REMI GROUP

Blood Bank Chronicles

The Quarterly Transfusion Medicine Update

Vol - 2 - January to March, 2013

Index

'Haemovigilance - Centralized System Launched in India'

Editorial

Paradigm Shift for Vigilant Indian Transfusion System

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Haemovigilance aims to detect and analyze all untoward effects of blood transfusion in order to correct their cause and prevent their recurrence. It should ideally be comprehensive i.e. monitoring the entire transfusion chain from 'vein to vein'. However it initially commenced with reporting of untoward effects related to blood transfusion in recipients.

Transfusion of blood and its components are life supportive therapy for many hereditary and acquired disorders. They are also prescribed by most of the medical and surgical specialists. In many countries blood and its components are considered as drugs, while in others, biological products and thus like any therapeutic product have the potential to give to rise to adverse effects, some of which are life-threatening.

It is equally important to recognize, report and analyze adverse events of blood donation in donors. In the developed countries, the blood supply is entirely dependent on voluntary blood donors. In the developing countries the transition from replacement to voluntary blood donation is ongoing. Adverse events in donors can have a negative impact on voluntary blood donation. The healthcare professionals who collect, process and prescribe blood and its components and the regulators who exercise necessary control have a great responsibility to ensure both donor and recipient safety.

Haemovigilance may be performed at an institutional level to improve existing blood transfusion practices in the hospital, but this does not constitute a system. A Haemovigilance System is created only when adverse event data is collected through an organized network, reported to a central agency which analyzes the data and makes recommendations at the national level.

India has made a beginning. The Haemovigilance Programme was lauched on 10th December, 2012. It is a joint initiative of the Indian Pharmacopoeia Commission and National Institute of Biologicals. A guidance document for reporting transfusion related adverse events and the transfusion reaction reports form have been already been prepared

Details can be accessed from http://nib.gov.in

It is hoped that healthcare professionals would come forward whole heartedly to participate in the programmme for the ultimate objective of improving blood safety.

Best Practices

Haemovigilance for Optimizing Interest of Donors & Patients

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The transfusion of blood and blood components is an integral part of healthcare delivery system which is a life saving measure in many situations if used judiciously and appropriately. As blood and its various components are living tissues their administration is always associated with a number of risks. These risks may involve the donors or the recipients of these blood products. Keeping this in mind as well as to ensure the safety of blood a number of measures have been adopted from time to time.

Critical components to ensure this include: establishing guidelines to ensure the appropriate use of blood components, setting up auditing systems to monitor the usage of blood components and developing Haemovigilance programs to provide an independent oversight along the entire blood supply chain[1].

The risk assessment is one of the pillars of a correct decision in transfusion medicine. To know and to understand the real risk in a country, it is necessary to know the adverse events and reactions in this country accounted per units transfused and/or collected, in order to evaluate the probability of the occurrence of such situations.

Aims of Haemovigilance

The aim of Haemovigilance is to detect and analyze all untoward effects of blood transfusion in order to correct their cause and to prevent recurrence, thus improving the safety of blood transfusion. It implies methods[2].

- To make transfusion therapy safe for patient.
- To monitor the prevalence and incidence of various adverse events in recipients and blood donors.
- To compile adverse events-suspected or confirmed to be associated with blood transfusion of labile components, including transfusion errors and product related side effects.
- To demonstrate to the public, patients and professionals the safety of existing transfusion systems
- To offer rapid alert / warning procedures.

Benefits of haemovigilance to the recipients

The last 20 years have been witness to the Haemovigilance systems mostly in the developed countries. Blood transfusion in Europe is quite safe and notably that blood products are extremely safe. A lot of positive impacts have been observed in these years by the use of data gathered by these systems.

The majority of the serious adverse reactions and events that occur happen in the hospital part of the blood transfusion chain. Well established haemovigilance systems, such as AFS-SAPS in France, Serious Hazards of Transfusion (SHOT) in the UK and TRIP in Netherlands, have documented the success of various measures to even further improve the safety of blood products[3].

