



भाभा परमाणु अनुसंधान केंद्र
BHABHA ATOMIC RESEARCH CENTRE

Pulse

HOUSE MAGAZINE OF BARC HOSPITAL

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In Conversation



Dr. S. K. Pandya,
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Mumbai.

Consultant, Jaslok Hospital, Retd Prof. of Neurosurgery, Seth G.S Medical College and KEM Hospital and a proponent of ethics in medical practice. He is Editor Emeritus, (Indian Journal of Medical Ethics); Journal Ombudsman, JPGM (Journal of Postgraduate Medicine); and Member, International Editorial Advisory Board of the Mens Sana Monographs.

The editorial team in a candid conversation with him.

ET: *The Indian Journal of Medical Ethics has entered the Silver jubilee year of publication. Congratulations to you as one of its founders. Today, we have a business model of health care delivery in our market economy. Is this model compatible with ethical medical practice?*

SP: Yes. The business model permits development of state-of-the-art hospitals with the best of modern equipment and expertise. Our best hospitals in the private sector can rival similar hospitals anywhere in the world.

Requirements for ethical practice in these hospitals:

Honesty, concern for poor patients and a spirit of service to the deprived segments of society. Earnings in these hospitals are adequate for setting aside a percentage for the welfare of poor patients. Preference can be given to life-saving therapy, this being made available free of all costs to the poor.

ET: *What according to you would be an ideal health care system for our country?*

SP: The following changes are needed:

Bring the public sector hospitals to the degree of eminence and excellence they had reached when India gained independence. Make it compulsory for all ministers, bureaucrats seeking medical attention and treatment at the cost of the public exchequer to be treated only in public sector teaching hospitals. Eliminate, ruthlessly, all political interference in public sector teaching hospitals. Merit and merit alone should form the basis for all appointments from Dean to the humblest employee.

Use judiciously the full-time and the honorary systems in public sector teaching hospitals. Full-time doctors must be granted salaries at par with the private sector. The weapon of transfer to favour or to penalise should be abolished. The smaller teaching hospitals away from metropolitan centres must be progressively developed. Staff recruited to these hospitals should preferably have a stake in the local environment so that they do not desire emigration to large cities. They should be well provided, by way of housing, care of their families and education of students. They should be given opportunities to spend time in advanced national centres and to attend conferences that will help them improve their performances.

Improve rural and district clinics and hospitals by recruiting local voluntary medical effort and by employing local medical professionals in a manner indicated above for the smaller teaching hospitals. The chain linking tertiary hospitals in metropolitan centres – district hospitals – smaller hospitals in rural areas – primary health care centres must be strengthened on a continuing basis through official (governmental) and local (panchayat, district committees) funding and monitoring.

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Editorial



Universal Health for all - Will we finally get there?

Health is, and has been, a basic concern of humans across the globe and throughout the history of mankind. Universal healthcare (UHC) is the objective of all nations including India. UHC not only advances and enhances the lives of the people but also provides economic and social benefits. However, till date, we have not at all fared well in this area.

According to Dr. Devi Shetty, chairman of Narayana Hrudayalaya -remarkably good quality of health care can be provided at very low cost. He suggests, the government should become a health insurance provider not a health care provider. Nobel Laureate, Amartya Sen in his book 'Uncertain Glory- India and its Contradictions' has suggested that we learn lessons from across the world and also contrasting performances of different states in India. (The constitution of India makes health in India, the responsibility of the State governments). Besides the richer countries, even nations like Rwanda, Thailand and Bangladesh have managed to provide better health coverage to their population. In India, Kerala and Tamil Nadu have fared better than the other states.

The Centre has recently announced the National Health policy 2017, with the aim of ensuring affordable, quality care to every citizen of the country.

The **highlights** of the policy are-

- Shift focus from sick care to wellness by promoting prevention and well being. It proposes to use the tools of AYUSH and yoga and also advocate pre- screening.
- Increase public health expenditure to 2.5% of GDP from current 1.4%, with more resources being used towards primary health care.
- Proposes free drugs, diagnostics and emergency and essential health care services in public hospitals.
- To strengthen health care system by various means(regulatory, reformatory, digitisation data tracking etc.) to ensure everyone has access to quality healthcare despite financial barriers.
- Promote use of drugs and devices manufactured in India.

The **key quantitative targets** listed in the policy are

- Increase life expectancy at birth, from 67.5 years to 70 years by 2025.
- Ensure availability of 2 beds/ 1000 population to enable access within the golden hour.
- Reduce under 5 year child mortality from current 48 to 23/ 1000 by 2025.
- Reduce infant mortality from current (2015-16) 41 to 28 / 1000 by 2019.
- Reduce maternal mortality rate from 167 to 100/ 100000 by 2020.
- Achieve the global 2020 HIV target of 90:90:90.
- Reduce premature mortality from diseases like cancer, diabetes, cardiovascular and respiratory by 25% by 2025.

It's a huge challenge that the government faces and we hope that it will be able to deliver in time.

Meanwhile the editorial team is happy to deliver the next copy of 'Pulse' on your table and hope you find the contents engaging, stimulating and interesting. If you feel you would like to change or add anything, please feel free to contact us at pulse@barc.gov.in. Your views and suggestions are most welcome.

As we send this issue for publication, another disturbing subject needs mention. The medical fraternity in India, is now facing a frightening epidemic of violence against doctors. The reasons are probably manifold and involve many stakeholders, however there is an urgent need to address the problem. Otherwise the repercussions will be felt not only by the medical professionals, but also by the patients and society at large. Our hospitals should continue to be places of healing and caring and not places where sense less injury is being inflicted and violent attacks taking place.

