



BLOOD LINE

THE *voluntary* BLOOD DONATION JOURNAL

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UNIVERSAL LEUKODEPLETION

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During the past 100 years, transfusion medicine has developed by leaps and bounds through improvements in technology to increase safety of blood transfusion. By early 1980s, blood transfusion got revolutionized as various components stored in anticoagulant solution could be transfused.

Ensuring safe blood for transfusion not only implies thorough testing for transfusion transmitted infections, but also protection from all the adverse reactions associated with transfusion. Leukocyte reduction represents advancement in the technology of blood component preparation to improve the safety of blood products.

Blood contains red blood cells, platelets, white blood cells (leucocytes) and plasma. Leukodepletion is a process by which white blood cells are removed from donated blood. Average content of leucocytes in donated human whole blood is around 109 per unit. By the current standards, total leucocyte content in a blood unit should be less than 5×10^6 after preparation, with a minimum of 85% of whole blood or red cells retained.

Why should we use leukocyte reduced blood products?

Despite careful donor selection and extensive testing, transfusion of blood products is associated occasionally with adverse reactions and other complications.

There is increasing evidence that some of these may be attributable to the presence of leukocytes in donor blood.

The use of leuko reduced blood components has thus been recommended as preventive intervention.

Clinical benefits of leukocyte reduction:

Established Indications:

1. Reduction in Febrile non Hemolytic transfusion reaction(FNHTR).

Decreases the frequency of recurrent febrile nonhemolytic transfusion reaction(FNHTR). A condition in which the recipient manifests with fever, shaking chills which subsequently leads to stoppage in transfusion of the product, which could be a rare group blood product. In a published report by Col Harsh Kumar et al AFMC, Pune introduction of leucodepletion of blood for thalassemics the incidence of febrile non haemolytic transfusion reactions (FNHTR) fell from

4% in 2002 to 1% in 2003.

2. Reduction in HLA Alloimmunization
Leucocytes are held responsible for alloimmunization, a process by which a recipient develops an antibody against an antigen present on the Rbcs or platelets which subsequently leads to a difficulty in finding a compatible unit. Leucoreduction as proven in studies does show benefits in repeatedly or multiply transfused patients and transplant recipients i.e renal, heart, or lung transplantation and those with aplastic anemia awaiting stem cell transplantation, chemotherapy. With the introduction of Universal Leuko Depletion (ULD) there are reduced chances of receiving leucocyte-containing transfusions, and hence future transplant patients may show less alloimmunization, possibly resulting finding donor fastly and easily.

3. Decrease risk of transmission of viruses:
Decrease risk of transmission of viruses, especially Cytomegalovirus infection which manifests as chorioretinitis in infants, jaundice, hepatosplenomegaly, thrombocytopenia, haemolytic anemia, rejection of the allograft. Candidates for CMV infection through blood transfusion are low-birth weight premature neonates who frequently need small-volume blood transfusions and immune suppressed patients(hematopoietic transplantation patients, solid-organ transplants patients, cancer patients on chemotherapy).

Other indications are:

- Prevention of bleeding due to platelet refractoriness (less increment in platelet due to development of antibodies during previous transfusions against platelet antigens).
- Prevention of post operative bacterial infection.
- Prevention of bacterial overgrowth of yersenia enterocolitica in stored red blood cells
- Improved outcomes in cardiac surgery

Modes of leukoreduction:

Centrifugation and buffy coat removal, Cell washing, Freezing and Deglycerolisation, Apheresis, Leucocyte filters.

Leukoreduction filters are less expensive as compared to other methods as automated cell washing, freezing and de-glycerolisation. It has therefore emerged as an effective and reliable

way for leucodepletion. Advances in filtration techniques and type of filters have resulted in reducing WBCs in red cell and platelet concentrates to 99.9 percent (less than 5×10^6 WBC per unit) and more.

