Advanced Transplant Coordinators' Workshop

"3rd Consultative Meeting to Improve Organ and Tissue Donation"

Radha Regent, Chennai 29th & 30th January 2016



Organised by



Supported by

Sir Ratan Tata Trust & Navajbai Ratan Tata Trust

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29th & 30th January 2016 - The Radha Regent, Chennai

RESOURCE MANUAL

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Multi Organ Harvesting Aid Network

Supported by

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Cover Design: Ms. Gieetha Priyadharshini

The 3rd Consultative Workshop is dedicated to our Trustee who Always Kept us Inspired. Her Indomitable Spirit Continues to Guide us



Malathi Venkatesan (15/09/1946 – 02/11/2015)

Foreword

The 3rd Consultative meeting to improve organ and tissue donation in India has been planned with a focus towards promoting donation after circulatory death or DCD & tissue banking in the country. DCD has helped increase the donation rate in many countries in the west and revolutionised lung donation and many countries are even contemplating a heart transplant after DCD. The Transplant law in India does not have any clause against such a practice, but we do require guidelines from the 'Ministry of Health' before hospitals are comfortable with this type of donation process. The international faculty – Dr. Sanjay Deshpande & Ms. Michelle Hunter from NHSBT, UK and Dr. Vijayanand Palaniswamy from Australia will share their experience. Captain Malvinder Singh Sahi will talk about "Ethical issues in end of life care". We hope to come out with guidelines that can be sent to the Ministry on this subject.

Tissue banking is still in its infancy in India with a few scattered hospitals doing various types of tissue collections. We have invited International faculty, Dr. Alvin Chua from Singapore, to give us a perspective on some of the key issues in moving forward with such banking process that depends so much on quality. We also have Dr. Sunil Keswani, Dr. Ajoy S M, and Dr. R. R. Sudhir who will give us the Indian perspective.

These meetings in the past have come out with the proceedings that are made available on our website and we encourage you to look at last year's recommendations - http://www.mohanfoundation.org/proceedings/index.asp

Organ and Tissue Donation and Transplantation overall is a large programme in India. Currently, we are doing over 58,000 corneal transplantations annually, approximately 10,000 live kidney and liver transplantations and another 2000 organs and tissue transplantations from deceased donations. To run such a large programme effectively that has multiple requirements, the government has formalised NOTTO (National Organ and Tissue Transplant Organisation), ROTTO (Regional Organ and Tissue Transplant Organisation), and SOTTO (State Organ and Tissue Transplant Organisation), in 2011-12. However, the need of the hour is to have more clarity on the role of regional bodies in promoting good practices in the field of organ and tissue donation besides formalising all the administrative requirements.

It is felt that to be effective NOTTO needs to be an independent body within the directorate of health services almost similar to bodies such as NACO (National AIDS Control Organisation) and NPCB (National Programme for Control of Blindness).

The current consultative meeting will see many stakeholders and experts gathering in Chennai and we hope to have a discussion on various aspects and come out with recommendations from the meeting.

Dr. Sunil Shroff Managing Trustee

Programme Schedule

Friday - 29th January 2016

Time	Session	Speaker	Chair person
9.30am - 9.35am	Welcome Address	Dr. Sunil Shroff, Managing Trustee, MOHAN Foundation	
9.35am - 10.30am	DCD process	Dr. Sanjay Deshpande NHSBT, UK	Dr. Rajasekhar Perumalla
10.30am - 11.15am	Specialist Nurse for Organ Donation (SNOD) – Perspective on DCD	Michelle Hunter NHSBT, UK	Dr. Rajasekhar Perumalla
11.15am - 11.30am	Tea break		
11.30am - 12noon	Consent process video	NHSBT, UK	Mrs. Lalitha Raghuram Dr. Sumana Navin
12noon - 12.30pm	Organ Donation UK 2020	Dr. Sanjay Deshpande NHSBT, UK	Mrs. Lalitha Raghuram Dr. Sumana Navin
12. 30pm - 1.00pm	DCD in India	Dr. Anand Khakhar, Apollo Hospitals, Chennai	Dr. Sunil Shroff Dr. Sanjay Deshpande
1.00pm - 1.30pm	Q & A Dr. Sanjay Deshpande, Michelle Hunter & Dr. Anand Khakhar		
1.30m - 2.15pm	Lunch		
2.15pm - 3.15pm	Current scenario in skin banking in India; Challenges in establishing and running a skin bank	Dr. Sunil Keswani National Burns centre	Dr. V. B. Narayana Murthy
3.15 pm - 4.00pm	Quality management in tissue banking	Dr. Ajoy S M Department Of Orthopaedics, MSRMC & H QCO M S R Tissue Bank, Bengaluru	Dr. R. Krishnamoorthy Mr. C. E. Karunakaran
4.00pm - 4.15pm	Ex-vivo cardiac care system – an experiment into future		Ms. Pallavi Kumar Dr. Hemal Kanvinde
4.15pm - 4.30pm	Теа		
4.30pm - 5.30pm	Panel Discussion – Unusual case studies	Dr. K.R. Balakrishnan Dr. Akila Rajakumar Dr. P. Magesh Dr. R. Radhakrishnan Dr. Arulraj Dr. R. Kanimozhi Mr. K. Prakash	Moderator – Dr. Sunil Shroff

Saturday - 30th January 2016

Time	Session	Speaker	Chair person
Time	Jession	Opeakei	
9.30am - 10.10am	Current trends in eye banking in India; Challenges in establishing and running an eye bank	Dr. R. R. Sudhir Sankara Nethralaya, Chennai	Dr. M. Ananda Babu Chief Cornea Surgeon, Regional Institute of Ophthalmology and Government Ophthalmic Hospital, Chennai, Chennai
10.10am - 11.00am	Towards a multi-tissue bank facility - The Singapore experience	Dr. Alvin Chua Assistant Director, Transplant Tissue Centre, Singhealth Clinical Scientist & Deputy Head, Skin Bank Unit, Department of Plastic, Reconstructive & Aesthetic Surgery, Singapore General Hospital	Dr. Sunil Shroff Mrs. Lalitha Raghuram
11.00am - 11.15am	Tea break		
11.15am - 12noon	Ethical issues in end of life care	Surgeon Captain Malvinder Singh Sahi, Senior Consultant, Critical Care & Head, Pain Management Rajiv Gandhi Cancer Institute & Research Centre, New Delhi	Dr. B. Subba Rao Dr. N. Sridhar
12.noon – 1.00pm	Procurement and sterilization of tissues	Dr. Alvin Chua	Dr. Sumana Navin Ms. Pallavi Kumar
1.00pm - 2.00pm	Lunch		
2.00pm - 2.30pm	Australian perspective on DCD	Dr. Vijayanand Palaniswamy, Intensive care consultant, Royal Darwin Hospital, Darwin, Australia	Dr. Sunil Shroff Dr. N. Sridhar
2.30pm – 3.00pm	Kerala Network for Organ Sharing (KNOS) – Forging ahead	Dr. Thomas Mathew, Convenor, KNOS	Dr. J. Amalorpavanathan Dr. Georgi Abraham
3.00pm – 3.15 pm	Getting financial help for Transplant surgery	Ms. Aneka Paul Sir Ratan Tata Trust	Dr. Noble Gracious
3.15pm – 3.45pm	Valedictory function	Dr. Georgi Abraham Dr. J. Amalorpavanathan Dr. Thomas Mathew	

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Dr. Sanjay Deshpande FRCA, FCA (Ireland), FICM, DA, MD, MBBS

Consultant in Anaesthesia and Intensive Care

South Tyneside NHS Trust, HartonLane, South Shields, U.K.



Dr. Sanjay Deshpande passed his MBBS and MD (Anaesthesia) from Government Medical College, Aurangabad. He worked in Mumbai for 2 years and then opted to work for the Ministry of Health, Saudi Arabia. He got his Part 1 FRCA and later moved to the UK. He completed the Registrar training and during this period passed the Part 2 and Part 3 examinations in Anaesthesia. He did a fellowship in Obstetrics Anaesthesiology in Oregon, USA for 15 months and following this experience moved to the UK. He completed the Higher Specialist Training and got a Consultant job in Anaesthesia and Intensive Care in 2000 at the above hospital.

