

Still in Focus: Assessment of Blood-Borne Pathogens

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The German Advisory Committee Blood (Arbeitskreis Blut) was installed by the German Federal Ministry of Health 15 years ago, under the impression of an epidemic of virus transmissions through blood products. The task of this committee, which is based at the Robert Koch-Institut in Berlin, is to provide reliable scientific advice to the government concerning the quality and safety as well as the appropriate use of blood and blood products. The status of the Arbeitskreis Blut has been enhanced by stipulating its role and operation in the German Transfusion Act of 1998. All the time since its foundation, a major focus of work has been the safety regarding transmission of infectious agents. The Arbeitskreis Blut established a permanent subgroup 'Assessment of Pathogens Transmissible by Blood', meeting regularly at the Paul-Ehrlich-Institut in Langen, dedicated to compiling and updating information on infectious agents transmitted by blood.

In the past decades, the safety of blood and blood products has increased dramatically and is meanwhile very high. This impressive improvement of pathogen safety is due to well established donor criteria and advancements of technology leading to extremely sensitive and specific tests used for donor screening. The serological testing, i.e. the per se already very efficient detection of antibodies or antigens, has been supplemented by the introduction of nucleic acid amplification technology (NAT) for HCV genome in 1999, and for HIV genome in 2004. The success of this strategy is demonstrated by haemovigilance data collected by the Paul-Ehrlich-Institut: Since the introduction of NAT, only one single case of HCV and one single case of HIV transmission by blood components have been reported in Germany, where about 4.5 million whole blood donations take place annually. Ongoing projects aim at increasing the safety margin of blood components even further by pathogen inactivation procedures. Effective virus inactivation steps became mandatory for plasma derivatives about 20 years ago and practically eliminated the transmission of viral diseases by these products.

This success story helped very much to restore the confidence of patients into blood products. However, unfortunately a 'zero risk' cannot be reached with biological products. As a matter of fact, pathogens are a moving target, and there is a continuous race between progress of science and technology and emerging or re-emerging pathogens. New agents may pose particular risks because they may escape the established screening systems, and it may be difficult to develop test methods suitable for donor screening, as in the case of the agent causing variant Creutzfeldt-Jakob disease (vCJD). 'Old' pathogens may re-emerge due to mutations, changes in their habitat and influence of human lifestyle, particularly the ever-growing international travel; recent examples may be found among arthropod-borne viruses, bacteria and parasites for example.

Thus, there is no reason to lay back in complacency, and the Arbeitskreis Blut subgroup 'Assessment of Pathogens Transmissible by Blood' is continuing its work in order to provide timely advice. All reviews have been published in TRANSFUSION MEDICINE AND HEMOTHERAPY as soon as they were finalised. The frequent request from e.g. transfusionists, scientific societies and regulators to provide these assessments, which are focused strongly on the perspective for blood product safety, in a single issue of a journal or booklet in order to have the relevant information ready at hand has been met already with a special issue in August 2005 [1]. The present issue of TRANSFUSION MEDICINE AND HEMOTHERAPY provides additional papers on Influenza [2], Hepatitis E [3], Malaria [4], and Arbovirology [5], and the paper on Arboviruses [6] published in the present issue in its English version for the first time.

With the task to develop a strategy for a safe blood supply in view of the variant Creutzfeldt-Jakob disease (vCJD), an expert working group was appointed by the German Federal Minister of Health in 2001. A comprehensive report of this group has been published in TRANSFUSION MEDICINE AND HEMOTHERAPY in 2006 [7]. Of particular concern are reports in

the past years of obvious transmission of the vCJD agent by transfusion of red cells, which raises the issue of donor screening. The current status of epidemiology, the scientific background of vCJD diagnostics, the numerous recent developments towards test systems as well as regulatory aspects and ethical problems were extensively discussed by the expert group; the English version of the report is published in the present issue [8].

The Arbeitskreis Blut recognizes and acknowledges the work done by both groups in the preparation of the comprehensive statements. Also the excellent secretarial support by Mrs. Knoess, Mrs. Taylor, and Mrs. Erikli is gratefully appreciated. We are confident that the present special issue of TRANSFUSION MEDICINE AND HEMOTHERAPY provides another helpful reference manual for rapid and reliable information on relevant blood-borne agents, and strategic considerations to ensure a safe blood supply.

References

- 1 Assessment of Pathogens Transmissible By Blood: Statements of the German 'National Advisory Committee Blood' (Arbeitskreis Blut). *Transfus Med Hemother* 2005;32(3/4):105–240.
- 2 Arbeitskreis Blut, Untergruppe «Bewertung Blutassoziierter Krankheitserreger»: Influenza Virus. *Transfus Med Hemother* 2008;35(5):42–49.
- 3 Arbeitskreis Blut, Untergruppe «Bewertung Blutassoziierter Krankheitserreger»: Hepatitis E Virus. *Transfus Med Hemother* 2008;35(5):50–57.
- 4 Arbeitskreis Blut, Untergruppe «Bewertung Blutassoziierter Krankheitserreger»: Malaria. *Transfus Med Hemother* 2008;35(5):122–134.
- 5 Arbeitskreis Blut, Untergruppe «Bewertung Blutassoziierter Krankheitserreger»: Arbovirologie – pathogens transmittable by arthropods. *Transfus Med Hemother* 2008;35(5):374–390.
- 6 Arbeitskreis Blut, Untergruppe «Bewertung Blutassoziierter Krankheitserreger»: Arbovirologie. *Transfus Med Hemother* 2009;35(1):8–31.
- 7 Overall Blood Supply with Regard to Variant Creutzfeldt-Jakob Disease (vCJD): Report of the Working Group Commissioned by the German Federal Ministry of Health, April 13, 2006. *Transfus Med Hemother* 2006;33(suppl. 2):VII + 40.
- 8 Working Group 'Overall Blood Supply Strategy with Regard to Variant Creutzfeldt-Jakob Disease (vCJD)': Statement on the development and implementation of test systems suitable for the screening of blood donors for variant Creutzfeldt-Jakob disease. *Transfus Med Hemother* 2009;35(1):79–93.