

Report about the Haemovigilance Postgraduate Course of the Interdisciplinary European Society for Haemapheresis and Haemotherapy

The first Haemovigilance Postgraduate Course of the Interdisciplinary European Society for Haemapheresis and Haemotherapy was held on June 19th in Umeå, Sweden. This full-time course was accredited with credit points by the European Haematology Association. The background of the course was the implementation of the European Commission directive 2005/61 of September 30th, 2005. This daughter directive was implemented by the mother directive 2002/98/EC of the European Parliament and of the Council (standards of quality and safety for the collection, testing, processing, storage and distribution of human blood and blood components) as regards of traceability requirements and notification of serious adverse reactions (SARs) and events. It consists of 12 articles and 3 annexes.

Dr. Lassén talked about haemovigilance of blood components. The status of European haemovigilance systems is different: functioning systems exist in France (AFSSAPS), United Kingdom (SHOT), Denmark (DART) and Sweden (BIS), while some systems are under construction and other countries are planning for systems. Data for haemovigilance systems should be related to activity, failures should be reported per 100,000 transfusions (e.g. 6/100,000 and not 1/16,667) to allow for comparisons. Detailed data about SARs were presented for red blood cell, plasma and platelet components.

Prof. Moog reported that peripheral blood stem cells (PBSC) supplant bone marrow more and more as a source of haematopoietic cells. The mobilisation of PBSC from the bone marrow into the peripheral blood is influenced by several factors such as age, gender, type and dose of growth factor. In the autologous setting the patient's diagnosis, previous chemotherapy and/or irradiations are factors affecting the PBSC

yield to be collected. Large volume apheresis can recruit stem cells during the apheresis procedure thereby increasing the yield. Apheresis- and growth factor-associated risks were presented in detail.

Prof. Stegmayr introduced the therapeutic apheresis registry of the World Apheresis Association. Twenty-five centres from 9 countries have applied for a login code to the registry up to now. Out of these, 12 centres from 7 countries have been actively entering the data at the internet site (www.iml.umu.se/medicin). Main indications were neurological and haematological diseases, vasculitis and lipid apheresis. The main procedure was conventional plasma exchange by centrifugation and less with filtration, while other treatment modes were leukapheresis, erythrocytapheresis, plateletpheresis, LDL-apheresis, photopheresis and various types of adsorption.

Following Dr. Norda's presentation haemovigilance in therapeutic apheresis may be seen as organised surveillance procedures related to serious adverse or unexpected events or reactions in patients due to the use of the medical devices, medicinal products, blood products or blood components as a part of the apheresis treatment. The clinical follow up of the patient is also necessitated. Data about the frequency of adverse effects in different types of therapeutic apheresis were provided.

Prof. Höcker's presentation was about the collection of 2 units of red blood cells (RBC) by apheresis. A short historical overview and the eligibility criteria for these donors were given. The automated collections of RBCs allows for the production of a very well standardized product compared to manual collection. The iron stores may be affected by double unit RBC collections and data about the ferritin level were provided.

Dr. Ullrich talked about anticoagulation and calculation of blood volume. The use of ACD and heparin as well as their possible side effects was extensively demonstrated. Various formulas for the calculation of blood volumes were provided, including

Nadler's formula. Modern blood cell separators automatically calculate patient's / donor's blood volume based on modifications of the presented formulas.

The last two presentations were about bacterial contamination of blood products and their detection. Data of pathogen inactivation of platelets (PLT) and their impact on platelet function were provided. Prof. Moog presented data of bacterial contamination of blood components from different European haemovigilance registries. PLT components were found to be contaminated with increasing storage time, bacterial contamination of RBC products is also reported while contamination of fresh frozen plasma is a rare event. Strategies to reduce PLT transfusion associated septic risk are reduction of the risk of PLT contamination, optimization of PLT processing and storage, pretransfusion bacterial detection, pathogen inactivation methodology and reduction of recipient exposure to donor PLT products. Automated bacterial culture systems, which depend on CO₂ production of growing bacteria, can be used for detection of bacteria in PLT components after 2 – 3 days of incubation. Current pretransfusion pathogen inactivation methodologies use illumination in combination with riboflavin or amotosalen resulting in prevention of RNA or DNA replication.

Prof. Escolar gave a presentation about the impact of pathogen inactivation technologies in haemostatic function of PLT concentrates. In vitro perfusion systems were introduced and PLT function data were provided. These perfusion devices were useful tool for the evaluation of the haemostatic effectiveness of PLTs. Clinical trials showed that post-transfusional PLT count increments were decreased in PLT concentrates subjected to pathogen inactivation. Comparable function was observed for transfused pathogen inactivated PLTs and non-illuminated control PLTs.

Address for correspondence:

Prof. Dr. Rainer Moog

Institute for Transfusion Medicine

University Clinics Essen

Hufelandstrasse 55

45122 Essen

Germany

Phone: +492017231558

Fax: +492017235945

e-mail: rainer.moog@uni-essen.de