Focus: Platelets

The Focus section of TT’s present issue devoted to platelets has been prepared thanks to the great assistance of Zhu Yong Ming, President of the Shanghai Blood Centre and new member of TT Editorial Board. He selected authors from various places in the world with the aim of showing “pro and cons” in the preparation and use of SDP and RDP. Not all authors could submit their papers in time, however, the six ones which could be printed will certainly bring you some thoughts and reflection.

The very clear introduction to the topic and its challenges has been written by Dr Cesio Argenta and I encourage you to discover it first. All other authors are of course to be thanked for their efforts and time given “for free”. TT has namely no “impact factors”… but a broad scope of interested readers.

The focus section of TT is mainly aimed at addressing subjects of concern among the blood transfusion professionals; so the idea to invite an editor for this part of the bulletin may be challenging for those ISBT members who are experts in a specific field or simply puzzled or excited by controversial issues.

During the last meeting of the Publications Committee in Cape Town, following topics have been selected for the following TT issues in 2007: “Donor selection”, June; “National Blood Programs”, September; “Globalization?”, December.

TT editorial board encourages each of you to join and participate.

CH, Editor
This issue of Transfusion Today is focused on platelets with several contributors from around the world addressing different aspects of preparation and use of platelets in Transfusion Medicine. Component therapy is one of the major achievements of transfusion medicine. The routine separation of red blood cells, plasma and platelets became more common in the 60’s, and today whole blood transfusions are a rarity in countries with a high development index. Platelet transfusions are fragments of megakaryocytes. They are produced in the bone marrow and released into the circulation in numbers that vary between 150 and 400,000/mm³. They are a critical participant of hemorrhage; are activated upon exposure to certain substances and are biologically active compounds and aggregate, forming a plug that stops bleeding. Platelet transfusions may be needed to prevent bleeding associated with very low levels in the circulation. Thrombocytopenia, or low platelet count is observed in diseases that affect their production or function, as congenital defects, platelet depletion in trauma, viral infections (e.g. HIV, measles, dengue), aplastic anemia and leukemias. Platelets are also quite important in cancer therapy because their production is seriously affected by chemotherapeutic agents and limit the doses that can be used without causing bleeding. Administration of prophylactic platelet transfusions reduces the bleeding risk associated with higher doses of toxic cancer therapies.

The preparation of platelets requires very well defined protocols because they are quite delicate and undergo a "release" reaction when treated in a rough manner. The premature release of contents causes a decrease in function when transfused. Platelets are ideally stored at room temperature (22°C), under gentle agitation in bags made with special plastics that allow the exchange of gases like O₂ and CO₂. This storage temperature is a major problem because it makes platelet preparations a fertile environment for bacterial growth. Until 1983 the U.S. Food and Drug Administration allowed the storage of platelets up to 7 days prior to transfusion. At that time storage time was shortened to 5 days because of a significant number of febrile donor reactions due to bacterial contamination. More recently, FDA allowed the extension of platelet dating if maintained in an approved bag and tested for bacterial contamination by culture under a rigid protocol. The following are the multiple preparations of functional platelets available for transfusion in many countries.

Whole blood derived platelets:
- prepared from platelet rich plasma (PRP) or
- prepared from buffy coat
- available as individual units or pooled 4-6 units using sterile connection devices, leukoreduced by filtration and subjected to bacterial detection
- Minimum of 5 X 10⁹/unit, pH>6.2 on day 5, expiration 5 days after collection
- Figures 1 and 2 show the steps associated with the manufacture of platelets from whole blood using the Platelet Rich Plasma and Buffy Coat.

Platelets obtained by apheresis:
- Leukoreduced by the apheresis process or filtration
- Minimum of 3 X 10¹³/unit, pH>6.2 on day 5, expiration 5 days after collection, or 7 days when subjected to bacterial detection by culture
- The use of whole blood derived platelets and platelets obtained by apheresis vary in different areas of the world. About 75% of the platelet doses transfused in the U.S. are obtained by apheresis, and 25% are prepared from whole blood using the PRP method. Canada is converting the platelet preparation process from PRP to buffy coat. France and Germany have similar proportions of apheresis platelets. Other European countries have smaller proportions of apheresis platelets. However, all whole blood derived platelets used in Europe are obtained using the buffy coat method (Murphy, S. Platelets from pooled buffy coats: an update. Transfusion 2005;45:634-639).

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The selection of the best platelet product for transfusion depends on a number of factors, including availability and cost. However, the most important factor associated with success in platelet therapy is appropriate utilization.

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In the Netherlands, a country with more than 16 x 10^6 inhabitants, yearly approximately 50,000 platelet transfusions (derived from 250,000 donor-units in 2005) are released to the hospitals. This amount is stable since 10 years. Approximately 95% of the platelet transfusions are derived from (5) buffy-coats (RDP) and 5% from apheresis donations (SDP). The latter include HLA-matched platelets for HLA allo-immunized patients refractory to random donor platelets, and HPA-1a/B1b negative platelets for a national stock of HPA-typed platelets for neonates suspected for neonatal allo-immune thrombocytopenia (NITP).

All platelet products are tested for bacterial contamination, post-pooling for RDP and individually for SDP. When released, it is automatically checked whether the bacterial culture is still negative to date. If after release the culture becomes positive, the hospital is informed and in case of buffy-coat derived platelets the red cell units of the donors are recalled to the Blood bank for bacterial culture. The allowed shelf-life is 5 days after collection of the donor. Recently, extension of the shelf-life of RDP stored in plasma has been prolonged to 7 days, but this is still under post-authorisation surveillance of Sanquin, the Dutch organization for blood supply.