Dr. Nalini Bhat
Editor - in chief
BARC Hospital Newsletter.

From the Director's Desk



Dear Colleagues,

I had been asked to write this article for quite some time. But, I was hesitant as I share a different outlook towards issues related to health and wellness. The whole purpose of medical science is to provide services to mankind to ensure good quality of life as long as one is alive.

I have always believed that there are three major factors affecting one's health. The first factor, in my opinion, is the genetic structure which we inherit from our parents. Some of us have been fortunate enough to be born with good health as our parents have also enjoyed good health while others may inherit a not very healthy life. This is one factor for which one cannot complain, except blame fate.

Another important factor is our lifestyle. This has been stressed upon adequately in the old and traditional Indian philosophy and which, subsequently has been endorsed by the present day medical fraternity too, realizing the correlation between good health and a balanced life style. Many a times, we voluntarily or involuntarily imbibe the habits of our parents and hence, their so-called good lifestyle could become a source of inspiration for our own lifestyles. But, by and large, our lifestyle is our own responsibility.

The third and perhaps the most important aspect in my opinion is the mental disposition of an individual. The present day scenario, with regard to situations faced during everyday life, tends to result in a number of expectations and the fulfillment of only a few of them. The resultant dissatisfaction tends to lead to various levels of anxiety as well as disappointment. It has been established that mental stress levels possibly result in afflictions such as hyperacidity and hypertension and problems associated with them. Often, as individuals, it is ingrained in us that we are in control of situations. However, in reality, there may be many instances which are beyond our control. The anxiety levels resulting from this assumption are much more difficult to handle. However, to remain calm during difficult times is in our hands and if one's mind is adequately disciplined, it proves to be helpful and thus ensures better mental health. One of the most convenient ways to control anxieties is to exercise and tire out the body, which in my opinion is one of the best stress busters.

The aforementioned is not to discount the efforts put in by the medical fraternity. The present day medical science, backed by technology, has shown tremendous results in early detection of diseases and has made cutting-edge curative measures possible. Technology has also helped in providing phenomenal support to accident case victims by, often, completely restoring their quality of life. It is thanks to advancements in medical sciences that the longevity of a person's life has increased significantly in the last few decades. Moreover, the efforts put in and results achieved are due to the contributions of several individuals, who have dedicated their lives towards working in the medical profession, regardless of hierarchy. These include researchers, doctors, nursing staff, ward workers and administrators, who have been instrumental in making a difference in the health scenario. I would also like to emphasize again that the amount of solace and relief one gets on meeting a competent doctor or a caring nurse cannot be described in words.

Summarising, I would like to highlight the importance of the right balance between the body's natural healing processes and timely medical intervention. Based on my personal experience last year, during which I lost both my mother and my uncle, I realised, that as one ages, the body's natural resistance to ailments reduces substantially. And best efforts fail. Previously when medical advancements were less extensive, doctors and medical professionals would gracefully accept the limitations of the treatment being given. However, now, prolonged hospital treatments mean that patients breathe their last in isolation, away from their loved ones. I do hope that the medical fraternity becomes slightly wiser and finds a balance which is best for the society.

Shri. K. N. Vyas.
Director, BARC

Congratulations

to BARC Hospital Post Graduates

These students have successfully passed their post-graduate DNB examinations in 2016



Dr. Adit Palsania
(Anaesthesiology)



Dr. Mandar Mote
(Anaesthesiology)



Dr. Pratik Panchal
(Anaesthesiology)



Dr. Rachit Patel
(Obs. & Gynaecology)



Dr. Sneha Singh
(Paediatrics)



Liquid Medical Oxygen plant inaugurated at BARC Hospital on 21st October 2016

Surrogacy: A Boon to Mankind

Dr. Santoshi Prabhu, Dept. of Obs. & Gynaecology, BARC Hospital



"Lo children are a heritage of the Lord, and the fruit of the womb is His reward." (Psalm 127:3, Bible). 'Procreation' is considered a fundamental feature of humankind and most women possess a biological need to become a mother. But sometimes, there is difficulty in conceiving or nurturing resulting in stress, guilt and frustration often more to the woman than the man. In this modern era, 'Artificial Reproductive Technology' (ART) and 'Surrogacy' come to the rescue of such crestfallen couples.

The word 'Surrogacy' originates from Latin word 'Surrogare' means to 'elect as substitute'. Surrogacy involves using one woman's uterus for the purpose of implanting and carrying the embryo in order to deliver a baby for another person or the couple. It is a boon to the women in whom the functionality of the uterus is affected due to congenital absence, diseases like Asherman's syndrome (obliteration of uterine cavity due to adhesions) or surgical removal. In such cases all other methods of ART fail. Sometimes, a woman may have an incompatible womb and thus faces repeated pregnancy losses. Due to medical conditions, continuation of pregnancy in her own uterus is rather risky. Then the surrogate womb of another woman can help her fulfill her dream of living the beautiful journey of motherhood.

Legally, only a woman who has carried at least one successful pregnancy to full term, can become a surrogate. Thus surrogates have a proven uterus, which increases the chances of a successful pregnancy rather than any other fertility treatment. Many a times couples find themselves financially strained after a few cycles of IVF (In-Vitro Fertilization) with an unsure outcome. Thus, surrogacy remains an affordable and viable option with better take-home baby rate.