Positive impacts of Haemovigilance in recipients

- The data from the UK haemovigilance system Serious Hazards of Transfusion have drawn the attention to the fact that about 50% of these are due to administrative errors termed as IBCT (incorrect blood component transfusion) and to prevent this **Barcode Identification Technology** devised.
- SHOT highlighted bacterial contamination of platelets as important causes of death and morbidity which led to development of various bacterial development systems like use of the **Blood Deviation Pouch** during blood drawing from a blood donor to minimize the risk on contaminating skin bacteria.
- Use of data related to TRALI (Transfusion related acute lung injury) by SHOT over a period of time it was observed that the use of male only plasma could help prevent TRALI. After adoption of the use of **Male Only Plasma** the risk of highly likely/probable TRALI due to FFP has fallen from 15.5 per million units issued during 1999 through 2004 to 3.2 per million during 2005 through 2006 ($p = 0.0079$) and from 14.0 per million to 5.8 per million for PLTs. (Fig 1)

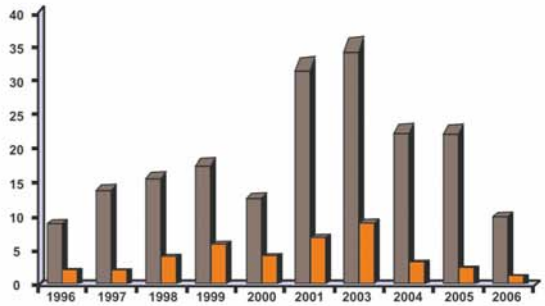

Fig.1 Rise and decline of TRALI as documented by SHOT[3]

The data gathered by SHOT helped in implementing universal leukoreduction (ULR) and resulted in decline in transfusion-related graft vs. host disease[3].

Benefits of haemovigilance to the blood donors

Efforts in transfusion medicine are traditionally focused on patient safety and donor haemovigilance is not well defined in most of the Haemovigilance systems. Donor Haemovigilance includes monitoring, analyzing, and researching factors related to the donation process. It includes various factors affecting the donor recruitment as well as the risks associated during and after the donation. The American Red Cross (ARC) initiated a comprehensive donor haemovigilance program in 2003. They provide an overview of reported complications after whole blood (WB), apheresis platelet (PLT), or automated red cell (R2) donation and analyze factors contributing to the variability in reported complication rates in the national program.

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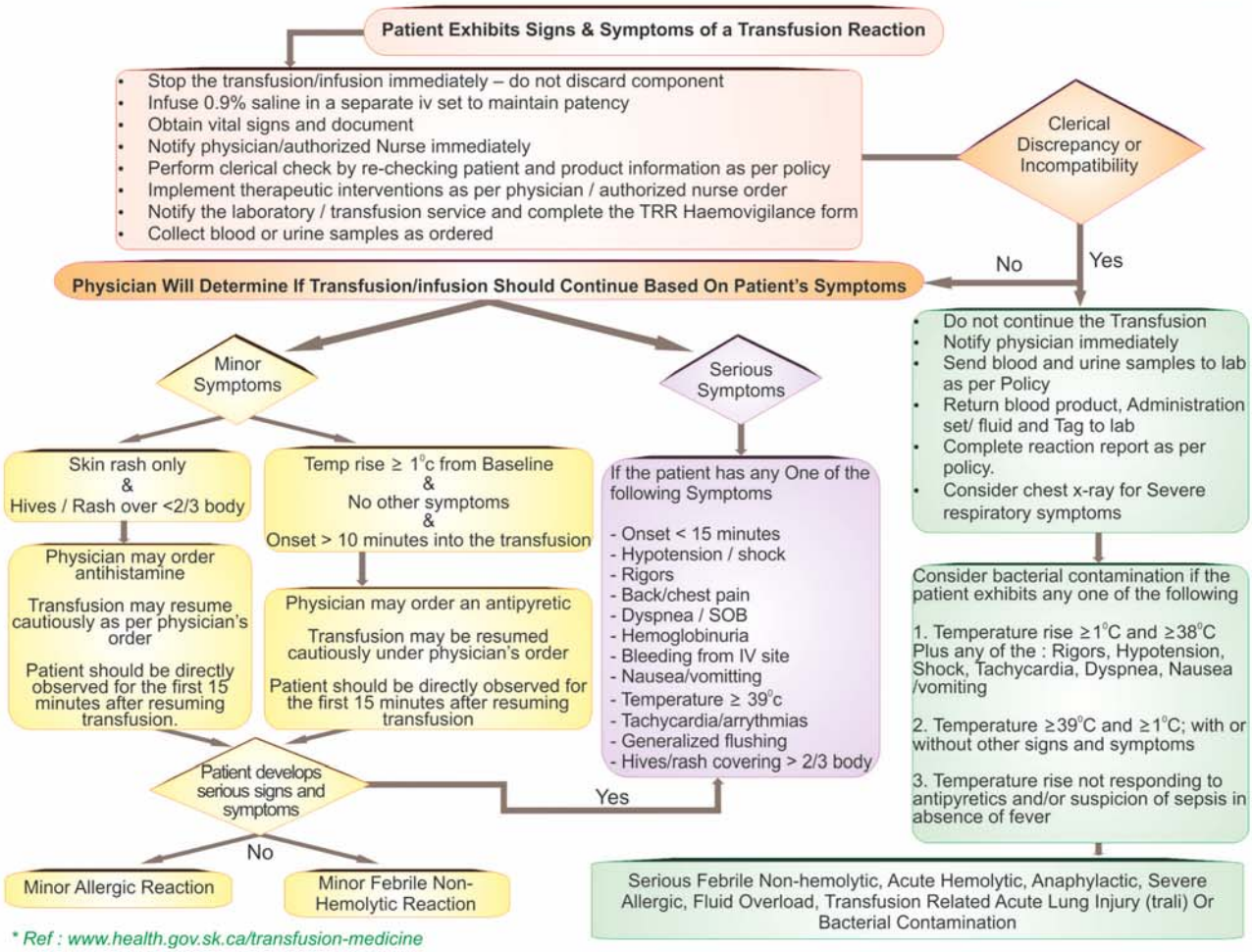
Transfusion Medicine Chronicles