Indications for leukodepletion:

- Fetal and neonatal transfusions
- Bone marrow transplantation patients
- Solid organ transplant recipients
- Patients with platelet refractoriness.
- Rare blood group patients needing transfusion.
- Patients needing recurrent transfusion such as thalassemics, sickle cell anemia, hematology patients.
- Immunosuppressed patients (cancer patients on chemotherapy).

Approx leucocyte count of blood component per unit.2

Fresh whole blood	109
RBC concentrates	108
RBC washed	107
RBC deglycerolized	106-107
RBC leukocyte depleted (by filtration)	<5X10 ⁶
Platelet apheresis	106 - 108
Platelet leukocyte reduced	<8.3X10 ⁵
Fresh Frozen Plasma	<104

Universal leukocyte reduction:

Most of the European countries and UK, Canada follow 100% "Universal Leucodepletion" for all blood products. In developing countries like India, cost is the major hurdle for use of universal leucodepletion of blood products, but in multiply/recurrently transfused patients the cost of leucodepletion is worth. In last 10 years, worldwide increased use of leucodepleted blood and blood products has played a major role in the management of transfusion reactions and HLA-sensitisation. To conclude, the goal should be to constantly prepare leucoreduced blood products as far as possible so that blood transfusion becomes a saferpractise.1

Bibliography:

- 1) Col Harsh Kumar et al AFMC ,Leucodepletion and Blood Products,MJAFI, Vol. 62, No. 2, 2006
- 2) Rossis,Principle of transfusion medicine, 6th Edition.

WORLD AIDS DAY OBSERVANCE INAUGURAL FUNCTION



Dr.S Karthikeyan, Sub Collector,
Trivandrum -Inauguration and
Inaugural Address



Mr. B Harikrishnan,
General Manager(MFG),
TERUMO PENPOL- Presidential Address



Dr.P V Sulochana, BTO,
SCTIMST- Keynote Address



Ms.Deepa Andapadmanabhan,
President, SARSAS-
Welcome Address



Mr. Anand P S, ALL KERALA
ILAYATHALAPATHY DR.VIJAY FANS
ASSOCIATION

TERUMO PENPOL OBSERVED WORLD AIDS DAY IN ASSOCIATION WITH ALL KERALA ILAYATHALAPATHY DR.VIJAY FANS ASSOCIATION AND SARSAS ON 1 DECEMBER 2015

World AIDS Day was observed at Sri Moolam Club on 1st December with Sub Collector Dr S Kathikeyan inaugurating the event. The event was organized by Terumo Penpol, ALL KERALA ILAYATHALAPATHY DR.VIJAY FANS ASSOCIATION and SARSAS. "The biggest challenge that an AIDS patient suffers is from social stigma. It needs to be ended. There is still no cure for AIDS, but through proper treatment, the effects can be suppressed and the person can still lead a good, productive life," said sub collector S Karthikeyan. Dr P V Sulochana, Blood Transfusion Officer at Sri Chitra Tirunal Institute of Medical Sciences and Technology (SCTIMST) delivered the key note address. "We best trust our own blood. Then we trust blood that has been voluntarily

donated, because when it is done voluntarily the person is doing it to help others. Voluntary blood donation has to be made more popular to help save lives," she said.

A blood donation camp was organized with the support of ALL KERALA ILAYATHALAPATHY DR.VIJAY FANS ASSOCIATION. Sub Collector Dr. S Kathikeyan also donated blood as part of the event. Prizes were distributed to Cotton Hill Higher Secondary School and Govt Girls Higher Secondary School, Peroorkada for organizing blood donation camps through the year. The Collector also distributed certificates to the repeat regular donors of ALL KERALA ILAYATHALAPATHY DR.VIJAY FANS ASSOCIATION. A magic show was organized to create awareness on Blood Donation.



