

PPo4-20: All Clinically Relevant Components, from Prion Infected Blood Donors, can Cause Disease Following a Single Transfusion

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Introduction. To date, there have been over 220 cases of vCJD worldwide, likely acquired directly from bovine sources. There is concern that human to human transmission from individuals sub-clinically infected with vCJD may amplify/prolong a vCJD epidemic. The area of greatest concern in this respect is blood transfusion, of which there have been several reported cases. Here we examined which blood components are likely to pose the greatest risk of transmitting vCJD via blood transfusion using our sheep BSE model.

Results. 67% of donors have been confirmed as having BSE. We have recorded 25 positive transmissions of BSE following transfusion of non-leucodepleted blood components and 2 transmissions resulting from the transfusion of leucoreduced red cells and leucoreduced plasma.

Conclusion. We show that all components, prepared to the same criteria as used in human medicine, contain sufficient levels of infectivity to cause disease in recipients following a single blood transfusion. Leucoreduction of plasma and red cell concentrates does not remove infectivity. These data indicate the importance of devising appropriate control measures to minimise the risk of human to human transmission of vCJD by blood transfusion. Department of Health, UK (007/0162).

Methods. Sheep were orally infected with bovine BSE brain homogenate. We collected two full-sized donations of whole blood, before the onset of clinical signs. The following components were transfused into naive recipients: whole blood, red cell concentrates buffy coat, plasma and platelet units. We also transfused leucoreduced plasma, platelets and red cells. We collected a unit of whole blood from selected primary recipients for transfusion into secondary recipients.