RDP are prepared from whole blood donations. After a maximal storage interval of 20 hours at 32°C, the buffy-coats are collected and pooled by 5. Pooled buffy-coats are subjected to filtration within 24 hours after withdrawal of the donor. The whole production process of RDP and SDP is completely performed and controlled by the supplier Sanquin. After quality control, platelet products are released to hospitals, either on demand for a particular patient (this is always the case for HLA/HPA-matched SDP) or for the stock. Larger hospitals are provided by platelet storage cabinets, controlled by the Sanquin Blood banks.

The motivation for a predominant RDP based platelet supply is given by the following advantages:

1. A buffy-coat, if not used for research, is in principle a waste product.
2. The donor is not unnecessarily exposed to an extra-corporeal circuit.
3. An RDP product of 5 donors allows for better standardization of the platelet content in a product (more than 300 x 10^9 /product) than SDP from single donors.
4. In a country with a low rate of transfusion transmitted infections the advantage of SDP by limiting donor exposure is less important.
5. For a reduced immunogenicity with respect to HLA allo-antibodies, there is no scientific evidence to prefer SDP over RDP.
WHOLE BLOOD DERIVED PLATELETS
A View From the U.S.

O
ver the past 15 years, there has been a clear trend in the U.S. towards the use of apheresis platelets and it is esti-
mated that in 2003, apheresis platelets accounted for approxi-
mately 75% of all platelet doses transfused in the U.S.1 There are many factors which have caused this shift towards apheresis platelets, but perception of both a higher quality and a lower risk product on the part of the prescribing physician, have been the main driving forces. The concept of apheresis platelets being of higher quality is anchored in the concept of apheresis platelets as a “specialty or boutique product” and whole blood as a “commodity product.” In fact, there are unconfirmed data from two reports which indi-
cate that apheresis platelets may be higher quality (potency). One report describes Seattle using donor data from transfused throm-
boctypnic patients adjusted for storage age showed slightly better CD6 at two months than whole blood platelets and a paired radiolabeled study using healthy subjects from Canada showing superior recovery and survival with apheresis platelets. However, other radiolabeled studies have shown equivocal results. It is also possible that apheresis platelets could be of lower quality – i.e. less hematopoietically effective. Several studies from Europe and the U.S. have shown an alarming number of apheresis donors (up to 20%) to have hemostatically compromised platelets as demon-
strated by abnormal closure times in the PFA 100. Furthermore, some donors are known to stock platelets in vitro and since apheresis products are single donor derived, this factor has far more relevance than for a whole blood derived pool.

ARE APERATURES PRODUCTS SAFER THAN WHOLE BLOOD DERIVED POOLS?

The major argument supporting this point of view is the trans-
mission of infectious agents by transfusion, especially bacteria since the risk of viral disease transmission is exceedingly low. One single center retrospective observational study demon-
strated increased sepsis from platelet doses derived from whole blood pools and several bacterial surveillance studies have shown increased bacterial contamination in platelet pools. However, use of platelet apheresis and in-line leukoreduction of platelet rich plasma may minimize or abolish this difference and application of universal culturing could eliminate this differ-
ence entirely. We have recently observed our bacterial contamination rate of platelet apheresis to be one fifth of that of our apheresis platelets; as our standard dose is 5 units, this would render the risk to be equal. It is also possible to argue that apheresis products are greater risk product, hemolyzings resulting from plasma ABO compatibility is far more likely with Group O apheresis products and recent data shows that the risk of trans-
fusion-related acute lung injury (TRALI) is up to 7 times higher

with apheresis platelets. It is possible, therefore, that apheresis platelets, could under some circumstances, be a greater risk product despite the common perception to the contrary.

Rhode Island, one of the smallest states in the U.S., has a com-

mon community blood center which supplies all in state blood products. Via platelet account for “70% of all doses, the reverse of the national figure. All Via platelet concentrates are manufactured from collections which use punch-diversion and in-line leukoreduction of platelet rich plasma.2-3 These PRP derived platelet concentrates are now prestorage pooled, each with measured potency.4 All of these pools are cultured for bacteria and are culture negative prior to shipping. In the future, we expect to expand storage to seven days, possibly using a bacterial detection test at the point of issue. Subsequent removal of 80% of the plasma and stor-
age in an additive solution would make this product very desir-
able and essentially the equivalent of, if not superior to, an apheresis platelet in terms of quality and risk profile.

References


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APHERESIS PLATELETS IN THE USA: Clinical benefits for the patient

The movement toward significant usage of apheresis platelets (SDP) in the USA began in the mid to late 1980s and currently represents more than 80% of all transfu-
sions. This change was driven by safety concerns, primarily HIV and viral hepatitis. Although there has been significant progress in decreasing the risk of both of these diseases, the premise that SDP reduces the risk of transfusion-transmitted disease remains true. Whatever the disease agent, transfusion of a prod-
uct collected from one donor is safer than a pool that is derived from 5-8 donors. By definition, the donor screening tests will always lag behind the discovery of new risks, (e.g., foamy virus-
es or “agent X”).

While viruses were the primer driver of the migration to SDP, various investigations have demonstrated a reduction in the risk of bacterial contamination when SDP is used in lieu of random donor platelet (RDP). Ness et al found that the risk decreased from 1:4188 transfusions to 1:15,078 over several years when they moved to SDP and recently, Yountkova and colleagues found that the 1:3011: SOD were contaminated, while pools of RDP had a rate of 1:2,944.3 Both of these differences are high-
ly significant. While these data were generated prior to current bacterial screening, because bacterial culture tests have a high false-negative rate SDP continue to offer this advantage.