1902 : Alfred Decastello and Adriano Sturli add AB to the blood classification system.

Blood Bank Chronicles Gallery

Transfusion Reaction Algorithm*



** Ref : www.health.gov.sk.ca/transfusion-medicine*

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Thus **"Donor Haemovigilance System"** is used to track and reduce the occurrence of adverse events associated with blood donation[4].

- Continuous monitoring of donors will help us to understand the factors which encourage them for donation to create– **voluntary donor pool**.
- Data obtained can help identify indicators to assess **donor recruitment**.
- One such set of indicators suggested by WHO
- Identifiable set of donor selection criteria
- Defined SOP
- Development of donor motivational program and donor counseling
- Help in planning **donor motivation programs** based on realistically assessed community needs, with clear objectives, keeping in mind the ethical issues.
- Monitoring and **reporting of adverse donor reactions** to enhance donor safety and will help identify reactions that go unnoticed.
- Thus donor haemovigilance on the long run it would help us in **donor retention** and giving them a better donation experience.

Donor haemovigilance not limited just to donor reactions but monitoring of materials and method too included in it. For eg; a faulty blood bag (kink in bag tubing) or a faulty technique (hematoma) might be responsible for a substandard product or discomfort to donor.

***References are not printed due to space constrain, for details please contact the author on Email Id: rkcchaud@sgpgi.ac.in**

1907 : Ludvig Hektoen, first to suggest the need of compatibility testing for donors and patients

Hospital Transfusion Committee - For Vigilance Support

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Haemovigilance at the local level is the responsibility of the Hospital Transfusion Committees which are established within individual hospitals to monitor various aspects of transfusion in order to promote safe and best transfusion practices. According to the World Health Organisation (WHO), "a transfusion committee should be established in each hospital to implement the national policy and guidelines and monitor the use of blood and blood products at local level. The committee should have authority within the hospital structure to determine hospital policy in relation to transfusion and resolve any identified problems." Hospital Transfusion Committees are generally composed of:

a. Institutional Representatives

-Members of the executive management

-Blood bank in charge or the Director of the Transfusion Medicine department

-Blood users which include representatives from the departments of surgery, medicine, haematology and anaesthesiology etc.