Unlike adoption, the child is genetically linked to either: both parents (in gestational type of surrogacy where, the commissioning

couple's egg and sperm go through IVF and the fertilized egg is implanted in the uterus of the surrogate) or at least linked to the father (in partial type where surrogate's egg is fertilized by commissioning the parent male's sperm.) Due to this genetic bond, parenting a surrogate child is psychologically simpler than parenting an adopted child. Being a biological-surrogate, the child is more likely to share appearances, physical traits, personality types or similar medical needs with the biological parents. Intended parents can be involved throughout the pregnancy experience with comparatively lesser stress. They can be present for key milestones: from embryo transfer to their baby's birth. It gives them opportunity to raise their child from birth.

Surrogacy is 'altruistic' where the surrogate mother usually is a friend or a relative. She 'offers her womb' as an act of 'altruism' and is not paid for her 'service'. In commercial surrogacy the surrogate mother receives base compensation for carrying the child which can be applied to her financial goals. But in both the cases, as surrogate mothers have made a very conscious decision to carry someone else's child, they have a positive experience and feel a deep sense of satisfaction in what they perceive as an altruistic gesture. Yet, there have been many reports of women being exploited in case of commercial surrogacy and a ban on this very surrogacy has been announced as recently as August 2016!

Considering all the above positive aspects, I feel, surrogacy as a science is pure and the commercialization has made it murky. Making the law and its implementation firm and not blaming the science behind surrogacy would be wise. If the law is stringently implemented and followed by the masses, then surrogacy is a rewarding experience that enriches the lives of everyone it touches, by introducing bundles of joy. It is, in fact, an excellent example of selflessness and generosity in the society, to rekindle the extinguishing sparks of humanity in the minds of people.

Dr. Shobha Nair, Dept. of Psychiatry, BARC Hospital



Scientific and technological advances in reproductive medicine have resulted in artificial reproductive techniques offering hope to couples with infertility. Soon, the possibility of not going through the nine months of pregnancy and having a legitimate baby with the same genes as that of the parents has become a reality. Commercial surrogacy has been legal in India since 2002. The new Surrogacy (Regulation) Bill 2016 tabled in the parliament has once again brought the debate around surrogacy to the fore. The new Bill rightly prohibits all forms of commercial surrogacy. However it permits 'altruistic' surrogacy, wherein a relative, not necessarily a blood-relative could volunteer to be a surrogate. My point is that there is no guarantee that legalising altruistic surrogacy would do away with the commercialisation. Therefore, surrogacy is not an option as a method of treatment for infertility in our country.

What was the social consequence of surrogacy, the scientific advance in treatment of infertility? India soon became the most sought after fertility tourism hub in the world. 'Rent a womb' was marketed as an act of generosity and a dignified means of alleviating poverty. Baby farms sprouted across the cities of India where foreigners and the rich and middle class of our country outsourced pregnancy to the socially and economically disadvantaged women for a price. Just as the developed nations offshore industrial production or outsource IT services to India and other developing nations because it is cheaper, couples from the rich nations flocked here as human life was a cheaper commodity in comparison to their own countries. According to CII (Confederation of Indian Industry) the annual value of this industry was over 2 billion US dollars. Human body was considered to be a robot, bereft of feelings and a soul, and the uterus a spare part the value of which was determined by free markets. It raises a valid moral question; are we devaluing

human beings? We defend the practice by saying it's a voluntary act and the surrogate improved her life with the money earned.

Often it has been found that one time compensation may temporarily help pay off existing debts but does not emancipate them from poverty over a long term. In the existing patriarchal society coupled with gender inequality, the poor women in our country hardly make any informed choices. So, it's anybody's guess that the families can coerce women into being a surrogate for fulfilling their needs. All this, at the cost of the mental and physical health of the women. Should the medical profession be a party to a deal that raises doubts on the autonomy of the surrogate?

In the garb of 'altruistic surrogacy' anybody could pose as a distant relative and verification would be a challenge for any authority. Signing up as an altruistic surrogate makes the woman more vulnerable to exploitation as the exchange of money becomes illegal and therefore

under the table. A comparison with kidney transplants drives home this point. The organ transplant act permits altruistic donation and we come across kidney rackets exposed in reputed hospitals wherein the authorisation committee couldn't detect the fraud.

In vitro fertilization is an expensive, high end treatment affordable only to a select upper middle class and the rich in our country. Public health care facilities have not yet made it affordable and accessible to the poor. In this entire scenario, should we as medical professionals promote surrogacy, a procedure which is intended to fulfil the desires of the wealthy? Does it not raise an ethical question of justice?

The adoption rates have declined in the last few years with a proportionate rise in artificial reproduction and surrogacy. It is time to reverse this trend. Altruism cannot be the prerogative of the disadvantaged. Alternatively, the rich can exhibit altruism by adopting the orphans of our nation and providing them a life of dignity and love. Surrogacy can be permitted only in an equal society.



VIEW



COUNTER VIEW

Achievements



Shri Ravindra Sarvekar, Dental Hygienist, was awarded the Meritorious Technical Support Award in October 2016, for his excellent contribution in the field of "Dental Healthcare."

Dr. Pratibha Toal (Head, Anaesthesia) was a participant of the Satara Hill ultra-half Marathon, 2016 which entered the Guinness World Records for 'most people in a single mountain run.'

Dr. Jayesh Kalbhande (Gen. Surgeon, BARC Hospital) was a member of team 'Ajanta' that represented BARC Mumbai in "XXXII DAE Sports & Cultural meet-2016 Chess" held at HWP Manuguru in December 2016. Team Ajanta won the tournament and Dr. Jayesh Kalbhande won 2nd prize on third board.