While fewer alloimmune reactions reduces infectious risks, the benefits hold true for other risks – namely transfusion reactions. Any complication that is related to plasma volume or plasma proteins is impacted by a diminishment in the number of donors to which a patient is exposed. Allergic and anaphylactic reactions and transfusion related acute lung injury fall into this category.

APHERESIS PLATELETS IN THE USA:
Clinical benefits for the patient

In conclusion, there are a number of benefits associated with the use of SDP, namely reduced viral risk, a decrease in bacte-
rial risk, decrease in plasma-associated reactions, improved in vitro platelet quality and increased recovery and survival.

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All PCs have been irradiated prior to transfusion at Red Cross Blood Centers (85%) or at hospitals (15%), because a high incidence of TA-GM1D had been reported in Japan due to the genetic homogeneity of the Japanese population. In 1995, the Japanese Red Cross supplied a total of 79,136 bags of PCs to hospitals. Among them, 699 cases of moderate or severe nonhemolytic transfusion reaction were reported to the Japanese Red Cross from hospitals on a voluntary basis, including 332 definite TRALI and 74 possible TRALI cases. In contrast, a single institute reported that the incidence of nonhemolytic transfusion reaction caused by universal prestorage leukocyte-reduced PCs is 7.1% (165 cases/2317 transfusions; mostly urticaria).

The human platelet antigen nomenclature was adopted in 1990 by the ISBT Working Party to overcome problems raised by the previous nomenclature. To date 24 platelet-specific alloantigens have been defined serologically and 12 of them grouped in 6 bi-allelic systems.

The ISBT Nomenclature Committee has been created as a collaborative platform between the ISBT platelet Working party and the International Society on Thrombosis and Haemostasis. The 13th International platelet workshop has been held in Capetown in September 2006 with 28 participants from 16 countries; the next one will be organised in conjunction with the ISBT Congress in Macau, China.

The collaborative efforts shown by the worldwide participants and the exchange of experience of the Platelet Working parties have been a major contribution to the development of platelet immunology.

References

A s I write this, the new year is already well underway. As usual, in an odd-numbered year, we have two regional congresses scheduled: the Seventeenth Regional Congress, Europe will be held June 23-27, in Madrid, Spain, and the Eighteenth Regional Congress, Asia, November 10-13, in Hanoi, Vietnam. These meetings are well organized and prepared in collaboration with the Local Organizing Committee and the ISAC of the ISBT. Now, the Board of Directors are preparing to head to Amsterdam for the February Strategic Planning Session, and I hope to report on this in the next issue of Transfusion Today. For this issue, however, I will take advantage of the calm season between the congresses in Cape Town and Madrid to introduce the blood programme in Japan.

According to the Blood Law enacted in 2003, the blood programme in Japan must, in practice, be operated by the Japanese Red Cross and managed by the Japanese Government. As of 2005, Japan had 3.5 million blood donors (4.2% of the population), 61% down from a peak of 8.7 million in 1985. All blood donors are volunteers. One unit of blood in Japan indicates a component derived from 200ml of whole blood; recently, two units are more frequently drawn. Japan is self-sufficient in all blood components, with the exception of platelets, which are currently imported from the USA. The Japanese Red Cross supplies 16.5 million units and 5.3 million bags of blood components. Some are produced from whole blood and others from apheresis, including 100% of platelet products (PLT). Shelf lives are three weeks for RCC, one year for FFP, and three days for PLT.

NAT tests for HB— as well as for HIV and HCV—were introduced in 1999, and the pool size was reduced to 20 in August 2004. Leukocyte-reduction filters were used at the bedside for more than a decade before universal leukoreduction was introduced in November 2005 for PLT and January 2007 for RCC and FFP. The aim is to decrease adverse transfusion-related events. Japan hopes to achieve self-sufficiency in the very near future by the development of recombinant albumin as well as appropriate use of blood products. One benefit of being part of a group like the ISBT is that we are international. And one benefit of having a publication like Transfusion Today is that we have a wonderful venue to share our experiences and knowledge so that others around the world can learn from our different situations. I hope that you found my short summary of the situation in Japan interesting and useful, and that it has stimulated some reflections and comparisons with how things are in your part of the world. Finally, I would like to invite you to put some of your ideas down in words and submit them to Transfusion Today, to share them with others across the globe. I am sure our editor will be delighted to hear from you, and our readers will be glad to learn what you have to teach us.

FROM THE ISBT HEADQUARTERS

This year, it is 72 years ago that the first international blood transfusion meeting was held in Rome, 26-29 September 1935. Two years later at the close of the Congress in Paris, Prof. Leopold Mayer of Brussels was elected the first Secretary-General of the ISBT. In 1956 the Fifth Congress of the International Society of Blood Transfusion was organized in Boston, Massachusetts as a joint venture with the Ninth Meeting of the American Association of Blood Banks. The program, the schedule and the abstracts of presented papers are all contained in one small gray paperback book of 263 pages. In fact, that printing was held on long as there was no power, in both English and Interlingua, the attempt of the time to promote a universal language developed from all of the Western European roots.

The details on leadership, attendance and finances of the joint meeting can be found in the official History of the ISBT prepared by Tibi Greenwalt, my predecessor as Historian. Copies are available at a cost from the ISBT. There will be a special session to hear some of these stories at the Ninth Meeting of the American Association of Blood Banks. The program, the schedule and the abstracts of presented papers are all contained in one small gray paperback book of 263 pages. In fact, that printing was held on long as there was no power, in both English and Interlingua, the attempt of the time to promote a universal language developed from all of the Western European roots.