Girl Students in the forefront to promote Voluntary Blood Donation-TERUMO PENPOL recognized Cotton Hill Higher Secondary School and Govt. Girls Higher Secondary School Peroorkada for organizing Blood Donation Camps

Cotton Hill Higher Secondary School and Govt Girls Higher Secondary School Peroorkada were recognized by TERUMO PENPOL for organizing Blood Donation Camps at their Schools. We do see the girls of these Schools enthusiastic about donation but with woefully low hemoglobin values. Motivating blood donors can be coupled with promoting awareness about the importance of an iron rich diet. This, in turn, can help in the prevention of anemia and increase the percentage of female donors, over time (under 2% in our set up at present).

Social awareness campaigns regarding blood donation should start early and aim at dispelling the myths and misconceptions surrounding blood donation, while promoting the concept of regular voluntary blood donation. Anyone working in this field will vouch for the fact that the most wholehearted response to blood donation camps is always from the young student population and once motivated they are donors for life. Camps in Colleges and Schools bring to the forefront students' spirit of unity, their humanity and their creativity, all of which are seen in their spirited response, as well as in their captions and slogans.

It also brings to light the glaring gender inequity in voluntary blood donation.

The lack of awareness relates not only to being misinformed but also to being unaware of the need to donate. Many times we have heard the refrain: "I have never been asked to donate." Frequent messages displayed in prominent public places, supported by famous personalities, can go a long way towards inspiring "walk in" voluntary blood donors. Camp organisers can also adopt the policy of an ongoing programme where a certain number of donors are sent to donate every month. This will ensure a steady supply instead of the "flood" and "drought" situations that blood banks often have to cope with.



REPEAT REGULAR DONORS OF VIJAY FANS ASSOCIATION HONORED ON WORLD AIDS DAY

TERUMO PENPOL focused on thanking blood donors of Vijay Fans Association who saved lives every day through their blood donations and strongly encourages more people to donate blood voluntarily and regularly. Dr. S Kartikeyan, the Sub Collector of Trivandrum distributed the certificates to the repeat regular donors.



Dr. S Kartikeyan, Sub Collector of Trivandrum - A True Hero Donating Blood as part of World AIDS Day

Dr. S Karthikeyan Sub Collector, Trivandrum topped with third rank in the State Board medical exam felt that joining civil services would end him to serve the society better than being in the medicine.

Dr. S Kartikeyan is a repeat regular blood donor. We thank Dr. S Karthikeyan for taking out time from his busy schedule to become a valuable part of the small percentage of the blood donors. Blood donation is the act of giving life. His one hour spent in donating the blood is going to give life to someone in need. One cannot make blood, it is a gift we all have inside of us to give to those who are injured, sick, or in need. There's no doubt that the need is huge.



A blood donation costs nothing but gives much; it enriches those who receive without making poor of those who give. It happens in a flash. But the memory of that gift will last forever. None is so rich and mighty that it can get along without it and none is so poor that it cannot be made rich by it. It cannot be bought, begged, borrowed or stolen. For a blood donation is of no earthly good to anyone until it is given away.

Ms. Geetha N S , Botany Teacher of Govt Girls Higher Secondary School, Peroorkada - A True Heroine



Ms, Geetha N S , Botany Teacher of Govt Girls Higher Secondary School, Peroorkada donated blood at the blood donation camp organized as part of World AIDS Day Observance. Thank you for demonstrating such a genuine commitment to our community and helping the blood banks assure a safe and adequate blood supply.

Most people donate blood because they want to help others, and, indeed, donating blood a single time may help save the lives of up to three people. Why don't more people donate blood on a regular basis? According to WHO Survey , the most common reasons given by people who don't give blood are because they "never thought about it" or "don't like needles."

It may be time to start thinking about it today, or muster up the courage to overcome your fear of needles, as giving blood doesn't only help others... it helps you too.