Dr. Vaishali Jadhav (Gynaecologist, BARC Hospital) conferred Fellowship by Indian College of Obstetricians and Gynaecologists (FICOG) at 60th All India Congress, Ahmedabad on January 28, 2017

Research Publications from the Medical Division:

- Cognitive function test: Is preanesthesia checkup complete without this? Chiplonkar SY, Toal PV, Palsania AJ. *J Anaesthesiol Clin Pharmacol* 2016;32:540-1
- Massive saline absorption during Holmium laser excision of prostate manifesting with parotid area sign. Chiplonkar S Y, Toal P V, Palsania A J. *Astrocyte* 2016; 168-70.
- Is our suction apparatus rightly calibrated? Panse S, Chiplonkar S, Ganguly T. *Indian J Anaesth* 2017; 61:272-3
- Pendulous Abdomen Causing Levorotation of Uterus and Transverse Lie. Prabhu S, Mishra N, Savani G, Tintoiya I. *JPGO* 2017. Volume 4, Issue.4, April 2017. Available from: <http://www.jpgo.org/2017/04/pendulous-abdomen-causing-levorotation.html>

ET: *In what way can individual doctors play a larger role in improving professional ethics?*

By staying true to the principles of medical ethics themselves and by thus serving as role models for all those around them. Examples are, always, more effective than preaching.

By continuing to upgrade their own skills so that they offer the best available care to their patients and their families.

By keeping themselves rooted in the humanities.

ET: *How can the medical regulatory bodies play a more active role in reviving the lost glory of our profession?*

These bodies must be totally free from any taint of corruption, favouritism and political interference.

Those responsible for the formation and functions of these bodies must ensure that their constituents, staff and officials are the cream of the medical profession, noted for their humanism, ethical practice and academic excellence.

These bodies must not only ensure ethical practice of the highest quality but also continuously educate the profession and the public on changing practices, knotty ethical issues. The regular publication of scientific facts and guidelines on issues that pose ethical problems goes a long way in ensuring awareness. The General Medical Council of Great Britain is an excellent model for us.

ET: *We read reports of vandalism in hospitals and violence against doctors. What according to you is the cause? What can be the remedy?*

SP: **Primary causes:**

Poor understanding among the family and friends of patients of what is being done for their patients and the likely prognosis. Poor explanations from the doctors may lead them to unrealistic expectations and consequent shock and outrage when the patient's condition worsens or the patient dies.

Dismissal of concerns displayed by family and friends of patients; rude behavior with them.

Remedies

Ensure excellent communication at all times between doctors, other hospital staff and administrators on the one hand and patients and their families on the other.

Humane behaviour on the part of all hospital staff members, obvious concern for patients and evident excellence of medical care will reassure patients and their families. This is as important with poor patients as with those who are well off.

Off-hand and cursory answers and, worse, display of haughtiness, superiority with rude behavior; lack of evidence of concern in the patient's welfare; failure to attend promptly to patients worsening despite treatment and excluding patients' relatives from discussions on prognosis will alienate the families of patients.

Help in obtaining expensive drugs, getting expensive tests done and in the general treatment of the patient in hospital and after discharge will engender a favourable attitude towards hospital and its staff members.

ET: *The Government has recently taken some steps to curb malpractice and reduce cost of drugs, stents etc. What are your views on these?*

SP:

These were long overdue. Proclamations such as those made by Government and officials will be meaningless unless patients and families see them translated into meaningful and sustained benefits to them.

There are many more issues that need attention: unnecessary surgery; lack of transparency on charges levied by doctors, laboratories and hospitals; fee-splitting and other such measures that jack up costs to the patients...

ET: *We know about your penchant for detailed history taking and meticulous observations. Could you elaborate the benefits of this fast fading art?*

SP: Finding time to take a comprehensive history, perform a detailed examination of the patient and prepare a complete case report confers several benefits:

- Bonding with patient and family.
- Awareness amongst patient and family of your concern and urge to do your best for them.
- Awareness in your own mind (and in the minds of others who will see the patient or read your notes) of the details of the patient's illness, past history and present needs.
- In a teaching hospital, your example may inspire others, especially residents and students, to follow the same practice.
- Your case note, updated as required, is a useful legal document should you ever need to discuss this patient's problems in a court of law.

ET: *What message would you like to pass on to the next generation of medical professionals?*

On Changes needed in our health care system-
"Make it compulsory for all ministers, bureaucrats seeking medical attention and treatment at the cost of the public exchequer to be treated only in public sector teaching hospitals."

- Dr. Pandya

On recent Govt measures in healthcare-
"Proclamations such as those made by Government and officials will be meaningless unless patients and families see them translated into meaningful and sustained benefits to them."

- Dr. Pandya

SP: The great teachers have already provided us excellent guidelines.

Here are two of them:

Sir William Osler, addressing medical students, offered them a choice:

The choice lies open, the paths are plain before you. Always seek your own interests, make of a high and sacred calling a sordid business, regard your fellow creatures as so many tools of the trade, and, if your heart's desire is for riches, they may be yours; you will have bartered away the birthright of a noble heritage, traduced the physician's well-deserved title of "Friend of Man", and falsified the best traditions of an ancient and honorable Guild.

Sir Robert Hutchison (1871-1960), voiced a prayer that remains relevant:

From inability to let well alone; from too much zeal for the new and contempt for what is old; from putting knowledge before wisdom, science before art, and cleverness before common sense; from treating patients as cases; and from making the cure of the disease more grievous than the endurance of the same, Good Lord, deliver us.