FROM THE HISTORIAN

The ISBT International Academy for Transfusion Medicine – the ISBT Academy – has granted the ISBT logo as a quality mark to a number of Congresses and more applications are to come. A surprising number of topics presented in 1956 were still being addressed by invited speakers at the 20th Congress of the ISBT held in September 2006. Among them were:

Circulatory overload (1956); Transfusion Associated Circulatory Overload (TACO), 2006

Complications of massive transfusions in Surgery (1956); in Trauma (2006)

Plasmavolumenexpanders: Dextran, Gelatin (1956); Crystalloids vs. Colloids (2006)

The old problems that are still with us are problems in what we now call Transfusion Medicine rather than technology. They involve people and reminds us that ours is still a “hands on” skill that involves “squeezing blood out of one person into another”.

FROM THE SECREATARY-GENERAL

FROM THE ISBT HEADQUARTERS

The Strategic Plan 2002-2006 had been accomplished. In a stimulating atmosphere, the strengths, the weaknesses, the opportunities and the threats of the Society were discussed. Differences of opinion were reason for more in depth discussions on the background of these differences. In an international Society, professional and cultural aspects, differences in the development of the profession, and the balance between science and education play an important role even when the objectives of the Society seem to be clear and the same for all. But the outcome was that all participants could agree on a draft strategic plan including the activities and changes in order to reach the goals set. At the General Assembly in Madrid, the final report will be presented. An important moment for all ISBT members, because then a new approach of the ISBT will start.
The preparation for the third ISBT Transfusion Medicine Course for Arabic speaking countries (ATMC3) was complete and our hosts in Jeddah were ready to welcome participants from transfusion services in North Africa and the Middle East. I had planned to meet Dr Frank Boulton on the flight to Jeddah to take part in this course, which was to start on the 5th until the 7th December 2006.

The three days included lectures, workshops and posters related to donor care, selection, donations and blood safety strategies and quality of blood collection. All are very basic and important issues for any national blood procurement programme. It was inaugurated by Dr Salwa Hindawi from King Abdulaziz University in Jeddah and representatives from the Ministry of Health in Riyadh.

Of the 13 speakers, 6 were from blood transfusion services in the region, these included Tunisia, Egypt, Saudi Arabia and the United Arab Emirates. International speakers came from as far as Canada and Norway. Dr Boulton and Professor J.P. Allain and myself represented the UK team on the faculty of the course.

The lectures were followed by lively discussions particularly when controversial issues were raised about confidentiality and other ethical considerations as well as the methods of communication with donors.

Interesting views were raised about the degree of cultural appropriateness of procedures used in the West. These experiences were further discussed in the wider context of the lecture on the ISBT Code of Ethics given by Professor Hans Eric Heier.
In the early 1930s, direct, compatible transfusions were fairly common.

The lecture given by Professor JP Allain about his experience in Ghana raised several controversial discussions during question time about the approach to pre-donation testing for Transfusion Transmissible Infections. These were hotly debated during the workshop that followed.

Conclusions
- It is good that rich countries are helping sub-Saharan Africa
- HIV being at the centre may bias approaches to Transfusion
- Globalisation (seroconversion) of transfusion may be inappropriate
- Exclusion of local forces in devolving strategies is unwise
- Outcome of top-bottom approach need review 5 & 10 years after end of support
- Bottom to top approach slower, more difficult but adapted, affordable and sustainable but carries political drawbacks.

Anonymous donors - introduced during the Spanish civil war and 2nd world war, primarily on the republican/allied side

Dr Nuri Solaz from Turkey gave a very informative lecture on Emergency and disaster preparedness preparations in the light of the wide experience with unfortunate events of this kind in his country. Details of the course content and programme can be accessed on www.atmc-online.org

Participants from 12 countries gave reports describing the activities of the blood procurement programmes and donor services in their respective facilities, using indicators that would provide information about the level of development of donor care and the quality of blood collection in the region. These indicators were compiled on the basis of the WHO Document “Global Database on Blood Safety”. These activity reports would also permit to show the degree of variation and differences between blood transfusion services in the region.

Two reports activity with special interest were included in the course. Professor Mohsen El Alfy gave a presentation on the activities of NGOs involved in blood procurement in Egypt. Professor Rossi described the activities of the blood donor association AVIS in the Lombardy region in north Italy.

WHO Headquarters and the East Mediterranean Regional Office (EMRO) prepared and conducted the workshop of the first day. After short introductory presentations the participants were divided into groups to formulate recommendations on blood donor education, donor retention strategies and building a blood donation programmes.

The objective of the 2nd day workshop was to form data consensus on the ways to promote and encourage the development of national blood transfusion professional societies. Short introductions were given by the presidents of the African Society of transfusion medicine; Professor Boullé and the British Blood transfusion Society; Dr Frank Bolton and Professor Hans Eric Heier as past president of ISBT.

The course organisation committee and the host country of ISBT ATMC3 were able to raise financial support for accommodation and registration for all the speakers as well as for 30 participants from 12 countries in the region. ISBT provided its yearly financial support, running in its third year, to fund the travel of speakers and as sponsorship for some participants who are not able to support themselves.

ISBT Transfusion Medicine Courses can now be considered as an established tradition in the region. The course next year will be held in the United Arab Emirates. The theme will be "Technical and Scientific developments in Transfusion Practice”. The Syrian Transfusion Service and the University of Damascus will host the course in 2008. Provisional plans are also in place for courses until 2010. The details will be finalised during the course of the year.

This initiative, now in its third year, has proved to be a long-term success. It has reduced the isolation of individual scientists and transfusion medicine specialists. It has also provided a forum for continuous professional development and a yearly gathering for exchange of information and experience in a structured and sustained format.