-Nursing Director or Supervisor

-Other relevant departments

b. External Representatives may include members of blood donor organisations like

-Indian Red Cross society member

-Invited or ad hoc members e.g. from NGOs

The primary objectives of the Hospital Transfusion Committee include promotion of transfusion safety and risk management and the promotion of best transfusion practices within the institute. (Table 1) Promotion of safety and risk management is achieved by reporting and prevention of human errors and adverse events; monitoring of near miss and sentinel events; traceability of all transfusion activities; implementation, documentation and monitoring of corrective actions; identification and intervention on problem-prone areas and ensuring that the standard operating procedures (SOPs) are followed for each step in the transfusion process; development, dissemination and review of transfusion policies; promoting education and training of clinical, laboratory and support staff and feedback of clinical incidents to both the Hospital Transfusion Committee and the specific hospital staff involved so that lessons can be learnt. (Figure 1) In order to promote the best practices in transfusion, the Hospital Transfusion Committee must carry out regular reviews of the Hospital Blood Transfusion Policy and ensure that the transfusion practices are in compliance with the national/institutional guidelines. This can be achieved by promoting the appropriate use of blood and blood components, use of alternatives to blood transfusion, regularly monitoring the institutional blood ordering practices, Maximum Surgical Blood Order Schedule (MSBOS), the use and wastage statistics and participating in national and local audits.

Table 1: Functions of a Hospital Transfusion Committee

Promotion of safety and risk management	Promotion of best practices in transfusion
• Reporting and prevention of adverse reactions • Monitoring of near miss and sentinel events • Traceability of all transfusion activities • Implementation, documentation and monitoring of corrective actions • Identification and intervention on problem-prone areas • Development, dissemination and review of transfusion policies • Promoting education and training • Feedback	• Regular review of the Hospital Blood Transfusion Policy • Compliance with national/local guidelines • Participate in both national and local audits • Monitoring of blood ordering practices & MSBOS, use and wastage statistics • Appropriate use of blood products • Alternatives to blood transfusion

In India, haemovigilance is largely focused on donor selection, collection and processing of blood, pretransfusion testing and on the immediate adverse events associated with transfusion. Moreover, transfusion reactions are generally under reported or not reported, especially in the case of standalone blood banks and there is lack of effective monitoring, promotion and implementation of the appropriate use of blood and blood components at the institutional, local and the national level. The various problems encountered in the implementation of an effective haemovigilance program in India, include non compliance, lack of data compilation, analysis, reporting and lack of feedback.

In order to build up a strong and efficient national haemovigilance system, it is essential to set up Hospital Transfusion Committees at the institutional level and to ensure that they perform their function effectively. This can be achieved by ensuring compliance to existing guidelines, motivating the executive management, continual education and training of the hospital staff, conducting periodic audits to monitor performance and providing regular feedback. The World Health Organization (WHO) has emphasised

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Transfusion Medicine Chronicles

1912 : Roger Lee proved O blood as universal donor and AB blood as universal recipient

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The pioneering work in haemovigilance, an important step towards blood safety was started in France in 1994 with the set up of national system of surveillance and alert[1]. Later, in 1995 a resolution was passed by European Council and soon haemovigilance was governed by legal authorities[2]. Subsequently with the establishment of European Haemovigilance Network (EHN) in 1998, haemovigilance became an integral part of blood safety program in majority of European countries at national level. Well functioning haemovigilance system in these countries- AFS-SAPS (France) ,SHOT (UK), TRIPP (Netherlands) documented the success of various measures to improve blood safety .With globalization of haemovigilance, and many non European countries joining EHN, it is now officially recognized as International Haemovigilance Network (INH) which presently has 28 members. In 2001 a unique international forum for expertise in haemovigilance was established as International Society of Blood Transfusion (ISBT) working party on haemovigilance. To bring uniformity in data collection, IHN in co-ordination with working party on haemovigilance has proposed definition on haemovigilance system[3].

A step towards international collaboration on haemovigilance has also been taken by World Health Organization (WHO) by constituting Global Steering committee (GloSCH). Its main goal is to facilitate the development and implementation of haemovigilance in developing countries through collaboration with experts from IHN and ISBT working party on haemovigilance.