ET: *We would like you to share with our readers, a routine day in your life? What are your hobbies?*

SP: **Ambitions for the day:**

Doing all I can, with humanity and care, for patients seeking my help.

Continuing to learn – medicine, neurosurgery, being a better physician.

Hobbies:

The study of medical ethics and the role of humanities in medical education Study of the history of medicine

Literature, Films, Music, Photography

Suggested reading for those interested in improving medical care:

Millard Mark W: Can Osler teach us about 21st-century medical ethics? *Proceedings of the Baylor University Medical Center* 2011;24:227-235. (Accessible at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3124909/>)

Osler Sir William: *Aequanimitas* with other address to medical students, nurses and practitioners of medicine. Philadelphia: P. Blakiston's Son & Co. 1932. (Accessible at <https://ia801509.us.archive.org/6/items/in.ernet.dli.2015.90528/2015.90528.Aequanimitas.pdf>)

In-house research

Cross Sectional study of disability in patients suffering from schizophrenia for ten or more years

Dr. Shivraj Peste, Dr. Tejas Gholap, Dr. Shobha Nair, Dr. Aditi Chaudhari and Dr. Kaustubh Mazumdar, Dept of Psychiatry, BARC Hospital

There is a need to focus on the longterm outcome of schizophrenia in terms of disability. A systematic study of the clinical correlates of disability could help to delineate the factors that impact it.

Aims and objectives: 1. To assess the extent of disability in patients suffering from Schizophrenia for ten or more years. 2. To study whether disability varied with the socio-demographic profile of the patient. 3. To evaluate the association of symptom severity with the extent of disability. 4. To determine whether age at onset, duration of illness and duration of untreated psychosis affected disability.

Materials and Methods: 50 patients who had been suffering from schizophrenia for ten or more years were included. The socio-demographic and illness related variables were noted. Symptomatology was assessed using the Positive and Negative Syndrome

Scale (PANSS) for Schizophrenia and disability was assessed using the Indian Disability Evaluation and Assessment Scale. (IDEAS)

Results: 60% patients had mild disability, 36% had moderate and 4% had severe disability. 40% patients had a disability of more than 40% which is the cut off for qualifying disability as per the Persons with Disability Act, 1995. Disability was higher in patients who were unemployed and unmarried, had higher scores on the negative subscale of PANSS and a longer duration of untreated psychosis at first visit. Disability did not have any significant association with age, gender, age at onset and total duration of illness beyond 10 years.

Conclusion: 40% of patients suffering from Schizophrenia were disabled after 10 or more years of the illness. Quantifying disability is desirable in every patient. Reducing the duration of untreated psychosis at first visit can minimise the disability.



Recent Developments in Targeted Radionuclide Therapy: A Clinical Case Based Overview

Dr. Sandip Basu, Head, Nuclear Medicine Academic Programme, RMC, BARC.

The clinical applications of targeted radionuclide therapy in recent times have evolved beyond the traditional radioiodine (¹³¹I) therapy (radiotherapy) in differentiated thyroid carcinoma and hyperthyroidism and encompass a number of oncological conditions.

Besides radioiodine, there are a number of other newer radionuclides and radioimmunotherapeutics being used for various oncology and a few non oncologic conditions as enumerated in Table 1. Radioimmunotherapy is a type of targeted therapy that combines antibody (immunotherapy) tagged with a therapeutic radionuclide (radiotherapy). The most common type of radioimmunotherapy to date has been for the treatment of refractory non-Hodgkins lymphoma, with ⁹⁰Y-ibritumomab tiuxetan and Iodine (¹³¹I) tositumomab. In India, ¹³¹I-Rituximab and ¹⁷⁷Lu-Rituximab are being pursued. There is also recent interest in breast cancer being treated with ¹⁷⁷Lu-trastuzumab targeting the HER2 receptor. In the below-mentioned discourse, we shall overview the newer clinical applications in a case-based atlas format.

Table 1. Examples of Radionuclide therapies with Unsealed Sources in various Diseased Conditions.

| Radiopharmaceutical Used | Diseased Condition |
|---|---|
| ¹³¹ I-sodium iodide | 1. Hyperthyroidism (both diffuse toxic goiter and toxic multinodular goitre) and 2. Differentiated Thyroid cancer (both metastatic disease and Neck remnant ablation). |
| ¹⁷⁷ Lutetium -DOTATATE | 1. Advanced/Metastatic Gastroenteropancreatic and thoracic Neuroendocrine tumors. 2. Advanced/Metastatic Medullary Carcinoma thyroid. |
| ¹³¹ I-metaiodobenzylguanidine (MIBG) | • Neural Crest tumors |
| 1. Beta Emitters: ¹⁵³ Samarium-EDTMP/ ¹⁷⁷ Lu-EDTMP/ ⁸⁹ Sr-Chloride/ ³² P-sodium phosphate/ ¹⁸⁸ Rhenium-HEDP 2. Alpha Emitter: ²²³ Ra-chloride | • Palliative bone pain treatment for painful skeletal metastasis. |
| ⁹⁰ Yttrium--ibritumomab tiuxetan (Zevalin) and ¹³¹ I-tositumomab (Bexxar) | • Relapsed/Refractory lymphoma |
| ⁹⁰ Y-SIR-Spheres and TheraSphere | • Non resectable liver cancer, patients with hepatocellular carcinoma, metastatic colorectal cancer, or metastatic neuroendocrine tumours |
| Yttrium-90, Erbium-169, dysprosium-165 and Rhenium-186 | • Radiosynovectomy |

[A] Metastatic/Advanced Neuroendocrine Tumours: ¹⁷⁷Lu-DOTA-Octreotate peptide receptor radionuclide therapy (PRRT)

Lutetium-177 (¹⁷⁷Lu), a new entrant in the armamentarium of therapeutic radionuclides, has been employed extensively over the last 5 years in the form of ¹⁷⁷Lu-DOTA-Octreotate for the treatment of metastatic gastroenteropancreatic and pulmonary neuroendocrine tumors and medullary carcinoma thyroid producing gratifying results. This agent targets the somatostatin receptors (primarily subtype 2) which are over-expressed in these tumors and the

therapeutic procedure is known as peptide receptor radionuclide therapy (PRRT).