Letters To The Editor



Excellent issue Baby! Love the article on myths and facts by Dr Sharad Jain. Can you give me his phone number so that I can take his permission to use this article in our education brochure.
Regards,
Dr Jyotsna Codotty
HOD, Blood Bank, Malar Hospital, Chennai

We would request you to send us one hard copy of your newsletter for our library which is shared by many,
Debabrata Ray
Association of Voluntary Blood Donors
West Bengal

Excellent design of the journal. Happy to see it;
Cheers
Shijo Xavier
Engineer, VSSC

Dear Baby,
Thank you for composing and sending your Blood Line Journal to us in the USA. I'm always interested in the progress of increasing voluntary blood donation in India.

I hope that the article that I wrote for your journal a few years ago, encouraging Rotary Clubs in India to sponsor blood drives, has helped to increase the number of groups such as Rotary to support the programme.

My Rotary Club in Vineland, New Jersey USA has sponsored 64 blood drives during the past 19 years. We sponsor 4 blood drives every year, so that donors become accustomed to giving regularly. Regular follow-up assures many repeat donors. I was particularly interested in your article about encouraging young people to donate. In our country, the American Red Cross regularly conducts blood drives at high schools and colleges. This is very effective in creating a habit of lifetime donation with young people.

Our Rotary club in Vineland, New Jersey USA sponsors several Interact clubs. These are clubs in schools, dedicated to generating the ideals of Rotary in students. I've asked for one of our student members to prepare an article to send to you.

We intend to stress motivation for volunteer blood donation among students in the article, and show how we do it here. I thought that an article composed by a student might be particularly motivating to students and faculty sponsors in India.

Ronald McMahon
Rotary Club of Vineland, New Jersey USA

Magic Show To Promote Blood Donation





People Making a Difference - Arun Gokuldas

Most people who attended the Breeks Habba were intrigued by this savvy gentleman wearing a navy blue coat covered with an array of badges in different shapes and sizes. Many people went up to him and asked him about his 'multi-hued coat' and the story behind it. He very patiently explained about it to all the curious questioners. He lived with ten different families and he noticed that most of the parents of the children that he lived with were voluntary blood donors. He was only fifteen years old and his desire to join the Life Saver's club was turned down as the age bar was fixed at eighteen years! He made up his mind to donate blood when he turned eighteen. He was a little apprehensive but the nurse who injected the needle into his vein was very good! Later, he was given a cup of tea along with some biscuits. He was told to abstain from lifting heavy objects- only for that day. With God's Grace, he has never looked back after that day! He donated blood three to four times a year regularly. When he turned sixty he was not allowed to donate blood despite the fact that his hemoglobin level was 13+ and his blood pressure was 120/80! He was taken in by the Indian Medical Association- Coimbatore- as the Honorary Liaison Officer and 'blood donor motivator'. He continued to donate blood at the IMA till he was sixty five years old! From the age of sixty to sixty three, he donated blood three times a year and from the age of sixty three to sixty five- twice a year. His Blood donation score is 156 in the last 46 years!

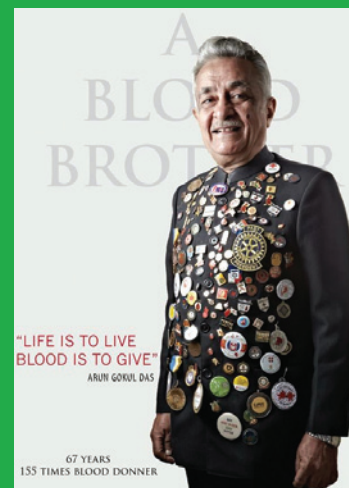
In his opinion every healthy adult should voluntarily donate blood at least twice a year. It is indeed a shame that we have to beg young adults to donate blood. Invariably there is a shortage of blood in every blood bank in our country. Patients with blood disorders like Thalassemia require blood transfusions very often- at times twice a month. Haemophilia is another blood disorder where clotting does not take place if a person is injured. Factor 8 has to be given to these patients or else they bleed to death. Most people here in India think that they will become weak if they donate blood. Try and avoid donating blood at mega blood donation camps, especially if you are donating blood for the first time. Nobody can get Aids or Hepatitis by donating blood. Never get a tattoo done on your body. In Western countries people do not take blood from a person who has a tattoo because the needles used on him/her are not safe- they are used on many people and no

one knows whether they have been sterilized. Arun Gokuldas said on a philosophical note-," As life is to live, blood is to give! Oh what is this life so full of strife if we don't have time to stop and give!"