Since 2010, he has been a Clinical Lead for Organ Donation with 1-2 donations regularly since then; he has been a Resuscitation Instructor for over five years.

Other interests include travelling, reading, playing badminton and table tennis.

Synopsis

Donation after circulatory death

- Donation after circulatory death (DCD) has been re-introduced and contributes to donor numbers in many countries.
- DCD is increasing in response to a lack of organs available for transplant.
- DCD differs in many aspects from donation after brain death and poses specific challenges.
- Where DCD is practiced widely, organ donation is often considered a routine part of endof-life care.

Advantages of DCD:

- 1. It provides further donation opportunities for people who wish to be organ donors after their death
- 2. It provides an ethically acceptable means of increasing the availability of deceased donor organs

Michelle Hunter

Specialist Nurse Organ Donation

NHSBT, UK



Michelle Hunter has been a qualified Registered Nurse for twenty years. Her background is nine years in a busy Critical Care Unit in a regional teaching hospital, five years as Critical Care Outreach Sister and the last six years as a Specialist Nurse Organ Donation working in the Northern region of the UK. She works as part of a team of twelve Specialist Nurses for Organ Donation covering thirteen hospitals in their region - two level one Trusts. Most of the team commenced their role in 2010 and their objectives have been to increase organ donation within their area, support critical care and emergency departments in referring patients, offer families the option of donation, making sure donation is safe for recipients through donor assessment and spreading the option of donation through media, education and discussion.

Synopsis

Specialist Nurse for Organ Donation (SNOD) – Perspective on DCD

During her presentation, Ms. Hunter will explain the differences between donors following brain death and donors following circulatory death. She will break this down to what it means to the Specialist Nurse Organ Donation and the Critical Care team, how to deal with the referral, how to explain this to the family, difficulties around this for the family and the referring unit, timings - standing down or if patient deteriorates and the theatre process for Nurse.

Dr. Anand Khakhar

Senior Consultant Liver Transplant and Hepatobiliary Surgery

Program Director for the Center for Liver Disease & Transplantation, Apollo Hospitals, Chennai



Dr. Anand Khakhar is presently working as Senior Consultant Liver Transplant and Hepatobiliary Surgery and Program Director for the Center for Liver Disease & Transplantation (CLDT), Apollo Hospitals, Chennai since 2007.

He completed his MBBS, MS, DNB (super-specialization - GU Surgery). He was awarded an international scholarship from 'SIU' to undertake multi-organ transplantation surgery.

Surgical Experience: At Apollo Hospitals, he has established the CLDT and has performed 520 liver transplants (live and cadaveric), in which he was the primary surgeon for more than 350 liver transplants, and a vast number of kidney, pancreas and multi-visceral abdominal organ transplants.

International Experience:

- Accredited Fellowship with ASTS (American Society of Transplant Surgeons) in Liver & Multi-organ transplantation & Hepatobiliary Surgery in 2003.
- Worked with Prof. Dr. Thomas E Starzl (Father of Liver Transplant), who performed the first transplantation in the world.
- Worked with Dr Amadeo Marcos, who is a pioneer in Living Donor Liver Transplantation in USA.
- Clinical Instructor Liver transplantation, Multi-organ transplantation & Hepatobiliary surgery at the Columbia University Medical Center, New-York for 18 months.
- Worked with Dr Lloyd Ratner, who performed the world's first laparoscopic donor nephrectomy.

He has been awarded several research grants during his stay in North America, and published several peer reviewed original research articles and written textbook chapters.

Synopsis

Donation after Circulatory Death

Dr. Sunil Shroff

Introduction

Organ Transplantation has been one of the most significant advances in health care over the last 50 years. However, there has been disparity between the number of potential recipients and the number of organ donors available and shortage of organs has meant that only a small percentage of patients have benefited from this advancement.

Living and deceased donations in many countries have peaked, and have not seen significant increase in the number. Search for alternative sources including expanding the criteria for brain dead donors as well as exploring options for donation after circulatory death s being explored.

Interestingly, before brain death became the way forward, donation after circulatory death was being practiced in some hospitals and the first heart transplanted by Christian Barnard was retrieved from such a donor in 1967 in Cape Town. However, with the advent of brain death criteria for declaring death in 1968 by the Harvard group, showing good surgical recovery of viable organs and good graft outcomes brain death became a source of organs. The shortage of organs meant revisiting DCD and in March 1995 the 'First international workshop on NHB (non-heart beating) donors' in Maastricht discussed three major topics -

- ✓ Classification of NHB donors into 4 categories
- ✓ Criteria needed for establishment of death & irreversibility of cardiac death
- ✓ Waiting time between cardiac arrest & the start of procurement of the organs

Modified	Maastricht	Classification	of DCD
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Category	Description	Туре	Locations Practiced
I	Dead on arrival	Uncontrolled	Emergency Dept in a Transplant centre
II	Unsuccessful Resuscitation	Uncontrolled	Emergency Dept in a Transplant centre
III	Anticipated cardiac arrest	Controlled	ICU and Emergency Dept
IV	Cardiac arrest in a brain-dead donor	Controlled	ICU and Emergency Dept
V	Unexpected arrest in ICU patient	Uncontrolled	ICU in a Transplant centre

The accepted warm Ischemia time from time from withdrawal of treatment to cold perfusion for the commonly donated organs is as follows -

- Liver: < 30 min
- Kidney and pancreas: < 60 min
- Lung: < 90 min

The last few years has seen the number of DCDs increase in many countries with similar results as DBD (Donation after Brain Death) for kidneys, liver and in selected circumstances very good results with lung donations. In the Netherlands & UK - DCD represents more than one-third of all deceased organ donors. In Spain, DCD accounted for 17% of the overall deceased donation activity in 2015 when the organ donation rate in the country was at an all-time high of 39.7 donors per million population (pmp). USA and Australia too have increased the number of donations using the DCD path.

There are certain advantages with DCD donation as it allows more deceased donor families to donate. DCD meets the need of families who remain uncertain over the concept of brain death, but who are otherwise keen to donate. It also fulfils the needs of the family who wish to donate the organs despite not fulfilling the criteria for neurological death criteria.

Donation after Circulatory Death has also some ethical and legal challenges to overcome.

The ethical issues include -

- After cardiac arrest how long do we wait before we declare death and start retrieval process

No Touch Period in European Countries currently followed is as follows -

Country	Minutes
Austria	10
Belgium	5
Czech Republic	10
France	5
Italy	20
Latvia	15
The Netherlands	5
Spain	5
Switzerland	10
United Kingdom	5

The second ethical question is how do we delink 'futility' of care or withdrawal of Care' with Organ Donation?

Legal Issues

Do we need a separate law for DCD in India or can we work within the current law with guidelines from the ministry of health.

Further deliberations on this subject in Indian transplant meetings - the general consensus has been that in India we should be able to do DCD under following Maastricht Type IV donations however Maastricht Type III requires guidelines by the Ministry of health. Currently under the current law we may not be able to undertake Maastricht Type I, II or V DCDs.

Conclusion

Overall DCD has the potential to increase the number of organs available for transplantation and we should seriously consider this type of donation within the framework of our law.

Dr. Sunil M. Keswani, MS, MCh (Plastic Surgery)

Plastic, Cosmetic and Burns Surgeon

Hospital Attachments: Breach Candy Hospital, Fortis Hospital, National Burn Centre, Airoli



Schooling: Don Bosco High School, Bombay

Medical College (Undergraduate): Armed Forces Medical College, Pune

Medical College (Post Graduate) Plastic and Cosmetic Surgery: KEM Hospital & Seth G.S. Medical College, Bombay

Past President: Indian Medical Association, Chembur, Mumbai

Hon. Secretary: Burns Association of India

Ex-Regional Representative: for South-East Asia for 6 years of the International Society of Burns Injuries

District Chairman - Burns Prevention and Skin Donation - Rotary International District 3140

Acting Medical Director: National Burns Centre, Airoli, Navi Mumbai,

Lectured extensively in India and abroad on various aspects of Cosmetic Surgery and Burns and presented Papers at both National and International Conferences

Written a chapter on BURNS MANAGEMENT in a book on CRITICAL CARE MANAGEMENT by Dr FE Udwadia - both 1st and 2nd edition 2014

Recipient of various orations and guest lectures at various national conferences

Personal Motto: "With PASSION and FAITH nothing is impossible!"