To further maximize the safety of donors and recipients an International database – International Surveillance of Transfusion Associated Reactions and Events has been developed (http:/www.inh-org.com/haemovigilance database/istare-2), where in the haemovigilance data can be shared across the world.

As per WHO Global Database Report on Blood Safety ,the national haemovigilance system is present in 42(40%) of the 105 reporting countries, with 24 countries (23%) being in the process of development of such a system. 39(37%) countries do not have a national haemovigilance system[4]. There is significant difference in haemovigilance system around the world. The existing systems differ with regard to their legal status (mandatory vs voluntary), their reporting system (all events vs very serious reaction), their organization (centralized vs Decentralized) and their regulatory authorities (government vs. societies)[5]. However, the implementation of new European Blood Directive (2005/62/EU) has further strengthened the haemovigilance system in Europe. It has stimulated the development of haemovigilance system in countries without a functioning system. In other countries (UK and The Netherlands) where reporting system was voluntary, the reporting of serious transfusion reaction has become mandatory[1]. As per recent report of a survey on current state of practice in Europe, currently there is wide variation in data quality assurance, not allowing comparison between countries[6].

In USA, there is no official haemovigilance system but it is obligatory to inform all fatal transfusion reaction to Food and Drug Administration (FDA)[7]. Countries like Canada, Australia and New Zealand have well established haemovigilance program but the reporting system is voluntary.

Among the Asian countries Japan has already taken the lead by having a well developed haemovigilance system since 1990 but in other Asian countries an established system is lacking. In India a national haemovigilance system has been launched on December 10, 2012 with a road map of 5 years. This program is an integral part of pharmacovigilance program of India[8]. Similarly haemovigilance program has also kicked off in Singapore and Arabian countries (Arab Haemovigilance Network) There is paucity of data regarding transfusion incidents in African countries. Only three countries (Code d'Ivoire, Morocco, and South Africa) in the country have a national haemovigilance system. [9]

Haemovigilance system can significantly contribute to evidence based medicine as well as help to introduce new and or access the existing blood policies. There is need to strengthen and to bring uniformity in the haemovigilance system globally.

*For References : Contact the author on Email Id: rkbedi15@yahoo.com

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on the following guidelines to ensure effective reporting of adverse incidents and to increase patient safety:

- Learning from previous failures of the healthcare system.
- Individuals who report incidents must not be punished.
- Data analysis and feedback of findings and necessary recommendations to prevent further failures.
- Responsibility of the supervisory agency to disseminate timely information about the recommendations for changes and the development of solutions.

Therefore, the current challenges in transfusion medicine like promotion of safety and best practices at the local, national and global level can only be addressed through emphasis on appropriateness and alternatives to transfusion, reporting of transfusion related adverse events, root cause analysis, traceability and look back, development and dissemination of evidence based recommendations and guidelines.

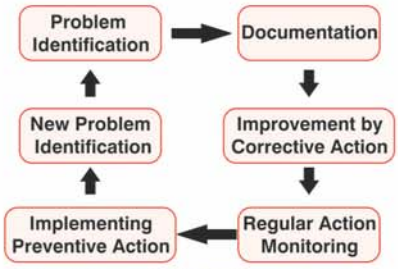


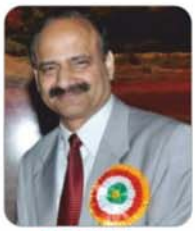
Figure 1: Hospital Transfusion Committee process related to safety

This requires a sound, efficient and effective centralised system of haemovigilance with institutional Hospital Transfusion Committees at its core.

*References are not printed due to space constrain, for details please contact the author on Email Id: makroo@apollohospitals.com

Expert Speaks

Challenges Ahead : The Vigilant Indian Transfusion System



Dr. T. R. Raina,
Former Professor & Head
Department of Transfusion Medicine
Govt Medical College Jammu
Secretary General
ISBTI National Governing Body

Blood Transfusion Service is an important component of modern health care delivery system. Everyday millions of people require blood transfusion. Most of the transfusions save the lives but they can also put the recipient on risk of getting transfusion transmitted infections if the blood is contaminated. Over the last 20 years the incidence of TTI has decreased significantly because of greater attention and strict criteria for the selection of blood donor and screening of the blood but still it is a fact that no blood unit is 100 % safe. Managing blood transfusion services involves donor management, blood collection, testing, processing, storing, issue of safe blood and blood products when clinically needed, and staff training. The actual blood transfusion is given in the hospital wards & operation theatres and special precautions need to be taken in these areas. Most of the errors occur at the bedside in the process of identification of the patient, wrong labelling of blood sample test tubes putting the patient at high risk of morbidity and many times mortality. To overcome this situation a haemovigilance programme is needed.

