December 2002, 2 units of A Rh-positive K-negative red blood cells (anti-K alloantibody was detected), negative in the crossmatch by the IAT microcolumn gel technique (DiaMed-ID, Cressier sur Morat, Switzerland), were issued for transfusion. Immediately after transfusion of the first unit, chills, fever (40 °C), nausea, vomiting and clinical signs of haemoglobinuria and haemoglobinemia were observed. Renal failure was not detected. The haemoglobin level decreased, after transfusion, from 7.1 to 6.4 g/dl, the haematocrit decreased from 23.1 to 19.8%, and indirect bilirubin increased from 1.57 to 4.85 mg/ml. The patient received 200 mg of hydrocortisone, 3 l of saline and 30 mg of furosemide.

The phenotype of the patient's cells was A DCcee K negative and that of the transfused cells was A DccEe K negative. The direct antiglobulin test (DAT) of the patient's red cells (DiaMed technique with anti-IgG and anti-C3d) was negative when samples before and after transfusion were tested. In the samples taken before and shortly after transfusion, anti-E immunoglobulin was detected (at a level of 2+) by the standard two-stage enzyme test with DccEE red cells and DccEe transfused cells, but not detected by any of the applied IAT

(DiaMed IAT, tube tests: LISS IAT, PEG IAT). Anti-E was, however, detected by DiaMed IAT (weak +) 24 h later. No additional alloantibodies were detected, including anti-Kp^a or anti-Wr^a. On the second day (20 December 2004) the patient was transfused with 2 units of red cells (E negative, K negative) and no symptoms of haemolytic transfusion reactions were observed. Two days later, the patient recovered and was discharged from hospital. During the next 9 months the patient was successfully transfused with E-negative, K-negative red cells of, in total, 23 units.

The anti-E presented by us is extremely unique, because – although detected only by the enzyme test and undetected by the IAT – it caused an acute haemolytic transfusion reaction. Haemolytic transfusion reactions caused by the 'enzyme-only' antibodies occur very rarely and those reported previously were delayed transfusion reactions [4,5].

References

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