Painful skeletal metastases have been treated with intravenous ¹⁵³Sm-EDTMP and ¹⁷⁷Lu-EDTMP that produce durable pain palliation. Being well-tolerated, PRRT has the potential to become the first-line therapy in patients with metastasized or inoperable GEP-NETs.

India has been at the forefront of this treatment due to two, (after developments) as a part of radiopharmaceutical research in the country's premier atomic energy establishment BARC: (1) The availability of ¹⁷⁷Lu-LuCl₃ at a much lower cost due to indigenous production (less than one-third of commercially available material) and (2) indigenous production of a single-vial kit for the formulation of ^{99m}Tc-HYNIC-TOC, which has played an important role in centres that do not have access to a germanium/gallium generator.

Case 1. A 49 years old male patient presented with epigastric pain and vomiting for 3 weeks. The MDCT (Upper Abdomen) demonstrated lobulated 8x5x5.5cm exophytic well enhancing mass lesion arising from greater curvature of stomach with surrounding neo-vascularity and multiple well defined enhancing lesions with arterial blush on triple phase CT; largest lesion in right lobe of liver measuring 3.4x3.4 cm. Multiple peri-gastric lymph nodes were also seen.

Upper GI endoscopy showed mucosal elevation of greater curvature. Biopsy was suggestive of NET of gastric origin. Ki67 index <2%, MIB-1 labeling index <2%; chromogranin and synaptophysin +. Fig 1 shows the comparative evaluation of indigenous ⁶⁸Ga-DOTATATE PET-CT (left column) ^{99m}Tc-HYNIC-TOC (middle column) and ¹⁷⁷LuDOTATATE post-treatment scan demonstrating somatostatin receptor (SSTR) expressing lesion at the known site of primary and multiple lesions in both lobes of liver. The figure illustrates gratifying experience with BARC produced indigenous ^{99m}Tc-HYNIC-TOC. A total of 1700 therapeutic procedures have been undertaken at RMC till date in close to 600 patients, with many patients now undergoing multiple cycles of this treatment.

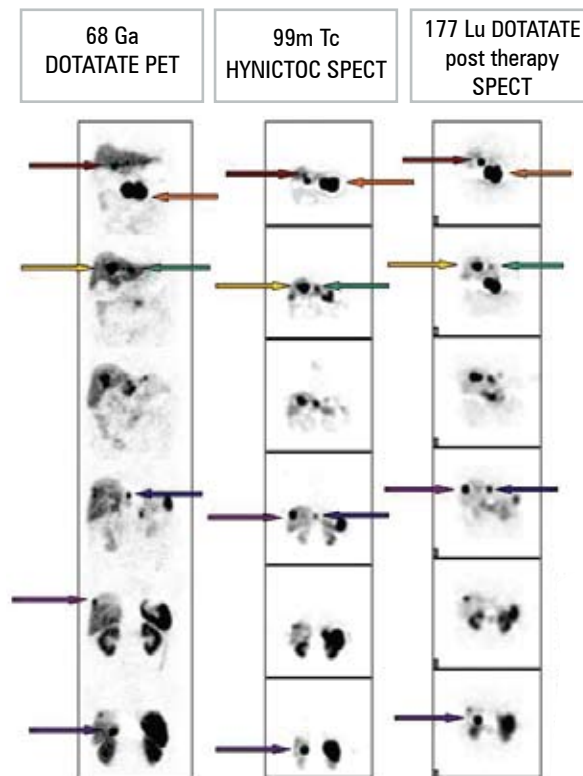


Fig 1. Gratifying Experience with BARC produced Indigenous ^{99m}Tc-HYNIC-TOC (Reproduced with permission³).

Case 2.

A 47 year old female presented with bleeding per rectum. Colonoscopy revealed proctosigmoiditis and a rectal polyp. CT scan showed multiple liver lesions. FNAC reported as metastatic NET. Rectal polyp biopsy revealed it to be a well differentiated NET with Mib 1 index of 1-2%. ^{99m}Tc-HYNIC TOC scan showed multiple somatostatin receptor (SSTR) positive metastatic lesions in the liver and SSTR positive rectal lesion (Fig 2a). PET-CT scan showed low grade FDG avid rectal primary with FDG avid liver lesions (Fig 2b). The patient was treated with cumulative dose of ⁷⁸⁶mCi of ¹⁷⁷Lu based PRRT over 5 cycles. Follow up ⁶⁸Ga DOTATATE after 5 cycles showed no SSTR positive lesions (Fig 2a) and FDG PET CT showed complete metabolic resolution of the liver lesions with the rectal lesion still showing some low grade FDG uptake (Fig 2b). There was total resolution of all the constitutional symptoms. The patient is now having stable disease and is 36 months progression free.