The information generated through the Haemovigilance system is a key to bring about required changes in the transfusion policies, improve transfusion standards, assist in the formulation of transfusion guidelines and thus to increase the safety and quality of the entire Blood transfusion Services.

Blood Transfusion Services in India

In our country , authorities concerned with the organization and administration of blood transfusion services include Central, State, and Autonomous Government Institutions, Municipal Corporations, Cantonment Boards, Railway Services, Armed Forces, Red Cross Society, private and non-government organizations.

The licensing of blood banks is under the dual authority of the State and Central Governments. The State Licensing Authority issues the license after getting its approval from Drug Controller General, India which acts as Central License Approving Authority. Voluntary non-remunerated blood is in short supply. Clinical use of blood is not monitored and the percentage of use of blood components is very low with the result many transfusions are given irrationally providing little or no benefit to the recipients wasting a scarce resource that may result in a shortage of blood and blood products for the patients in real need.

Haemovigilance Programme in India

Haemovigilance Programme was launched on 10th December, 2012 in already enrolled 60 Medical Colleges as an integral part of Pharmacovigilance Programme of India. National Institute of Biological is the Coordinating Centre, which shall collaborate & analyze data with respect to Biologicals & Haemovigilance

A Core Group & Advisory Committee in this regard has already been constituted and first meeting of advisory committee was held on 29th Nov, 2012 to finalize Haemovigilance Transfusion Reaction Reporting Form (TRRF) & Guidance Document. The committee also discussed the modalities & roadmap for implementation of other Terms of References.

Challenges ahead in implementing the Haemovigilance Programme in India

Though the Haemovigilance programme already stands launched in our country on 10th of December, 2012, there seem to be many problems/hurdles in implementing this programme fully at the ground level which need to be tackled at the appropriate levels. The progamme needs to be implemented very slowly and steadily with full commitment, will power and coordination with all the stakeholders. Following seem to be the challenges ahead in implementing Haemovigilance programme in our country.

1. Inadequate knowledge / Ignorance among the staff/personnel working in the Blood Banks and also the Blood Users:- Most of the staff members including doctors , laboratory technologists and nurses working in the Blood Banks across the country are not aware about the concept of Haemovigilance. There is an urgent need of providing them the awareness about Haemovigilance which could be in the form of CMEs, Awareness Lectures, Seminars, and Symposium etc. To begin with few of enrolled Medical Colleges in the country may be taken up for this awareness Programme and acquainted with the guidance document.

2. Ignorance/fear of punishment for informing Blood Transfusion Reactions/Adverse effects of Blood transfusion

Most of the health providers like doctors, Nurses, Medical Assistants and others who are involved in the actual process of blood administration have fear in their mind that if they inform about the Adverse effects of blood transfusion, they shall be punished and legal proceeding shall be initiated against them, with the result majority of the blood transfusion reactions are not notified and the concerned authorities are not informed. Again there is need of imparting awareness regarding guidelines for Blood administration and the confidentiality of the patient as well as the concerned health provider who takes initiative in informing about the Blood Transfusion reaction should be maintained and he/she should not be punished. This will encourage the blood users in reporting such events and they will learn more and more in this regard.

3. Inadequate maintenance of Blood Transfusion Reactions records in the Blood Bank/Blood Centre. As per Drug and Cosmetic Act it is mandatory to maintain a record of all adverse transfusion reactions in a more efficient manner but majority of Blood Banks do not strictly adhere to this policy. This needs to be taken care of. In this regard it is suggested that Institutional Guidelines should be prepared and followed strictly and all the staff members of the Blood Bank be made aware about this.

4. Hospital Transfusion Committees: the constitution and functioning of hospital transfusion Committees needs to be strengthened across the country.