Incidentally, the badges on Arun's coat are from the numerous Rotary programmes that he has attended and also from blood donation camps and the Red Cross organizations all over the world! Age hasn't deterred him from continuing his service to humanity. Recognizing Arun's contribution, the Indian Red Cross Society and others had honored him.

He said blood donation has become part of his life." His wife Vandana and two daughters - Kavita and Sarita - make it a point to donate blood. Not to be left behind are his elder brothers - Suresh Gokuldas and Pratap Gokuldas - who are also voluntary blood donors. Arun is also the honorary advisor for Indian Medical Association Rotary Blood Bank. As an active member of Rotary, he had conducted several blood donation camps and blood grouping camps. Recognizing his services, Arun was invited by International Red Cross and Red Crescent Society to take part at the ninth global meet held in Beijing in 2004 and again to the Eleventh International conference held in Cairo, Egypt in 2008. Added to this, he was awarded the Man of the Year 2000 award by American Biographical Institute as a token of his service to humanity.

Thank you so much Arun Gokuldas. You have helped save many lives in this country, may your tribe increase!



Platelet Donation Awareness drive was held in Bandra (W) on 8th December 2015 by Nargis Dutt Memorial Charitable Trust , at MMK College Mumbai

The camp was attended by approximately 90 students. Dr. Kishore Jha from Mahatma Gandhi Blood Bank, encouraged the students to donate platelets and save lives. There was an interactive round of Questions and Answers.



Four Benefits of Giving Blood

Someone needs blood every two seconds, so if you're up for doing a good deed, donating blood is a phenomenal choice. Blood donations are needed each day, and because blood cannot be manufactured, the only way to supply this need is via generous blood donors. It's certainly an altruistic act... but it's also one that offers important yet little-discussed benefits.

1. Balance Iron Levels in Your Blood

For each unit of blood donated, you lose about one-quarter of a gram of iron.

You may at first think this is a bad thing, since too little iron may lead to fatigue, decreased immunity, or iron-deficiency anemia, which can be serious if left untreated. This is common in children and premenopausal women. But what many people fail to realize is that too much iron can be worse, and is actually far more common than iron deficiency (especially in men and postmenopausal women).

So for many, the fact that donating blood helps to rid your body of excess iron is one of the greatest benefits it offers. It has been long known that menstruating women have fewer heart attacks. This was previously thought to be due to hormones but is now thought to be due to lower iron levels. Similar to premenopausal women, blood donors have been found to be 88 percent less likely to suffer from a heart attack, and this is thought to be due to its effects on iron levels. Researchers explained:

"Because high body iron stores have been suggested as a risk factor for acute myocardial infarction, donation of blood could theoretically reduce the risk by lowering body iron stores."

Interestingly, in a study published in the April 2013 issue of American Journal of Public Health, researchers found that statin cholesterol-lowering drugs improved cardiovascular outcomes at least partially by countering the pro-inflammatory effects of excess iron stores.

In this study, the improved outcomes were associated with lower ferritin (iron) levels but not with "improved" lipid status. Researchers concluded iron reduction might be a safe and low-cost alternative to statins, and according to logic this means that donating your blood, which reduces iron, could potentially help too.

2. Better Blood Flow

Do you know what a high-sugar diet, smoking, radio frequencies, and other toxic electromagnetic forces, emotional stress, anxiety, high cholesterol,

and high uric acid levels do to your blood?

All of these make your blood hypercoagulable, meaning it makes it thick and slow moving, which increases your risk of having a blood clot or stroke. Hypercoagulable blood contributes to inflammation, because when your blood does not flow well, oxygen can't get to your tissues.