G. Gabra, UK

ISBT ATMC Coordinator

WELCOME TO OUR NEW MEMBERS

Ivan Alvarez-Stenna, SPAIN
Alexander Aquilina, MALTA
Beverley Atkinson, CANADA
Maria-Kaisa Auvinen, FINLAND
Amy Chang, CANADA
Horacio Corea Uranga, ARGENTINA
Daniela Dusova, CZECH REPUBLIC
Khadi El-Yomni, ISRAEL
Sharadha Gali, CANADA
Lene Hansen, DENMARK
Jan Hellings, NETHERLANDS
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Alexandra Zakova, CZECH REPUBLIC

FROM THE ISBT HEADQUARTERS

The lecture given by Professor JP Allain about his experience in Ghana raised several controversial discussions during question time about the approach to pre-donation testing for Transfusion Transmissible Infections. These were hotly debated during the workshop that followed.
Ahmedabad was also the site of the 31st Annual scientific meeting of the Indian Society of Blood Transfusion and Immunohaematology (ISBTI) held in November 2006. Attended by over 600 delegates it was organised from the Prathama Blood centre, one of the best blood services in India. The meeting demonstrated the advancing competencies of Blood transfusion activities in this large country. Although in many areas there is some way to go, more attention is now being placed on this specialty by the Government and other authorities. The need for a good Blood transfusion service in India has never been higher as with improving medical facilities, the demands for safe blood are great. However there is still an apparent lack of national co-ordination of Blood services, resulting in fragmentation and competition for donors, of whom less than 50% are truly non-remunerated and voluntary.

The meeting was preceded by a 3 day immunohaematology "hands on" wet workshop arranged to provide advanced training to 24 attendees from 19 Blood centres throughout India. Key persons involved Dr Jy ajayshree Shukla and Dr N. Choudhury (Prathama Blood Centre) were also wise to conference CME sessions, on component preparation and the other on aspects of Blood Bank accreditation. The meeting was held at the Hotel Grand Bhagwati.

Concurrent sessions dealt with many aspects of Transfusion Medicine and there were good presentations by both local and overseas contributors. The subject of Nucleic Acid testing (NAT) attracted considerable interest and its relevance to India was discussed. Quality systems was another hot topic as were symposia on Regulatory matters and Management which attracted many questioners and fiery discussions. It was good to see more attention to the problem of recruiting voluntary donors, and those local workers who often undertake this type of work in India gave some excellent and well prepared papers. Other sessions covered Apheresis, Bio-preservation, Transfusion transmitted diseases and Immunohaematology. There was something for everyone with the only criticism that the time allocated to papers was often too short. Overall, the arrangements were better than at previous meetings and a continued improvement in the standard of presentations was observed.

The colours and flavours of India were well presented at the social events that included several dinners and banquets which were very much enjoyed by the attendees. The life and vitality of Gujarat State was clearly evident and it was a pleasure to be able to participate in these.

There was a large Trade display that was well arranged. Poster sessions were well attended with some very intelligently designed presentations. Overall, it was a very successful Conference that sets a new benchmark for future meetings. It appears that the new sensation reality on the problems of transfusion in India has developed and it is to be hoped that this will be translated into new actions particularly at Government level. Adequate needs for better co-ordination of Blood services, an encouragement of future Blood centre collaborations, and an upgrading of technical procedures. For instance, few centres at present perform routine antibody screening and there is a lack of reliable data on blood groups present in most States.

The next meeting is to be held in Bhopal in November 2007.

Graeme Woodfield, New Zealand

Dr Choudhury addressing Conference

The conference also launched a new scientific journal, “The South Asian Journal of Transfusion Science.” It is anticipated that this will provide a focus and encouragement to workers in transfusion and a forum for discussion of key matters.

The organising President Dr Jayashree Shukla and her organising team are to be congratulated on running such a well arranged conference. Particular thanks are also due to Dr N. Choudhury and Mr V. Harimoorthy for their hard work in attending to all the details and ensuring the smooth functioning of the meeting.

For those wishing to see a fascinating and unique part of India, Gujarat State is a good choice. The busy capital of Ahmedabad is the place to start as it has many interesting places to visit including the Ashram of Gandhi.
Status Report On The Blood Transfusion Services

Country Introduction
- A landlocked country that has derived its name from the Sanskrit word “BHU” meaning “Land to the North of India”.
- Also called “Druk Yul” in vernacular language or“Land of the Thunder Dragon”.
- Land Area : 38,364 sq km
- Population as of 2005 is 672,425, with a sex ratio of 111 males to 100 females.
- Religion : Buddhism

Organizational Structure of the Blood Transfusion Service
- Health and Education facilities are provided free of cost to the people as per the policy of the Royal Government of Bhutan (RGoB).
- Health system is spread out in the form of National Hospital in the capital, Thimphu and the exiled hospital, two Regional Referral Hospitals covering the Western and the South Central regions and a network of District Hospitals, Basic Health Units.
- In total there are three hospitals in the country.
- Blood Transfusion Service is provided by a network of blood banks based within the hospital infra-structure and integrated with the laboratory services.
- National Blood Bank (NBB) at the National Referral Hospital is headed by a Transfusion Medicine Specialist and trained man power but all the other blood banks are manned mostly by the General Medical Laboratory Technicians. NBB is the key co-ordinating center for all the transfusion activities taking place.
- The NBB in the country under the Health Care and Diagnostic Division of the Department of Medical Services which is the governing body of the Ministry of Health.