5. Interaction/coordination between the blood users and blood

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Transfusion Medicine Chronicles

1943 : J.F. Loutit and Patrick L. Mollison developed ACD solution for longer-term storage

Blood Bank Chronicles Important Links

British Committee for Standards in Haematology (BCSH)	www.bcshguidelines.com
UK Serious Hazards of Transfusion scheme (SHOT)	www.shotuk.org
International Haemovigilance Network	www.ihn-org.com
U.S.A - United States Pharmacopoeia	www.medmarx.com
National Health & Medical Research Council of Australia (NHMRC)	www.nhmrc.gov.au
National Institute of Biologicals (NIB)	http://nib.gov.in

Quiz

Q. What does the abbreviation ISTARE means?

a) Indian Society of Transfusion Adverse Reaction Events
b) International Surveillance of Transfusion-Associated Reactions and Events
c) Institute of Adverse-Reaction Reported Events
d) International Society of Transfusion Adverse Events

To enroll yourself for the lucky draw, Send us the Mail to us on supportggn@remilabworld.com

you have to type the following

1. Mention the subject = Lucky Draw Registration
2. Type the correct option in the mail
3. Mention your mobile no., Blood Bank Name & Contact details

Send the Answer for the question to us to win lucky draw (5 Nos) : - *Last date of enrollment : 31st Mar 13*

Transfusion News Track

Haemovigilance Programme - A Govt of India Initiative

Indian Pharmacopoeia Commission in collaboration with National Institute of Biologicals has launched a Biovigilance programme (BvPI) including Haemovigilance across the country under its Pharmacovigilance Programme of India (PvPI) with following Terms of References :

- To track Adverse Reactions/ Events and incidence associated with Biologicals, Blood transfusion and Blood product administration (Haemovigilance) as well as tissue organ and cell therapy transplantation.
- To help identify trends, recommend best practices and interventions required to improve patient care and safety, while reducing overall cost of the healthcare system.

Haemovigilance Programme was launched on 10th Dec 2012 in already enrolled 60 Medical College under PvPI as an integral part of Pharmacovigilance Programme of India NIB is the Coordinating Centre, for BvPI to collate & analyze data with respect to Biologicals & Haemovigilance. A Core Group & Advisory Committee in this regard have already been constituted and first meeting of advisory committee was held on 29th Nov, 2012 to finalize Haemovigilance Transfusion Reaction Reporting Form (TRRF) & Guidance Document. The committee also discussed the modalities & roadmap for implementation of other Terms of References.

http://nib.gov.in/haemovigilance.html

WHO May Add Blood to Model List of Essential Medicines

An application to include whole blood and red cells on the World Health Organization's "Model List of Essential Medicines" has been submitted and will likely be discussed at an expert committee meeting in April 2013. The current list contains no labile blood components, despite the important and often life-saving role of red cell transfusion in multiple areas of healthcare. Klein notes that red cell transfusion has been shown to have a therapeutic index greater than many common medications, & that a reliable supply of safe blood is essential in developed as well as developing countries. This will help to increase awareness & govt's additional support.

Ref: New England Journal of Medicine 2013;368: 199-201

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providers: There is lack of interaction and coordination between the blood users and the blood providers which is a very vital component for the implementation of Haemovigilance programme. This can be achieved by facilitating the interaction between the two stakeholders at weekly or monthly basis wherein the problems faced by both the sides be discussed and the solution found out.

6. Concept of Blood Storage Centre: As per guidelines issued by Ministry of Health and Family Welfare Government of India the BSCs may be set up in the CHCs and other health care institutions where setting of a Blood Bank is not possible and these BSCs should be attached with a Mother Blood Bank for the purpose of provision of blood/ blood components. For the successful implementation of Haemovigilance Programme these BSCs should also be involved in the process of implementation..

7. Confidentiality: Confidentiality in respect of Health Care Institution, Health Care Worker involved and especially the patient should be maintained so as to achieve success in the implementation of the Haemovigilance programme.