Personal Passion: Teaching and Training

Hobbies: Reading, Travelling, Photography, Calligraphy, Poetry appreciation, Social Upliftment

Synopsis

Current scenario in skin banking in India; Challenges in establishing and running a skin bank

Skin Banking and Skin Donation

In a developing country like India, where the social inequalities among the genders are high about 7 million people suffer from burn injury every year. Out of this 80% are women and children. Rest 20% is men at factories and other work places.

Why Skin Donation?

In case of burns, SKIN – the primary protective barrier of the body - is destroyed and the body is exposed to infectious agents. If the burnt area is not immediately covered with some skin substitutes, then patients are prone to infection, fluid loss and ultimately death. In case of smaller percentage of burns (lesser total body surface area burnt), skin from the un-burnt area of the patient is taken out and put on the burn wound to cover it. But when burns percentage is more than 40% to 50%, then the patient's own skin is not available to cover the burn wound. In that scenario we need some skin substitutes. It is said that skin is the best substitute for skin. Thus, skin donated after death (cadaveric skin) is the best and cheapest substitute compared to artificial skin substitutes.

Such skin is a temporary dressing. But, it is important as it helps in patient's own skin to regenerate. 80% of such patients can be saved if we have enough skin in skin bank. Thus arises the need of skin donation. One can donate one's skin after death to save someone else's life.

Rotary Club of Bombay North (RCBN) Skin Bank

There was a great need of establishing a skin bank to collect process and preserve human cadaver skin donated after death. The processed donor skin helps immensely in the treatment of extensive burn. It has been observed that the surgical application donor skin on burn wound has improved the treatment outcome. Many patients who could not have been saved without donor skin are being saved now.

The Skin bank not only caters to NBC requirement but it also caters to the whole nation as there is no other skin bank of such high quality in the country today.

So, RCBN Skin Bank is a place where skin collected from eligible deceased donor is processed, preserved and distributed as per INTERNATIONAL PROTOCOLS.

Procedure followed in Lab:

Phase I: Harvesting Skin

Skin donation Procedure:

Skin donation is very simple procedure.

1. Upon death of a possible donor, the next of his/her authorized kin needs to inform on the BURNS HELPLINE of National Burns Centre (NBC): 022-27793333 (active 24 by 7).

- 2. Upon receiving such a call, after checking for cause of death and contraindications, the Skin retrieval team will reach the place of death in a specialized Burns Ambulance. Death Certificate and Consent of relative is taken.
- 3. Then, the retrieval team harvests the skin of the donor only from legs, thighs and back with a special instrument called DERMATOME. Only one eighth thickness of the skin is harvested so there is no disfiguring of body at all. It is not even visible to persons who come to pay their homage as after harvesting, the area is bandaged and the donor's body is handed over to the next of the kin.
- 4. This Procedure takes only about 45 minutes.

Procedure followed for Retrieval:

- 1. Shaving
- 2. Scrubbing with Betadine
- 3. Cleaning with Savlon
- 4. Cleaning with Sterilium
- 5. Lubricating with paraffin Oil
- 6. Harvesting Skin
- 7. Preserving skin in 50% glycerol

Phase II: To check harvested skin and to lubricate it properly.

- 1. All pieces of skin are kept in 85% glycerol.
- 2. The skin with 85% glycerol is kept under shaking conditions for 3 hrs at 33°C in shaking incubator.
- 3. After 3 hrs, the skin immersed in 85% glycerol is stored in freezer at 4° to 8°C for 2-3 weeks for glycerol to act on skin.

Phase III: Meshing and Final preservation of skin

- 1. After 2-3 weeks, the skin is taken out from freezer into biosafety cabinet.
- 2. The skin strips are trimmed properly, and its length, width, thickness is measured and thereafter put in sterile vials containing 85% glycerol.
- 3. The vials containing the glycerol preserved allografts(GPA) are labelled according to the thickness and dimensions of skin it contains.
- 4. The sealed vials are then stored in at 4°C to 8°C up to 5 years.

Skin Donation Facts:

- 1. Skin harvesting is done within 6 hours from the time of death.
- 2. A very thin layer is harvested from both the legs, thighs and the back.
- 3. There is no bleeding or disfigurement to the body.
- 4. No MATCHING required for grafting. Long shelf life of 5 years
- 5. The skin processing charges for cadaveric skin is very low as compared to commercially available synthetic skin substitutes.

Contraindications for Skin Donation:

- 1. HIV & Hepatitis B & Hepatitis C.
- 2. STDs
- 3. Generalized infection & septicemia (Pneumonia, T.B, Etc)
- 4. Any kind of skin infection
- 5. Malignancy
- 6. Evidence of skin cancer

How does the donated skin help burns patient?

The skin after being grafted on the burnt area acts as a temporary biological dressing and helps in skin regeneration in the exposed part, thus:

- 1. Prevents the entry of foreign infectious agents.
- 2. Relieves pain.
- 3. Controls the loss of fluid, protein, and heat from the body.
- 4. Ultimately it saves a life.

Dr Ajoy S M

MBBS, D' Ortho, DNB (Ortho), PGDHHM, PGDMLE (NLSIU), Dip in Tissue Banking (Barcelona), Fellow Adult Reconstructive Surgery (NUH Singapore)

Department of Orthopaedics, M S Ramaiah Medical College and Hospitals, Bangalore



Dr Ajoy S M is currently working in the Department of Orthopaedics at the M S Ramaiah Medical College and attached hospitals. After completion of MBBS and Post Graduate Diploma in Orthopaedics from the prestigious Bangalore Medical College and Research Institute, he has worked in various capacities in hospitals ranging from charitable to corporate. A Fellowship in Adult Reconstruction from the NUH Singapore, and a four year stint in tertiary care hospital in MOH, Oman formed part of his training and experience. He completed a Diploma in Tissue Banking from the University of Barcelona and has keen interest in the new field of Tissue Banking and is associated with the M S R Tissue Bank as its Quality Control Officer since its inception in 2012.

Synopsis

Quality Management in Tissue Banking

By the term Quality we understand that certain minimum standards are adhered to. In Healthcare and in Tissue Banking, this **HAS** to be adhered to. In this talk today, we shall discuss, among other topics, the growing need for Tissue Banking in INDIA, how best a Tissue Bank can function, where to get the donor from, the processing of Tissues and also the utility of this.

There is a gross difference between Tissues and Organs when allografts are considered. Organs need to be retrieved and transplanted while the circulation is still preserved, whereas Tissues can be harvested after cessation of circulation within a stipulated time of 12 hours, preserved at -80° Celsius for a month at least before they can be transplanted. There is no immunogenicity after Tissue transplantation and therefore there is no need to give immunosuppressant therapy for recipients.

To have a desirable and good outcome, which is the incorporation of the transplanted tissue in the recipient, we have to ensure that a good quality of graft is issued. This can be achieved right from the setting up of the Tissue Bank to the usage of graft in the operating room. The Tissue bank must be situated and planned as per ideal set up into dry and wet processing areas, with

strict asepsis practicable at all times. The donor selection criteria have to be stringently adhered to and any graft received by the bank is not according to it must be simply discarded. There is a need for very strict maintenance of records such as the Donor and Recipient forms and registers to track each and every graft. If for instance an infection is reported in a recipient, it should be possible to locate the source immediately and prevent further issue of graft from the same donor to others.

Processing of grafts is another very important step where quality is maintained at all times. We need to adhere to Tissue Banking guidelines as regards the air quality, class of room, laminar airflow cabinet, culture swabs at different steps, vacuum packing of grafts (triple packing) and sterilization methods. There are no short cuts in any procedure.