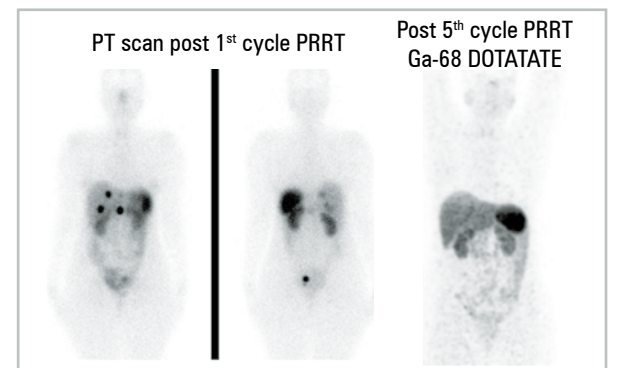


Fig 2a

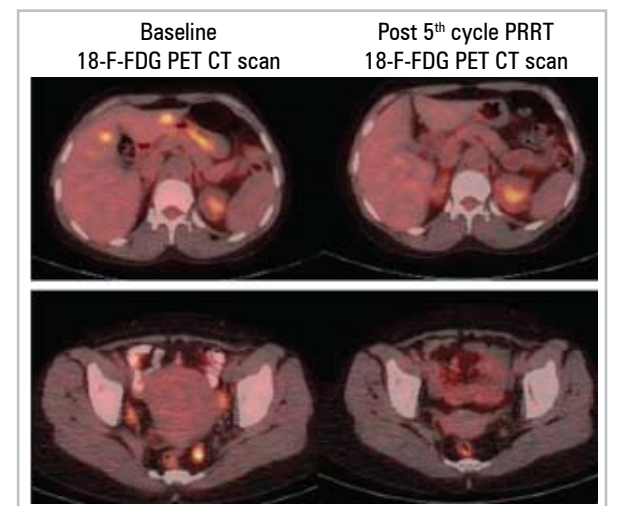


Fig 2b

[B] Neural Crest Tumors: ¹³¹I-MIBG Therapy

¹³¹I-MIBG (¹³¹I-Meta-Iodo-Benzyl-Guanidine) therapy is typically indicated for neuroectodermal tumours, such as advanced stage 3&4 neuroblastoma, pheochromocytoma and paraganglioma. In-vivo MIBG imaging is highly sensitive and specific for detection of primary and metastatic tumour.



Fig 3. The physician loading the ¹³¹I-MIBG radiopharmaceutical into the infusion bottle kept in the lead shield.

This treatment is delivered by intravenous infusion system which is lead shielded (illustrated in Case 3, a child of metastatic neuroblastoma)(Fig 3).



Article

Integration of Picture Archiving and Communication System (PACS) with Hospital Information System

R. S. Singh, Computer Centre, BARC Hospital

Introduction:

The Hospital Information System (HIS) was developed using MySQL (Structured Query Language) as RDBMS (Relational Database Management System) and Java web pages as front end tool, to have digitalised medical records and for the management of CHSS beneficiaries. HIS has been operational in BARC Hospital and fourteen peripheral dispensaries in Mumbai for almost a decade. With the practice of medicine becoming more image-based and document oriented, HIS needs to interface with various imaging systems in Radiology, Dental, Surgical and other departments at BARC Hospital to provide an on-line image retrieval system, through the HIS. This can be achieved through the implementation of Picture Archiving and Communication System – PACS.

PACS is a medical imaging technology. It breaks down the physical and time barriers associated with traditional film-based image retrieval, distribution, and display. Electronic images and reports can be transmitted digitally on to the HIS via PACS. This eliminates the need to manually file, retrieve or transport film jackets in radiology.

The universal format for PACS image storage and transfer is DICOM (Digital Imaging and Communications in Medicine).

Non-image data, such as scanned documents, may be incorporated using consumer industry standard formats like PDF (Portable Document Format), once encapsulated in DICOM.

Major components of PACS

1. The imaging modalities - All medical units or faculties creating medical images such as X-ray plain film,

CT and MRI, Ultrasound, PET scan, endoscopy, mammograms, digital radiography, computed radiography, histopathology, ophthalmology, ENT, dentistry, laboratory and others.

2. A secured network for the transmission of patient information.
3. Workstations for interpreting and reviewing images.
4. Archives for the storage and retrieval of images and reports.