National Blood Data on the Blood Transfusion Activities
- National advocacy on safe blood is being conducted to promote voluntary blood donations. A national logo for the NBTS with a message of “Make a Difference Between Life And Death, Donate Blood” has been developed.
- Different IEC materials developed in English and national language for general information on blood donation to the public.
- “World Blood Donor Day” is being celebrated in June 2004 with good response from the community at large and support from the national print and electronic media as well as from the Mobile Company in spreading the message of voluntary blood donation.
- Under the initiatives of Quality Assurance and Standardization Division (QASD) of the Ministry, all the blood banks have been categorized into various levels depending on the health facility that they serve. Based on this, manpower requirement, the necessary tests and the appropriate equipment and consumables are standardized and a Plan of Action for the HRD, procurement, training, supervision, monitoring and evaluation prepared.
- Regular Trainings in blood safety, in country and ex-country are being rendered to the staff with funds from ROCB, WHO and World Bank.
- Improvement in the Transfusion Services at the apex hospital (NBB) has been given priority in the CEQ policy of the Royal Government (Good Governance Plus). Introduction of an Apheresis Unit for Single Donor Platelet collection, u Enhanced Chem-Immunoscreen technology for TTI screening of blood and Gel technology in Immunohelatology laboratory are few of its future up-grading plans.
- With expertise from “Pathologists Overseas with a Specialty Assurance Programme” a Quality Management Team is formed that looks into the Quality Aspects of National Blood Bank.
- National Blood Bank has been participating in the Regional External Quality Assurance Scheme funded by WHO.

Challenges faced by the BTS
- Difficult terrain is the main stumbling block in improving the transfusion services making centralization or regionalization of many activities not practical.
- Regular Monitoring and supervision becomes difficult.
- No separate budget allocated for the transfusion activities presently.
- Blood donations mainly in the form of replacement/family donors.
- Shortage of trained man power in the service.
- Blood component therapy expensive and not cost effective.

National Data on the Blood Transfusion Activities
- Data available is mainly of National Blood Bank (NBB) from the year 2003 for total unit collection, the percentage of voluntary and replacement donors, TTI testing and blood component usage.
- The NBTS has been successful in reducing the number of replacement/family donors and improving the pool of voluntary donors through implementation of various donor motivation strategies, holding donor camps and regular re-call facilities.
- In the rest of the blood banks the donation is based mainly on family/relavement donors. This is due to the geographical terrain, non-availability of appropriate category of staff and the donors are not informed properly about the donation camps and donor education and motivation activities.
- Nevertheless, the importance of volunteers in the blood donation and giving correct answers during donor interview is being emphasized keeping the blood safety in mind.

TTI testing in Donated Blood
- 100% of blood collected throughout the country is screened for four infectious markers namely: Anti-HIV & 2, Anti-HCV, HBsAg and RPR. Test for malaria is done in the southern region with high material risk.
- At the NBB, ELISA method is used for the screening, whereas other blood banks still use the rapid test kits.
- Confirmatory tests for HIV and HCV are not available.
- In most of the small blood banks with blood usage of 50 to 100 units annually pre-donation testing for TTIs is done.
- Reactive donors are informed about the results and counselling or treatment offered appropriately.

Advances in Blood Transfusion in past few years
- The Ministry of Health has expressed commitment towards blood safety.
- The Ministry of Health has expressed commitment towards blood safety.
- With Technical Assistance from WHO the National Blood Policy has been drafted and is in its final stage of endorsement by the Ministry of Health.
- Technical Guidelines and Standards and SOPs have been prepared and are being implemented in some blood banks along with regular training of the staff.

Wednesday, 12/4/2007
Introduction, Blood donation and Transfusion Medicine in Europe and basic clinical transfusion alternatives.

Friday, 13/4/2007
Transfusion Therapy and Alternatives: Current Status and Prospects of Oxygen Carriers (<b>BLOOD SUBSTITUTES</b>)

Coordinators: C. Prowse, A. Mozzarelli, J. Van Hilten, V. Hafner, K. Lowe
Course venue: University of Parma.

Expectations for the clinical use of haemoglobin-based oxygen carriers (HBOC), 2007: clinical and political aspects of the use of <b>BLOOD SUBSTITUTES</b> in clinical practice.

FACILITY MEMBERS

Chris Prowse, Edinburgh, Scotland, Great Britain
Andrea Mozzarelli, Parma, Italy
Josert von Hille, Leiden, The Netherlands
Valentina Hafner, WHO, Copenhagen, Denmark
Kenneth C. Lowe, Nottingham, Great Britain
Abdu Alayash, Bethesda (Maryland), USA
Cesare Beghi, Parma, Italy
Simon Faithfull, Parma, Italy
Anneke Brand, Leiden, The Netherlands
Stefano Bruno, Parma, Italy
Andra Eke, Budapest, Hungary
Susana Falibald, San Diego (California), USA
Virge James, Helsinki, Finland
Kremner Lilaj, Tirana, Albania
Eugene I. Maevsky, Moscow, Russia
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NOW AND THEN
INTRODUCTION

Treponema Pallidium infection is considered a major health problem in developing countries and is one of the transfusion transmissible infections 2, 3. Through the years, a great controversy has arisen over the need for testing of blood donors for Treponema pallidum 4. Although the American Association of Blood Banks (AABB) initially dropped its recommendations that blood donors be tested for Treponema pallidum in 1978, the Food and Drug Administration (FDA) of the United States keeps on this requirement. Despite the fact that the reported prevalence of Treponema pallidium in some developing countries remained low 5, the recommendation that surrogate testing of blood donors for syphilis has remained reinforced particularly in the presence of the HIV Pandemic.

In this study the first large-scale effort in the Niger Delta of Nigeria, we sought to determine the prevalence of Treponema pallidium among blood donors and ascertain the attendant risk associated with the transfusion of blood unscreened for Treponema pallidium.

MATERIALS AND METHOD

A total of 3632 consecutively recruited apparently healthy blood donors visiting the Blood Transfusion Unit of the Department of Hematology of the University of Port Harcourt Teaching Hospital for the purpose of blood donation between January and December 2008 constituted the subjects for this study. The donors were made up of 1365 commercial remunerated donors, 2234 family replacement donors and 33 voluntary donors. All the blood donors were offered pre and post test counseling and informed consent obtained.