Labelling the grafts correctly, storing at the appropriate temperature and issuing them at the appropriate time and to the appropriate requirement all need to be done as per Quality.

It therefore is evident that "Quality" in tissue banking is a basic requirement and the guidelines of Tissue Banking are to be adhered to. India does not have a separate body for tissue banking currently and I feel that effort towards establishing one before the proliferation of Tissue Banks commences is the need of the hour.

Dr. K. R. Balakrishnan MS, MCh

Director - Cardiac Sciences & Chief Cardiothoracic & Transplant Surgeon

Fortis Malar Hospital, Chennai



Acknowledged expert in the management of end-stage heart failure and credited with India's First LVAD and HVAD pump implant as destination therapy.

Instrumental in starting India's First Comprehensive Centre for Heart Failure Management at Fortis Malar Hospital, Chennai.

Actively engaged with various institutions to develop Pulsatile and continuous flow LVADs (Left Ventricular Assist Device) and molecular biology of ventricular hypertrophy.

Synopsis

Ex-vivo cardiac care system

With increasing awareness about organ donation, the availability of donor organs is increasing and this is true for all organs, particularly the heart. However, unlike other organs, the heart has certain limitations - the ischaemic time is 4 to 6 hours, which includes the time taken to put the organ in. As a consequence, organs are not utilised due to the logistics of transporting them to the recipient hospital. This is particularly true as organ donation is now happening in smaller mofussil towns without airports or night landing facilities. The driving time on our highways to the transplant centre can often take several hours (for e.g. Salem to Chennai or Vellore to Chennai). As a result, precious organs are wasted, which are otherwise perfectly usable. The second situation where there is a need for an organ care system is when organs from young donors start deteriorating because of donor instability while the recipient team is scrambling together to reach the donation centre. The third situation where an organ care system finds great potential use is in recipients with complexities like functional LVADs or multiple previous operations. Under these circumstances the organs may reach the recipient hospital while the recipient team is not yet ready to implant the heart given the time it takes to dig out the heart because of dense adhesions. Historically, there have been several attempts to preserve hearts for longer periods of time because of the potential benefits of choosing the best possible matched recipient based on HLA matching and this has long been recognised. The first organ care system was devised more than 100 years ago in the 1890s – the Langendorff preparation. The commercial product using this principle was launched a few years ago called TransMedics, which is a blood based perfusion system. This is being increasingly utilised in Europe and Australia, but the cost of the disposables is approximately USD 45,000 per case making it prohibitively expensive for use in our country. There is a need for a perfusion system to cater to our population, which is more modestly priced. We have been working on an organ preservation system, both blood based and asanguineous solution based using a pump oxygenator system, and the initial results have been encouraging. Hopefully, we will be able to launch a product clinically in the coming months.

Dr. R. R. Sudhir

Head - Dept of Preventive Ophthalmology

Senior Cornea Consultant

Sankara Nethralaya, Chennai



Dr. R. R. Sudhir is Head of Department of Preventive Ophthalmology and Senior Consultant in the department of Cornea and Refractive Surgery. Graduated from Madras Medical College, Chennai, in 1996, Diploma in Ophthalmology at the C. U. Shah Postgraduate Training Centre, Sankara Nethralaya and Diplomate of National Board of Exams,. He completed one year fellowship in Public Health Ophthalmology at Dana Center for preventive ophthalmology at Wilmer Eye institute and Master of Public Health (MPH) from the Johns Hopkins Bloomberg school of Public Health, Baltimore, USA. He has many papers in peer reviewed journals and presentations at national and international conferences. Dr R R Sudhir is also Consultant-in-charge of Electronic Medical Records. He heads the software development and implementation of Electronic Medical Records in Sankara Nethralaya in collaboration with TCS. He had spear headed the implementation of Hospital Management and EMR, in 8 Major eye institutions in India. Areas of interest: Ophthalmic epidemiology, Clinical trials, Electronic Medical Records, Operational research.

Synopsis

Current trends in Eye banking in India and challenges in establishing and running an eye bank

6.8 million people in India in 2001 are estimated to have corneal blindness in at least one eye, of which one million people have corneal blindness in both eyes. These rates suggest that 8.4 million people of the estimated 1168 million population of India in 2010, and 10.6 million people of the estimated 1312 million population of India in 2020, would have corneal blindness in at least one eye if the current trends continue. Approximately 40,000 - 50,000 new patients of corneal blindness are added every year. Curable by Keratoplasty is approx. 10 %.

The importance of corneal disease as a major cause of blindness in the world today remains second only to cataract, but its epidemiology is complicated and encompasses a wide variety of infectious and inflammatory eye disease. In addition, the prevalence of corneal disease varies from country to country and even from one population to another, depending on many factors, such as availability and general standards of eye care. The major causes of corneal blindness

globally include trachoma, corneal ulceration, xerophthalmia, ophthalmia neonatarum, traditional eye medicines, onchocerciasis, leprosy, and ocular trauma. Many of these causes are preventable through effective public health strategies, but for those who are blind due to corneal opacification, the only treatment is corneal transplantation. This surgery needs donor cornea obtained from an eye bank, the diseased cornea is excised & replaced with donor cornea. This procedure has very high success rate among organ transplants. Quality of donor cornea, the nature of recipient of pathology and the availability of appropriate postoperative care are the factors that determine the final outcome of this procedure.

Procurement and supply of the donor cornea to the corneal surgeons is the primary goal of eye banks. While this fact is recognized, the need for rigorous quality control in eye banking is not appreciated by the eye bankers and the surgeons in India and the other developing countries. Scarcity of donor corneas, while a major problem, should not lead to utilization of corneas of undesirable quality. This happens when enthusiasm to start an eye bank is not matched by commitment to institution of quality measures. An "eye bank" is a not for profit community organization governed by a Board of Directors or Trustees constituted by the community representatives. Ideally, it should be autonomous and not part of any medical organization.

In developing countries such as India, one has to develop a system that is effective, efficient and at once financially relevant. A 3-tier structure encompassing all activities of eye banking will address this issue rather well the determinants will be the infrastructure and manpower available with a profile of functions covered. This system proposed the three tiers of eye donation centres, eye bank and eye banking training centre. These should be integrated and will not be effective in isolation.

India needs 50 eye banks, five of which will also be eye banking training centres, 2000 eye donation centres, Cornea Retrieval Programmes in 500 hospitals and 1000 corneal specialists to make a real impact on the problem of this reversible form of corneal blindness. What are the possible next steps to get there? A clear concept and detailed plan must be developed, followed by rigorous implementation of the plan by all concerned in a time-bound fashion.

Dr. Alvin Chua

Assistant Director, Transplant Tissue Centre, Singhealth

Clinical Scientist & Deputy Head, Skin Bank Unit c/o Department of Plastic Reconstructive & Aesthetic Surgery, Singapore General Hospital



Dr Alvin Chua, Assistant Director of Transplant Tissue Centre, Singapore Health Services, is responsible for the operations, quality assurance and research of the comprehensive tissue banking services which comprises skin, cardiovascular tissues and iliac vessels. He is concurrently the Clinical Scientist/Deputy Head at the Singapore General Hospital's (SGH) Skin Bank Unit and Skin Culture Laboratory and is also Adjunct Lecturer at Nanyang Polytechnic, teaching Tissue Engineering at its School of Engineering.In addition, Dr Chua is an external Consultant to Cell Research Corporation Pte Ltd, a Singapore biotechnology start-up specializing in cord lining tissues and stem cells.

Dr Chua has more than 14 years of tissue banking experience. He was previously trained at the Shriners Hospital for Children's skin tissue bank, Galveston, Texas, USA and Queensland Heart Valve Bank, Brisbane, Australia. Heisa certified tissue bank specialist (CTBS), a certification programme offered by the American Association of Tissue Banks (AATB). At the national level, Dr Chua serves as a member of the Ministry of Health, Singapore Advisory Committee for Human Biomedical Research Act and is the Vice-Chairperson of the Pro-Tem subcommittee for Human Tissue Framework.