For example, early (and some current) birth control pills were notorious for causing heart attacks in women. One of the mechanisms that cause this increased risk is that synthetic estrogens and progesterones increase blood viscosity.

Repeated blood donations may help your blood to flow better, possibly helping to limit damage to the lining of your blood vessels, which should result in fewer arterial blockages. (Grounding can also help to thin dangerously thick blood.) Phillip DeChristopher, M.D., Ph.D., director of the Loyola University Health System blood bank, told TIME:5

"What is clear is that blood donors seem to not be hospitalized so often and if they are, they have shorter lengths of stay... And they're less likely to get heart attacks, strokes, and cancers."

3. You Get a Mini Physical

Every blood donor gets a "mini physical" prior to donation. Your temperature will be checked along with your blood pressure, pulse, and hemoglobin. Your blood will also be tested for 13 infectious diseases like HIV, hepatitis B and C, West Nile Virus, and syphilis.

Donating blood is certainly not a replacement for medical care, but it does give you a (free) glimpse into your health (as well as notice if you've been exposed to an infectious disease without knowing).

4. A Longer Life

People who volunteer for altruistic reasons, i.e. to help others rather than themselves, appear to live longer than those who volunteer for more self-centered reasons. Altruistic volunteers enjoyed a significantly reduced risk of mortality four years later according to one study, with the study's lead author noting: "This could mean that people who volunteer with other people as their main motivation may be buffered from potential stressors associated with volunteering, such as time constraints and lack of pay."

Types of Donations

Donation of 'whole blood' is the most common type of blood donation, but there are a few other types of blood donation. Donation types include:

- Blood (or Whole Blood)
- Platelets
- Plasma

In addition, there are two special donation types that have to do with who is making the donation:

- Autologous
- Directed

The best type of donation for each individual depends on their blood type, physical characteristics, personal preferences and the availability of convenient donation opportunities. Giving the "right type" of donation helps ensure the best use of your valuable contribution.

Blood (or Whole Blood) Donation

- This is the most common type of donation, during which approximately an unit of 'whole blood' is given.
- The blood is separated into transfusable components - red cells, plasma, platelets and/or cryoprecipitated AHF.
- This type of blood donation usually takes about an hour, though the actual donation takes about 8-10 minutes.
- You are eligible to donate 'whole blood' every 90 days.



Platelet Apheresis

- Platelet donations are collected at select Blood Donation centers only.
- During this type of donation, an apheresis machine collects the platelets and some plasma and returns the red cells and most of the plasma back to the donor.
- Platelets are a vital element of cancer and organ transplant treatments, as well as many surgical proce-



- dures as they help prevent massive blood loss.
- A single donation of platelets collected by apheresis can constitute one or several transfusable units, while it takes about four to six whole blood donations to constitute a single transfusable unit of platelets.
- The donation takes approximately one and-a-half to two and-a-half hours

Plasma Apheresis

- Plasma is collected simultaneously with a platelet donation and is collected at select Blood Donation Centers only.
- During a plasma apheresis donation, the blood is collected by a machine, which separates the plasma, red cells and platelets and returns the red cells and/ or platelets back to the donor.
- While donors with Type AB blood can only give red cells to other Type AB recipients, they are the universal plasma donors. The 'right type' donation for AB donors may be an apheresis donation of plasma or plasma and platelets.
- The donation takes approximately 1 hour and 15 minutes.



Autologous Donations

- These are donations that individuals give for their own use with a doctor's prescription - for example, before a surgery.
- Not subject to the same testing criteria as other donations, and therefore, if they are not used by the patient, they are discarded.

Directed Donations

- Donations made for a specific patient by a friend or family member with a doctor's prescription.
- Subject to all testing requirements of other donations, and if for some reason they are not or cannot be utilized by the patient, they may be made available for other patients in need.