LABORATORY METHODS

Sera from each donor were tested for the presence of antibody to Treponema pallidium using the Clinotech syphilis test strip (Clinotech Diagnostics, Canada). This test detects antibodies against the Treponema pallidum antigen. The specificity of this test ranges from 84.5% to 99% and it is quite useful for the diagnosis of syphilis 6. All initially reactive samples were confirmed using the Clinotech diagnostics enzyme-linked immunosorbent assay (ELISA) kits. The haemoglobin levels of donors were determined using the Cyanmethaemoglobin method, which involves the use of Drabkins solution as described in standard protocols 7.

DATA ANALYSIS

Data analysis was performed using statistical software (SPSS version 9, SPSS Inc, Chicago IL.). Differences in prevalence of Treponema pallidium for demographics (age, sex and donor status) variables were tested for significance using chi square analysis. A p-value of < 0.05 was considered significant for all statistical comparisons.

RESULTS

Of the 3632 blood donors tested (aged 18-60 years, mean age 30.50 ± 10.24 years) made up of 121 females (3.3%) and 3511 males (96.7%), 7 (0.2%) were sero-positive for Treponema pallidium. Of the seven donors sero-positive for Treponema Pallidium, 5 (71.4%) were males while 2 (28.6%) were females (x² = 13.87, p = 0.02). The prevalence of Treponema pallidium was significantly higher among commercial remunerated donors 4 (57.1%) compared to 3 (42.9%) for family replacement donors. Voluntary donors showed a zero percent prevalence as shown in Table 1. Donors in the 20-29 years age group showed the highest prevalence (6.85%) followed by those in the 30-39 years age group (4.3%) and T. C. ADIAS

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<th>Group</th>
<th>No of donors positive for Treponema pallidium (n = 7)</th>
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Table 1: Prevalence of Treponema Pallidium among blood donor status.

Of the 7 donors sero-positive for Treponema Pallidium, 6 (85.7%) were males while 1 (14.3%) was a female. There was a trend for male donors to have higher prevalence of Treponema pallidium compared to females (x² = 4.17, p = 0.05).

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<th>Age Groups</th>
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Table 2: Prevalence of Treponema Pallidum positivity based on age groups.
DISCUSSION

Blood transfusion worldwide currently faces interesting challenges due to the increasing diversity of transfusion-transmissible infections. This has greatly provoked a greatly heightened emphasis on safety with associated inescapable implications on complexity and cost particularly in resource poor settings in sub-Saharan Africa. The sero-prevalence of 0.2% recorded in this study although in consonance with data recorded recently in some developing countries, Tehran Iran (0%) and in Port Harcourt, Nigeria (0.1%)8, it is however much lower than that obtained among Ghanaian (13.5%)9, Zairian (13.3%)10, and Senegalese (10.9%) blood donors. The high prevalence rate obtained in these studies may be due to the use of screening test, alone, which may give rise to a number of biologically false positive results. The prevalence of syphilitic infection among blood donors in developing countries seems to be on the decline. This has been attributed to the widespread use of penicillin amongst blood donors in the treatment of sexually transmitted diseases (STD’s).11

Commercially remunerated and family replacement donors recorded higher sero-positive rate for Treponema pallidum. Voluntary donors showed a zero percent prevalence. Also the pre-transfusion haemoglobin values were significantly higher among voluntary donors compared to family replacement and commercial donors. This finding is consistent with findings by Gibbs et al 15, Schreiber et al 15 and suggestions by the World Health Organization that commercial remunerated donors and family replacement donors are more likely to transmit transfusion -transmissible infections (TTI’s) than voluntary donors. The higher prevalence seen amongst commercial remunerated donors may be due to the fact that commercial donors often come from the poorest sectors of the economy, may be poor in health and are more likely to give blood more often than recommended. They are also undervaccinated and more at risk of having a transfusion -transmissible infection from high-risk behaviors like maintenance of multiple sex partners, intravenous drug abuse and unprotected sexual intercourse. Family replacement donors may feel obligated to donate blood even if they know that they have some health conditions, which prohibit blood donation. The number of commercial remunerated donations has continued to rise in Nigeria due to the absence of a National Blood Transfusion Service run on voluntary donated blood given out of altruism. The result is that blood transfusion takes place in sub-optimal conditions in Nigeria, its life saving purpose subverted by lack of effective control. We observed the highest syphilitic infection burden among donors in the 20-29 years age group. Youth in this age group are more prone to high risk behavior; maintenance of multiple sex partners, intravenous drug abuse and other risky behaviors that makes young people vulnerable. There is the urgent need for a renewed intensification of preventive programmes aimed at high-risk behavioral change. Despite the fact that the prevalence of syphilis infection among blood donors in this study was extremely low, that Treponema pallidum cannot survive in properly stored blood and the high inescapable cost implications of syphilis testing of blood donors particularly in resource poor settings, it must be noted that the emphasis of blood transfusion should be on two fundamental objectives; safety and protection of human lives. We therefore reinforce the views of the food and drug administration (FDA) of the United States that surrogate testing including syphilis be carried out on all blood donors to prevent those at risk from donating blood. There is also the urgent need to set up a national blood transfusion service in Nigeria to address the acute shortage of blood and blood products coupled with the discouragement of commercial remunerated donation of blood.

This is an edited version prepared for Transfusion Today - courtesy of Leo McCarthy. The full article can be obtained from the corresponding author.