For research, Dr Chua was trained at the Swiss Federal Institute of Technology, Lausanne, Switzerland in skin keratinocyte culture and characterization. In 2012, he was awarded the Outstanding Scientific Abstract prize at the Annual Meeting of the AATB as well as the Young Scientist Award (sponsored by the British High Commission) at the UK-Singapore Translational Skin Biology Symposium. As Principal Investigator, Dr Chua is currently leading two major projects involving wound healing and stem cells and has slightly more than 20 peer-reviewed publications and 50 conference papers to his name.

Synopsis

The Singapore experience towards the establishment of a multi-tissue bank and the decontamination of tissues

This talk describes the Singapore experience in setting up a skin bank [1] and a subsequent cardiovascular tissue bank [2] at the Singapore General Hospital (SGH) and National Heart Centre, Singapore (NHCS) respectively. Both banks are instrumental in providing an available supply of tissues for immediate clinical need in the country. Skin allografts are provided mainly to the SGH Burns Centre which serves more than 93% of the burn cases in Singapore [3]. More than half of the banked cardiovascular tissues were provided to children with congenital or acquired heart valve conditions [2]. These two banks were merged in 2015 to form Transplant Tissue Centre, Singhealth to allow for sharing of resources and to serve as a platform for organic growth to include banking of other tissues when the clinical need arises. In this sharing, pertinent issues related to legislation, management, logistics, safety and quality assurance for the establishment and merging of such a facility will be discussed in the Singapore context. In addition, the procedure of skin and heart cardiovascular homograft recovery, processing, cryopreservation and distribution will be presented.

Retrospective clinical studies and review of skin allograft and cardiovascular homograft usage in SGH and NHCS will be also be discussed to demonstrate the importance of viable skin allografts in the management of severe burns [4-6]and the implementation of new procedures to improve the safety of cardiovascular homograft recipients [2]. These include (a) a change in antibiotic decontamination regime from penicillin and streptomycin to amikacin and vancomycin [7] and (b) mandating histopathogical examination since the discovery of cardiac sarcoidosis in a previously undiagnosed donor [8].

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Dr. Malvinder Singh Sahi

Head, Pain Management & Senior Consultant (Critical Care)

MD, MNAMS, FIPP, Exec Dip(MBA)



Presently - Rajiv Gandhi Cancer Institute & Research Cenre

Also served at - Indian Navy served for 26 years as Anaesthesiologist & Pain Physician

Max Superspecialty Hospital Saket, Delhi

Batra Medical & Medical Research Institute, Delhi

Publications: Palliative Care, Pain Management and Regional Anaesthesia,

Areas of Interest: BLS & ACLS Training

Use of USG as a basic tool in ICU

Use of psychometric drugs for pain & palliation

Synopsis

Ethical Issues in End of Life Care

In this modern era of technologically advanced and 'corporatized' medicare more patients with advanced disease are surviving for longer periods in hospitals and ICUs.

Be it terminal cancer or organ failure, affluent societies all over the world, and increasingly in India are getting familiar with the complex interplay of issues connected with 'End of Life Care' (EOLC) where individual beliefs and wants and societal circumstances impinge on the rights of the dying person. While multi-organ support does prolong life, the quality of life deteriorates while using up precious medical resources.

Brain death certification for potential organ harvesting has also gained pre-eminence in today's healthcare practice. The concept of brain death is often difficult for families to come to terms with when dealing with a tragic loss. Their loved one who has suffered from an injury to the brain is in ICU. Everything possible is done to support the patient including maintaining blood pressure and heart rate with medications, respiratory support with a ventilator, and constant monitoring. Often, for the patient with a non-traumatic brain injury like a stroke, there is no outward sign that their

loved one has suffered a devastating and non-survivable injury to the brain. The patient looks to be asleep, is warm to touch and appears to breathe, albeit with the help of a machine. It is under these circumstances that families are asked to understand that their loved one has died. It is also under the same scenario that organ donation is presented as an option in order to give life to others.

Modern life has made man a victim of 'choices'- from birth till death he or she is exposed to a bewildering array of choices in every aspect of daily life be it education, career, nutrition or any other aspect of living. Of course there is a prerequisite to this conditioning - a degree of affluence, awareness and education. On the flip side such a person becomes so involved in daily living and choosing that he misses the 'woods for the trees'- the larger looming issues of dying, life after death and the ultimate meaning of life.

When a loved one is dying the decision to withhold or to administer increasingly complex (and traumatic and dehumanizing) life support or organ support -is driven by this right to choose. There is also an element of denial in addition to an inability to overcome the fear of losing a loved one to death. This fear of death is still the most prevalent unresolved psychological pressure facing mankind and only a minuscule percentage of people who are religious or spiritual may be obtaining some guidance and solace. Noted psychiatrist Elisabeth Kübler-Ross (1926–2004), influenced the medical practices undertaken at the end of life, as well as the attitudes of physicians, nurses, clergy, and others who cared for the dying.

Medical Ethics, as applied to EOLC raises the question of fulfilling the wishes of the dying person even if he or she is unable to communicate and it devolves around providing a 'good' painless death as opposed to the lingering painful traumatic alternative looming ahead.

This article only briefly touches upon the most important features of this issue and begs for a consensus to be arrived between the society and medical profession so that a balance can be achieved between aggressive medical care and comfort and pain relief by acknowledging the point of irreversibility and the tough 'choice' to be made by caregivers and loved ones to do what is right and in the patient's best interests. In a survey what mattered most to the patient's attendants and which significantly influenced their decision to allow organ donation included trust and confidence in the doctors providing the care and timely and effective communication about exact status of the patient.

Dr. Vijayanand Palaniswamy

Intensive care consultant Royal Darwin Hospital, Darwin Northern Territory, Australia



Dr. Vijayanand Palaniswamy is presently an Intensive care consultant at Royal Darwin Hospital, Darwin, Northern Territory, Australia. He completed his MBBS from Perundurai Medical College and DCH from CMC Vellore. He worked in Coimbatore and Chennai as a paediatrician before moving overseas in 2007. He trained both in paediatric and adult critical care in 7 different ICUs in Australia between 2007 and 2013. Thereafter, he worked in Coimbatore as ICU specialist for a period of 2.5 years at GKNM hospital.

He is interested in training, teaching and research and has made presentations at various national and international conferences. He has been extremely supportive of organ donation and has delivered talks across India through MOHAN Foundation. Dr. Sunil Shroff, Managing Trustee, MOHAN Foundation and Dr. J. Amalorpavanathan, Member Secretary, TRANSTAN, have been his inspiration for the cause. He is looking forward to coming back to India soon and working in his motherland in his speciality.

Synopsis

Australian perspective on DCD

Australia is a country where organ donation is well developed and it has grown really well in this area in the last 7 years. The deceased organ donation rate is 16.1 per million population. Last year there were 378 donors of whom 40% were DCD patients. DCD is a very protocol-driven process requiring excellent team work and communication. A simple checklist is followed by the coordinator during this process. A high level watch, monitoring and staged withdrawal process is done on the patients with seamless coordination. Lungs and kidneys are the major organs used from DCD donors. Recently one of the top Sydney hospitals started DCD heart transplant, which was a huge success. Though the national statistics show a decline in the donation rate, excellent events and programmes are organised by Donate Life for increasing awareness.

Prof. (Dr) Thomas Mathew

Principal, Govt. Medical College, Thiruvananthapuram, Kerala-695011&

State Convener, Deceased Donor Organ Transplant Program, Kerala



Other Posts Held Now

- Member, National AEFI Committee, Ministry of H& FW, Govt. of India.
- State Investigator, Kerala UIP Study Kollam District.
- Nodal Officer, Intra Dermal Rabies Vaccination Initiative, Kerala.
- Project special officer, Govt. Medical College (New), Konni.
- Chairman, OR Committee Zonal Task Force, RNTCP, SZ IISouth India.
- Vice President, Indian Association for Prevention and Control of Rabies in India.
- President, *Indian Public Health Association (IPHA), Kerala State Branch* & Central council member (South), IPHA.