8. Learning from the countries who have already implemented the Haemovigilance programme : We should also seek guidance from the countries where this programme has already been implemented successfully but at the same time local conditions of the area be kept in mind before the start of this programme

9.Other steps need to be taken care of : Regular training of staff for good clinical practices in blood transfusion, maintenance of transfusion records and rapid recognition and reporting of transfusion related adverse events.

1950 : Audrey Smith successfully freezes red blood cells using glycerol cryoprotectant.

Facts Compendium

From ISBT Table of Reportable Serious Adverse Reactions

Serious Adverse Reactions	Clinical Features	Laboratory Features
Immunological Haemolysis due to ABO incompatibility	Fever, chills/rigors, facial flushing, chest pain, abdominal pain, back/flank pain, nausea/vomiting, diarrhoea, hypotension, pallor, jaundice, oligoanuria, diffuse bleeding, dark urine, decreased haemoglobin levels. Reactions may occur within 24 hours (acute) or may not manifest for up to 28 days	Haemoglobinuria, decreased serum haptoglobin, unconjugated hyperbilirubinaemia, increased LDH and AST levels. Blood group serology shows ABO incompatible between recipient and donor.
Immunological Haemolysis due to allo-antibody		As above but blood group serology shows either allo-antibodies to donor red cells or auto-antibodies in the recipient
Non-immunological haemolysis		As above but due to non-immunological, mechanical factors such as malfunction of a pump or warmer, or due to hypotonic solutions
Transfusion transmitted bact. infection.	Fever, rigors and joint pain with no evidence of symptoms pre-transfusion or alternative source of infection.	Positive cultures from recipient and donor pack or at least one component received shown to contain the agent of infection
Anaphlaxis / hypersensitivity	Very shortly after Mucocutaneous signs and symptoms including urticaria, rash, pruritus, localised angioedema, oedema of lips, tongue, uvula and conjuctiva with airway compromise or severe hypotension requiring vasopressor treatment . Respiratory symptoms may be laryngeal or pulmonary	Rising mast cell tryptase levels or IgA deficiency and/or anti- IgA in the recipient
Trans. related acute lung injury(TRALI)	Hypoxaemia, bilateral infiltrates on frontal chest X-ray, no evidence of TACO, no temporal relationship to an alternative risk factor for ALI during or within 6 hours of completion of transfusion.	Evidence of anti-HLA or anti-HNA antibodies in recipient with incompatibility between donor and recipient.
Transfusion-transmitted viral infections (HIV, HBV, HCV & oth)		Include only if the recipient exhibit infection post-transfusion with no evidence of prior to transfusion or alternative source, PLUS at least one component received or donor was shown to contain the agent of infection
Post transfusion purpura	Bruising, severe haemorrhage, oozing wounds. within 5-12 days of transfusion.	Thrombocytopenia (5-12 days post transfusion) & anti-HPA antibodies present
Graft versus host disease	Fever, rash, liver dysfunction, diarrhoea. with in 1-6 weeks after transfusion.	Pancytopenia, characteristic histological appearances on bone marrow biopsy, bone marrow hypoplasia, chimerism
Other Serious Rreactions	Febrile non haemolytic transfusion reactions (FNHTR), Transfusion associated circulatory overload (TACO), Transfusion associated dyspnea (TAD)	

Humor

Quotes

"Seven days without laughter makes one weak". - Joel Goodman

"Laughter is part of the human survival kit". - David Nathan

Unexpected to Hear During Surgery

A List of Things You Don't Want to Hear During Surgery:

- Oops! Has anyone seen my watch?
- Damn, there go the lights again...
- Everybody stand back! I lost my contact lens!
- Well folks, this will be an experiment for all of us.
- Let's hurry, I don't want to miss "Baywatch"
- FIRE! FIRE! Everyone get out!
- Wait a minute, if this is his spleen, then what 's that?

Last Quiz Winners

Dear Customer,
We are happy to announce that lucky draw winners of inaugural issue quiz are as follows: -

1. Dr. Sanjay Upreti (Meerut)
2. Dr. Amit Agarwal (New Delhi)
3. Dr. Idaris Khakhu (Jamnagar)
4. Dr. Bhokal Raviraj (Ahmednagar)
5. Dr. P Prasanna (Bangalore)

Congratulations to All the Winners!!!
Your gift will reach to you in next 15 days.