REFERENCES

2007

19-20 April
Amsterdam, The Netherlands
Sanquin Spring Seminars
Antibodies in Disease, Diagnosis and Treatment
sanquin@eurocongres.com

20-21 April
NATA 8th annual symposium 2007
Budapest Congress & World Trade Center,
www.nataonline.com

27-28 February
Dublin, Ireland
9th European Haemovigilance Seminar
www.ehndublin.eu

15-16 May
Karlovy Vary
1st IPFA - APBN Workshop
Safety and Supply of Blood & Plasma Products
www.ipfa.nl
ipfa@sanquin.nl

20-21 April
NATA 18th annual symposium 2007
Budapest, Hungary
Budapest Congress & World Trade Center,
www.nataonline.com

14 June
World Blood Donor Day
www.wbdd.org

PRELIMINARY SCIENTIFIC PROGRAMME

Monday, June 25, 2007
• Prevention of Rh(D) and non-Rh(D) immunization
• The influence of the demographic and epidemiological changes on blood transfusion
• New perspectives in Card Blood Banking
• Therapeutical apheresis and immunoadsorption
• Blood transfusion practice (I)
• Advances in the diagnosis and in the prevention of NAIT
• Promotional strategies in voluntary blood donation
• Blood transfusion in the European Union
• PL - Hepatitis B and blood transfusion
• PL - The economics of blood transfusion in the XXI century
• History of blood transfusion
• Cost/Benefit of the quality systems in the European blood transfusion
• New technologies in blood transfusion
• Blood transfusion practice (II)

Tuesday, June 26, 2007
• Haemovigilance: much more than a register
• Recipient immune status and blood transfusion in different settings
• A critical approach to evidence-based transfusion
• Platelet components and platelet transfusion
• PL - Goodbye to agglutination?
• Thrombotic thrombocytopenic purpura (TTP)
• Information in transfusion medicine
• Errors in blood component administration: how to prevent them?

Wednesday, June 27, 2007
• Rationalisation of the use of allogeneic blood transfusion and its alternatives
• Cellular therapy
• Consensus and controversial in Blood transfusion
• Fetal genotyping in the practice
• PL - Government, media and decision making in Blood Transfusion

CLOSING SESSION
• Blood Banking in an EU without borders
### Upcoming Events

**ISBT Congress**

- **20-22 September**
  São Paulo, Brazil
  5th ISBT Symposium

- **14-17 October**
  Brisbane, Australia
  Annual Meeting of the Australian and New Zealand Society of Blood Transfusion

- **20-23 October**
  Denver, CO, USA
  AABB Annual Meeting

- **10-13 November**
  Hong Kong, China
  XXVI Regional Congress of the ISBT

**2008**

- **6-12 July**
  Geneva, Switzerland
  XXIst Congress of the ISTH

- **21-25 August**
  Tivoli, Copenhagen, Denmark
  22nd Congress of the International Society for Forensic Genetics (ISFG)

- **20-22 September**
  São Paulo, Brazil
  Vth ISBT Symposium

- **20-23 October**
  Denver, CO, USA
  AABB Annual Meeting

**2009**

- **6-12 July**
  Osaka, Japan
  XXVIth Congress of the ISBT

- **21-25 March**
  Cairo, Egypt
  XIX Regional Congress of the ISBT

- **14-18 November**
  Nanning, China
  XXI Regional Congress of the ISBT, Asia

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**SPECIAL PROGRAMME**

**Opening Ceremony and Welcome Cocktail Party**

The Opening Ceremony of the XVIIth Regional Congress of the ISBT will be held at Palacio Municipal de Congressos.

- **Date:** Sunday, June 24, 2007
- **Venue:** Palacio Municipal de Congressos
- **Time:** 18.00 - 21.30 hours

*Fiesta Española* Congress Dinner will be held at Castillo de Viñuelas, a magnificent castle of the XVIIIth century near Madrid. Its surroundings were used by King Carlos III as hunting court. In this spectacular building attendees will enjoy a delicious and typical buffet with specialities from different parts of Spain.

- **Date:** Tuesday, June 26, 2007
- **Venue:** Castillo de Viñuelas
- **Time:** 20.30 - 23.00 hours
- **Price:** 40 € per person

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**2008**

**2009**

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**International Membership Form 2007**

To be sent to: ISBT Central Office

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WORK EXPERIENCE
Duration of active work in the field of blood transfusion/transfusion medicine: ____________ years
Academic / scientific / other qualifications:

INDIVIDUAL MEMBERSHIP FEE 2007* (including Vox Sanguinis)
☐ Under 65 years: € 98,-
☐ Over 65 years: € 87,-
* Please tick the appropriate box

PAYMENT
Undersigned declares to pay the total amount due in Euro's with the following means of payment:

☐ Bank transfer:
  Please transfer payment to ABN AMRO, 57.48.05.842, to ISBT Central Office Amsterdam, The Netherlands.
  The BIC code of the bank is ABNA NL 2A. The IBAN Code is NL45ABNA0578405842. Clearly state your name.

☐ Credit card:
  ☐ Euro/Master/Access card Charge my card nr: _______________ _______________ _______________ _______________
  ☐ American Express CVC number: _____________ (the last 3 digits of the number printed on the back of the card)
  ☐ Visa Expiration date: ____________/__________

Signature: ___________________________ Date: ____________ day ____________ month ____________ year

Please note:
1. Only the forms of payment listed above are acceptable.
2. When your name is NOT clearly stated on the bank transfer, your payment cannot be linked.
   Consequently, your payment will be unknown to the ISBT Central Office.

PLEASE DO NOT FORGET TO COMPLETE BOTH SIDES OF THE REGISTRATION FORM!
AMICUS Separator System
for maximised platelet collection

This is the Blood centre manager that relied on the AMICUS collection system that collected the platelets that helped so many patients feel better.