Medical Education

- 28 years of experience as Teacher / Trainer in Public Health (Since April 1988)
- 12 years of experience as Professor of Community Medicine. (Since Feb 2004)
- Attended the Training of trainers course at National Teacher Training Centre (NTTC) JIPMER, Puducherry (March 2006) Project Report - Improving Communication Skills of Medical Students Through Community Interaction - published in NTTC bulletin Vol. 13.2 September 2006
- Faimer Fellowship at PSG Institute, Coimbatore, India,2010 to 2012
- Faculty, ME Unit, Medical College, Thiruvananthapuram since 2012
- Completed three day Basic course workshop in Medical Education Technologies observed by MCI Regional Centre, Govt. Medical College, Thiruvananthapuram from 22-24th January 2014.
- Completed the "MCI Advance Course in Medical Education" (FIME) organized by MCI Nodal Centre for Faculty Development, Government Medical College, Kottayam since October 2014.

Research Experience& Organizing Skills

- 14 National Projects and 12 State Level Projects as Investigator / Co-ordinator (since 1997)
- 14 National Conferences and 26 State Level Conferences / Workshops as Organizing Secretary in the areas of TB, Rabies, HIV/AIDS, Voluntary Blood Donation, Prevention of communicable diseases like Chikungunya, Dengue, Leptospirosis, Diabetes Mellitus and other non Communicable diseases

Awards Received

- National Service Scheme Award for exemplary service (1996-1997)
- Rotary Award for exemplary service during Pulse Polio Programme(1997-1998)
- 'Thirumanas' Award for exemplary service as Administrative Medical Officer, Medical College Health Unit, Pangappara, (1998)
- Best Doctor- Special Award from the Govt. of Kerala, (2007) for the services and leadership rendered in fever containment activities in the state
- K.G.M.C.T.A. Award for the Best Doctor (2007.)
- Gregorian Arpanam Award 2011 for dedicated Service in the field of Health Care presented by Malankara (Indian) Orthodox Church, TVM Diocese
- Dr K N Rao Memorial Oration Award, Indian Public Health Association 2012.
- Diabscreen Kerala-Kesavadev Award 2013 for excellent efforts in Public health education since 1995
- Bhadradeepam Award 2015for dedicated Service in the field of Health Care presented by Malankara (Indian) Orthodox Church, TVM Diocese

Implementation of a new programme in the state

- Has been instrumental in implementing Intra Dermal Rabies Vaccination (IDRV) in more than 300 centers in the govt. sector in Kerala since March 2009 and has conducted more than 100 CME programmes as the Nodal Officer for IDRV Kerala.
- International Experience
- Health consultant and Master Trainer to the Ministry of Health, Federal DemocraticRepublic of Ethiopia, Africa for the Health Extension Programme (2003 – 2005)

National Experience (2012 – 2014)

- Principal Investigator & State Co-ordinator "In-Depth Analysis of Cold Chain, Vaccine Supply and Logistics Management for Routine Immunization in Three Indian States: An IPEN Study" (2012)
- State Co-ordinator, District level Household & facility survey 4 (DLHS4) for Kerala & Lakshadweep (2013)
- Principal Co-Investigator & State Co-ordinator Kerala UIP study Kollam district (2014)

State level Experience (2012 – 2014)

- Mass Drug Administration 2012-Kerala, Coverage & Compliance Survey, Department of Health and Family Welfare, Government of Kerala.
- Mass Drug Administration 2013-Kerala, Coverage & Compliance Survey, Department of Health and Family Welfare, Government of Kerala.
- Needs & services for the aged A qualitative study (QUIKE 2012-13), for the Department of Social Justice, Kerala

Artistic Activities

- Actor, Writer and Director for Radio, Stage, Television and Films since 1985
- Hosted more than 250 episodes of the Health Show "Ayurrekha" for Surya TV from 1998 to 2005
- Scripted, Directed and Produced more than 300 social satires for Narma Kairaliin Thiruvananthapuram since 1993.

Synopsis

Deceased Organ Donor Organ Transplantation in Kerala- A Successful Private Public Participation

Introduction

In the vast majority of cases organ donation is now a relationship between a deceased person who has healthy organs to "donate" and a living person who has a health-related need to receive a healthy organ. This is due to the very limited possibilities that exist for living people to gift their organs to others, as the law (Transplantation of Human Organs Act) stipulates that intervention in a living donor's body can be performed "without any obvious risk to the person".

In the world scenario, 74% of the countries have an official body for overseeing and coordinating donation and transplantation. The global estimate of organs transplanted during 2007 indicates that around100000 solid organ transplantations take place every year. Organ transplantation in India has a relatively short history compared to the developed world. India's conceptual and scientific contribution to this specialty has been limited even as it has been at the epicentre of one of the biggest ethical controversies concerning transplantation.

Deceased Organ Transplantation in Kerala

Kerala is home to 2.76% of India's people. The major religions followed in Kerala are Hinduism (54.7%), Islam (26.6%) and Christianity (18.4%). Current Population of Kerala in 2015 is 34,040,350 and the sex ratio is1084 females per 1,000 males. Kerala has a Literacy rate of 93.91 percent, with male literacy at 96.02 percent and female literacy at 91.98 percent.

In Kerala the first ever multi-organ transplantation was performed in Cochin during June 2004, involving the Amrita Institute of Medical Sciences and PVS memorial hospitals, Kochi. The entire process of retrieval and transplantation was coordinated by SORT, The Society for Organ Retrieval & Transplantation (SORT) at Cochin. The Government of Kerala recognising the need for organ transplantation especially in the context of increasing prevalence of end-stage kidney and liver failure, adopted in principle the THO Act of 2011 and led the way to facilitate organ donation and sharing of organs in a transparent manner allocating organs to needy patients across the state, registered in the Kerala Network for Organ Sharing (KNOS). Recognizing the extensive experience of MOHAN Foundation in facilitating deceased organ donation through trained transplant coordinators in the country, a GO was issued by the Government of Kerala. The GO stated that through a Memorandum of Understanding between Trivandrum Medical College and MOHAN Foundation, transplant coordinators trained by the Foundation were deputed to work in Mrithasanjeevani and KNOS for a period of one-and-a-half years. KNOS web registry was constructed and has been maintained by MOHAN Foundation since August 2012.

The programme was aptly titled Mrithasanjeevani – life after death, in which transplant centres both private and Govt. participate without prejudice with a common goal. A series of Govt. Orders outlining the legal, ethical and logistic issues were promulgated in 2011, in tune with the guidelines mentioned in the Act. Prof. Ramdas Pisharody, Principal GMCT was appointed as State Convenor of Deceased Donor Multi Organ Transplantation Programme (DDMOTP). The KNOS office was vested with the responsibilities of sending organ alerts, prioritised transparent allocation of organ to the needy people and hospitals, facilitating organ retrieval and registration of recipients and donors, Networking and registration of hospitals as transplant centres and non-

transplant centres, monitoring the deceased donation activities in Kerala, conducting workshops and training programmes for health professionals, Conducting awareness programmes for the public etc. The core committee and state level advisory board were constituted as envisaged in the Act to lay down and modify guidelines and for redressal of grievances. Under this Programme there are 20 hospitals undertaking renal transplant and 8 centres doing liver transplant in the state during this short span of two-and-a-half years, 466 organs have been shared. The allocation was supervised by organ subcommittees and redressal forums were constituted under the Government at the state and Zonal level. The state was divided into three zones for the purpose of sharing and in order to facilitate transportation. The programme has catalysed kidney, liver, intestine, heart valve and heart transplantation in the state and done the first hand and larynx transplant in India along with other major solid organs. The future goals of the programme include setting up of a web based outcome registry with interstate zonal sharing, central organ transplant registry being developed at DGHS, MOH, GOI, increasing the scope of organ transplantation by sharing expertise, laving down facilitator rules for medico-legal cases, inquests and postmortem, honoring donors and families by the state, promote NGOs to campaign for prevention of kidney ailments and similar non-communicable diseases and framing insurance rules and ensuring social security.

Kerala Network for Organ Sharing (KNOS) www.knos.org.in

The Kerala Network for Organ Sharing is an online transplant registry that maintains records of patients with organ failure in the state including kidney, liver, heart, lung, pancreas, small intestine, hand and larynx. It aims at giving these vulnerable individuals an opportunity to have a transplant surgery and lead a healthy life. It also maintained transparency in organ allocation by strictly adhering to the wait list. Moreover, considering the ethical issues surrounding living and deceased organ transplantation, the Government felt the need to streamline the procedures for Deceased Donor Multi Organ Transplantation (DDMOT) in the state.

The KNOS registry (www.knos.org.in) maintains details of recipients, registration of hospitals, donor details and transplant surgery details. As on December 2015, there were 1184 patients waiting for kidney transplant, 160 patients waiting for liver transplant, 8 patients waiting for heart transplant, and 1 patient waiting for lung transplant.

Public Awareness

Counsellors from Kerala Network for Organ Sharing (KNOS) have conducted various public awareness programmes in Kerala to sensitise the public. The sensitisations programmes have given encouraging results. Young people voluntarily pledging for donating their organs after death have registered with the KNOS donor registry and so far around 1,00,000 donor cards have been issued. We have conducted more than 200 public awareness programmes in Kerala covering all major cities. The requests are ever increasing over time.

Training Programme/ CME /Workshop:

CME and workshops targeted to various health professionals -Transplant Surgeons & Physicians,, Anesthesiologists, Forensic professionals, the Judiciary, the Police, Staff nurses, Transplant Coordinators and Grief Counselors were conducted with the objective of strengthening and updating their knowledge in deceased donor organ transplantation

Status of Deceased Donor Organ Transplantation Programme in Kerala

The deceased organ donation programme in Kerala got off to a quick start in 2012 with nine organ donors in just over four months. And there has been no stopping the momentum. There was a significant increase in the number of deceased organ donors to 72 with the organ donation rate going up to 1.8 per million population. From August 2012 to 8th September 2015, there have been 175 deceased donors in the state; of this 25 are from 12 Non Transplant Organ Retrieval Centres (NTORC). Kerala is the only state where NTORCs are actively participating in the programme. A total of 471 solid organs (heart, liver, kidney, lungs pancreas, small intestine, hand and larynx) have been retrieved during this period.

KNOS has set up the first HLA Molecular lab in Government sector in Government Medical College, Trivandrum. A heart transplant performed on 31st July 2015 in Kochi created history as this was the first time that an organ for transplantation was airlifted from one city to another by the Indian Navy in the state. First Inter State organ sharing was by 19 year old boy's heart and lung was transported from Kochi to Chennai, with this incident KNOS showed the honest example of a good organ procurement organisation under Government which can coordinate between different states for optimal utilisation of organs.

Highlights of Deceased Donor Organ Transplantation Programme in Kerala

- 1. First deceased donor transplant in Government Medical College, Trivandrum on August 2012
- First Multi-Organ transplant in Kerala was done at KIMS Hospital, Trivandrum on 14th February 2014.
- First Small bowel transplant was done at Amrita Institute of Medical Sciences, Kochi on 5th January, 2015
- India's first hand transplant was carried out successfully at the Amrita Institute of Medical Sciences, Kochi, on 13th January 2015.
- 5. A heart transplant performed on 31st July 2015 in Kochi created history as this was the first time that an organ for transplantation was airlifted from one city to another by the Indian Navy in the state.
- 6. First Inter State organ sharing was on 10-8-2015.
- 7. First youngest donor in Kerala is Baby Sayana, one-and-a-half-year old child from Amrita Institute of Medical Sciences whose both kidneys and heart valves were donated.
- 8. The third anniversary of KNOS was conducted on 13th August 2015.
- 9. Last but not the least last year BMJ India nominated this programme for health advocacy award and was one among the three finalists.

Conclusion

This programme has been a milestone achievement for the health sector in Kerala. The response of the public has been overwhelming. The Govt of Kerala has been applauded once again as a Kerala Model for organ sharing. This has set an example of Public Private Partnership (PPP) in health sector for the wellbeing of general public. The campaign and the programme is mooted by the State Government and hence safeguards transparency and credibility. Contrary to popular belief, people's participation and acceptance, media support and societal acceptance is high. Major barriers are religious beliefs and logistic issues of certifying brain death, bearing expenses for maintaining donors etc. The future plan for a standalone registered body with Governmental control and quality monitoring is an excellent model which can be replicated elsewhere, enabling flexibility of guidelines, transparent sharing of organs, participation of NGOs and public etc.

Year	2012	2013	2014	2015	2016	Total
Donors	09	36	58	76	11	188
Heart	0	6	6	14	04	30
Liver	04	23	44	61	10	141
Kidney	18	59	104	132	18	331
Larynx	0	0	0	01	0	01
Pancreas	0	0	01	02	0	03
Small Intestine	0	0	01	01	0	02
Lungs	0	0	0	02	0	02
Hand	0	0	0	04	0	04
Total Major Organs	22	88	155	217	32	514

Table 1 - Deceased Donor Data for the State of Kerala

Dr. Aneka Paul

Senior Development Officer - Health Portfolio

Tata Trusts, Mumbai



Aneka Paul is currently a Senior Development Officer with the Health Portfolio of the Tata Trusts, Mumbai. In her current role, Aneka is actively involved in the Portfolio's work on Rural Health, Palliative Care and Human Resources for Health. Prior to joining the Health Portfolio, she spent a year with the Trusts' Individual Grants Program. Aneka holds a Bachelor's degree in Chemistry from Mumbai University, Mumbai and a Master's degree in Social Work from the Tata Institute of Social Sciences, Mumbai. She is an avid reader, and enjoys listening to music, particularly opera.

Synopsis

Getting financial help for transplant surgery

Organ donation, particularly from deceased donors, is steadily on the rise in India. However, while organs are available free of cost, transplant costs are high – which makes life saving transplant surgeries unaffordable to both the middle class and the poor. Subsequent costs of lifelong post-transplant immunosuppressants also make organ transplantation a luxury available only to the rich. Currently, costs of treatment are borne by taking loans from relatives and friends, or approaching philanthropic individuals or agencies for donations. The presentation would discuss various possibilities of bringing down costs of treatment, while also giving an outline of the application process for a grant for medical help from the Tata Trusts.

State	No. of Donors	Kidney	Liver	Heart	Lung	Pancreas	Intestine	Hand	Larynx	Total Organs
Tamil Nadu	155	290	149	51	28	0	1	0	0	519
Kerala	76	132	61	14	2	1	1	4	1	216
Maharashtra	60	106	51	5	0	0	0	0	0	222
Telangana	89	150	92	16	5	0	0	0	0	263
Andhra Pradesh	9	18	7	3	2	0	0	0	0	30
Karnataka	60	91	55	11	0	1	0	0	0	158
Gujarat	3	6	3	0	0	0	0	0	0	9
Madhya Pradesh	3	6	2	1	0	0	0	0	0	9
Uttar Pradesh	4	8	0	0	0	0	0	0	0	8
Delhi-NCR	14	28	14	6	0	0	0	0	0	48
Puducherry	9	18	2	1	0	0	0	0	0	30
Chandigarh	39	69	25	1	0	2	0	0	0	97
Rajasthan	7	14	7	1	0	0	0	0	0	22
Total	528	936	468	110	37	4	2	4	1	1562

Deceased Organ Donation in India - 2015

Note:

* The statistics projected in the above table is only provisional.

* The statistics for Gujarat, Andhra Pradesh and Delhi-NCR do not reflect all the deceased donations done in the region

[Acknowledgement : Tamil Nadu - Transplant Authority of Tamil Nadu (TRANSTAN); Kerala - Kerala Network for Organ Sharing (KNOS); Maharashtra - Zonal Transplant Coordination Center (ZTCC) - Mumbai, Pune & Nagpur; - Telangana - Jeevandan; Karnataka - Zonal Coordination Committee of Karnataka for Transplantation; Gujarat - Apollo Hospitals, Ahmedabad; Puducherry - Pondicherry Institute of Medical Sciences (PIMS) & Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER); Rajasthan - Rajasthan Network for Organ Sharing (RNOS)]

MOHAN FOUNDATION'S WORK GETS INTERNATIONAL RECOGNITION

MOHAN Foundation has received accolades in the international arena in recognition of its work in capacity building, healthcare advocacy and web-based technology aimed at giving an impetus to deceased organ donation in India.

Best Abstract Award for MOHAN Foundation at the 14th Congress of the Asian Society of Transplantation 2015 in Singapore

The Congress of the Asian Society of Transplantation (CAST) is the region's largest and longest running gathering of transplant physicians, surgeons and other health professionals involved in transplantation. The 14th Congress was held in Singapore from August 23-26, 2015. Dr. Sumana Navin, Course Director, MOHAN Foundation presented a paper on 'Impact of Trained Transplant Coordinators on the Deceased Donation Transplantation Programme in India', which was conferred the Best Abstract Award at the congress.



Dr. Sumana Navin, Course Director, MOHAN Foundation with Dr. Harun Ur Rashid, President, Society of Organ Transplantation, Bangladesh

The abstract carried an audit of the work of trained transplant coordinators working in different hospitals in India with regard to their success in counselling families of brain dead patients and facilitating the retrieval of organs and tissues. In close to six years MOHAN Foundation has trained 970 transplant coordinators through its structured training programmes. The work done by trained transplant coordinators in the country resulted in the retrieval of a total of 4229 organs and tissues from 711 deceased donors and from donation after cardiac death in the period December 2009 to September 2015 *(figures updated since submission of abstract and presentation)*. The impact of the work of trained transplant coordinators resulted in 41% of the total multi-organ donors in the country and 43% of the total organs retrieved from deceased donors from 2012 to 2014 on an average.

MOHAN Foundation Awarded Prestigious British Medical Journal South Asia Award 2015



Mrs. Lalitha Raghuram, Country Director, MOHAN Foundation receiving the BMJ Award for Healthcare Advocacy

MOHAN Foundation was *awarded the prestigious* **British Medical Journal South Asia Award 2015** in the Healthcare Advocacy category for its relentless efforts in using every tool, methodology, process and technology to promote organ donation in India and South Asia for the past two decades. MOHAN Foundation emerged a winner among 900 nominations and 36 finalists with 12 winners in different categories. The award was received by Mrs. Lalitha Raghuram, Country Director, MOHAN Foundation at the awards ceremony organised on October 30, 2015, at The Leela, Mumbai. MOHAN Foundation gets recognised at eNGO Challenge, South Asia 2015



Dr Sunil Shroff making a presentation at eNGO challenge

On October 9, 2015 MOHAN Foundation was invited as one of the finalists for eNGO Challenge, South Asia 2015 at Indian Habitat Centre, New Delhi in the category 'Best use of Website and Internet tools.' This category focuses on NGOs that are using their websites to showcase activities, projects and local content to get networking and support from funding agencies. This category also includes NGOs that create awareness on certain issues through campaigning.

MOHAN Foundation got a Special mention by the Jury award in the category 'Best use of Website and Internet tools'. The award was received by Dr. Sunil Shroff, Managing Trustee, MOHAN Foundation. eNGO challenge is supported by Digital Empowerment Foundation and Public Interest Registry.



Dr Sunil Shroff (5th from left) along with other winners of the eNGO challenge

Transplant Coordinator's One Year Certification Course

Learn At Your Own Pace

MOHAN Foundation offers the 'Transplant Coordinator's structured one year programme' where you can learn at your own pace. This is a unique blended learning certification course for working health care professionals.

Objective

Creating a cadre of health care professionals dedicated to "Transplant Coordination and Grief Counselling" in India and South Asia to improve Organ Donation Rate in this region.

About the Course

This course will help you understand the requirements for both deceased and living organ donation and transplantation with a focus towards kidney and liver transplantation.

Who should Join

Ideal - ICU nurses, doctors, allied health science graduates, social workers with at least 12 months experience in a hospital setup.

Others - Graduation in Sciences / Social Work / Sociology / Psychology / Hospital Administration – who have interest in the field

Course Duration - One Year

Course structure - The course has five components

- E-learning online modules There are 60 modules that cover the medical, legal, ethical and religious aspects of organ donation and transplantation as well as counseling, grief counseling and transplant coordination. The modules include theory, PowerPoint presentations, video lectures and films.
- 2. One week Contact learning at MOHAN Foundation Learning Centres at Chennai, Hyderabad and Gurgaon
- 3. Application oriented field visits
- 4. Assignments
- 5. Project

Examination - On completion of the course, the candidate will have to take the final examination and viva voce.

Total hours – 480

2 Hours X 5 Days X 4 Weeks X 12 Months = 480 Hours

(40 hours = 1 month)

Content	Unit	No. of Units	Hours per Unit	Total Hours	Duration
E-Modules	Module	60	4	240	6 Months
Contact classes	Day	5	8	40	1 Month
Project	Project	1	120	120	3 Months
Assignment	Assignment	16	2	32	
Application oriented visits	Visit	4	8	32	2 Montho
Examination	Exam	4	3	12	2 Months
Viva voce	Viva	4	1	4	

Course Fees – Rs.20,000 or US \$ 350 - includes fees for one week contact session. Paid by demand draft in name of MOHAN Foundation (Fees do not include travel, stay and food for the contact sessions)

Once accepted a brochure, course material and an online username and password will be issued to the candidate.

Application Form - Transplant Coordinator's One Year Certification Course

Last Name *				
First Name or Initials				
E-mail Address *				
Mobile No / Landline Number				
Present address				
	City		Pincode	
	State		. Country	
Qualifications	Year	University /Colle	ege	Grade/Marks

Any Hospital Experience - Yes / No

If Yes - Name of Hospital, Department, Number of Years of Experience

Current Post

Name of Organisation /Hospital

Please enclose Rs.20,000 or US \$ 350 paid by demand draft in name of MOHAN Foundation, Chennai Two Photographs and if possible a letter from your employee or your head supporting your application.

Name of Bank-	Draft Number	Date

Signature

Date



Educational Grant from

Sir Ratan Tata Trust Navajbai Ratan Tata Trust







OFFICES:

Chennai (Headquarters)

3rd Floor, Toshniwal Bldg 267, Kilpauk Garden Road Chennai - 600 010 Phone: +91 - 44 - 26447000 Mobile: + 91 - 9444607000 Email: info@mohanfoundation.org mohanfound@gmail.com

Hyderabad

#6-3-634, Flat B -1/A, Second Floor
Green Channel,Khairatabad
Hyderabad - 500 004
Phone: +91- 40 -66369369
Email:lalitha@mohanfoundation.org hyd.mohanfoundation@yahoo.co.in

Delhi - NCR

284 F, B - Block Sushant Lok - Phase I Landmark: Behind Vipul Square / Convergys Building Gurgaon - 122 002 Phone: +91 - 124 -4115211 Email: pallavi@mohanfoundation.org

Jaipur

Organ and Tissue Donation Project C - 103, Lal Kothi Scheme Jaipur - 302015 Mobile: +91 - 9829059005, +91 - 9983302011 +91 - 9828186908 Email: mfjcfjaipur@gmail.com

INFORMATION CENTRES:

Chandigarh 109, Sector - 8A Chandigarh - 160 009 Mobile: +91 - 9501534590,+91 - 9779135408 Email: chandigarh@mohanfoundation.org

Nagpur

J - 11, Laxmi Nagar West High Court Road Nagpur - 440 022. Phone: +91 - 7123275970 Email: raviwankhede@mohanfoundation.org nagpur@mohanfoundation.org

Vijayawada

C/O STORM, 2nd Floor Opp Bombay jewellers Hotel DV Manor Lane Tikkle road, Vijayawada Andhra Pradesh Email:hyd.mohanfoundation@yahoo.co.in

United States - Contact Person

Dr.Anirban Bose 28 Church Street Pittsford, NY 14534 Mobile: 585 584 1315, 585 719 6112 Email: dr.anirbanbose@gmail.com



Toll Free Organ Donation Helpline - 1800 103 7100