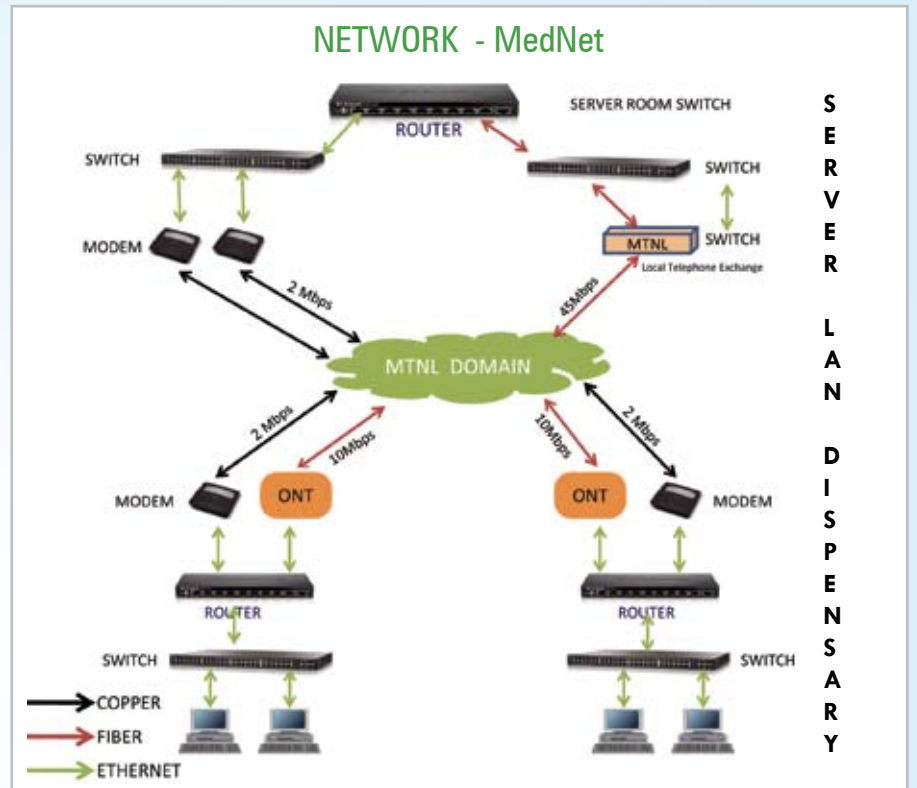
Main advantages of PACS

- Hard copy replacement - PACS replaces hard-copy based means of managing medical images, such as film archives. Digital copies are referred to as Soft-copies.
- Remote access - It enables practitioners in different physical locations to access the same. This translates into better and faster medical care to the patient.
- Electronic image integration platform - PACS provides the electronic platform for radiology images interfacing with other medical automation systems such as Hospital Information System (HIS), Electronic Medical Record (EMR) and Radiology Information System (RIS).
- Radiology Workflow Management - PACS is used by radiology personnel to manage the workflow of patient examination reports.

PACS is offered by virtually all the major medical imaging equipment manufacturers, medical IT companies and many independent software companies.

PACS implementation at BARC Hospital

BARC Hospital is in the process of procurement of DICOM compatible imaging systems in various departments.



Secured High Speed Network: A fibre based secured high speed network has been designed and implemented at all concerned departments for transfer of DICOM compatible images to the Computer Server.

The general implementation is shown diagrammatically (Fig 1 & 2).

Conclusion

PACS system will enable the access of images in BARC Hospital and fourteen peripheral dispensaries through high speed network at the click of a button at any time. PACS system will also reduce the printing cost of the films.

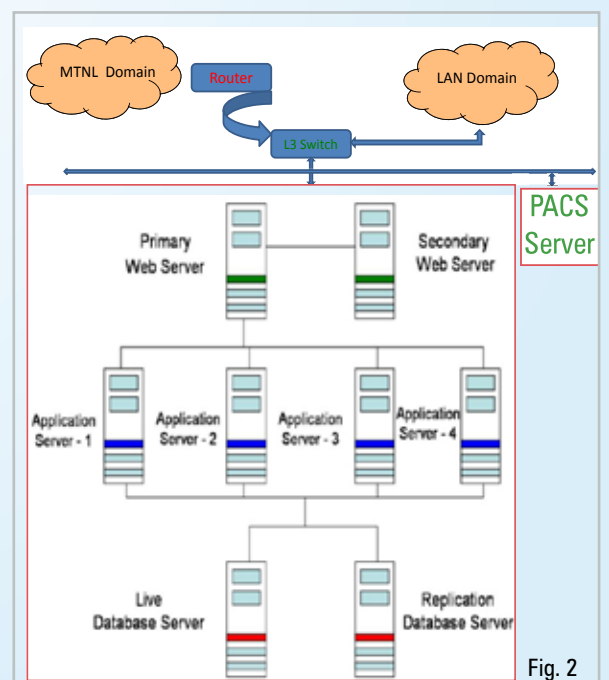


Fig. 2

In-house data

Snake Bite statistics



Dr. Sachin Kadam
CMO



Dr. Shrividyha Chellam
Casualty In-charge



Dr. Ravikant Khande
CMO

Patients with snake bites who reported to casualty, BARC Hospital - a 5 year data

| Year | Number of patients | Bite-Above waist | Bite -Below waist | Discharged | Shifted to panel hospital |
|--------------|--------------------|------------------|-------------------|------------|---------------------------|
| 2012 | 9 | 6 | 3 | 9 | 0 |
| 2013 | 2 | 1 | 1 | 2 | 0 |
| 2014 | 7 | 2 | 5 | 4 | 2 |
| 2015 | 2 | 1 | 1 | 1 | 1 |
| 2016 | 2 | 2 | 0 | 2 | 0 |
| Total | 22 | 12 | 10 | 18 | 3 |

In the past 5 years, a total of 22 patients reported to Casualty with complaints of snake bite. 18 of them were discharged from our hospital after treatment and recovery while 3 had to be shifted to panel hospitals. 1 took discharge against medical advice. There was no mortality due to snakebite.

Paper presentations:

- A case study of cutaneous presentation of low grade B cell Non-Hodgkin's lymphoma: **Dr. Kanchan Bantwal**. 46th Annual conference of GPA-greater Mumbai at Birla Matushri Sabhagar, Marine lines, Mumbai in February 2017. This case presentation was adjudged as the 'Best Case Presentation' by the panel of Judges.
- Obesity among adolescents - Association of BMI with blood pressure: **Dr. Anita D. Patil**, Dr. Kanchan Bantwal, Dr. Sonali Shejul, & Ms Shruti Rane. 46th Annual conference of GPA-greater Mumbai at Birla Matushri Sabhagar, Marine lines, Mumbai in February 2017.
- Paget's disease of the Breast: **Dr Surita Kantharia**, Dr Anita Gadgil, Dr Susan Cherian, Dr Ajay Chaubey. 70th Annual Conference of the Indian Radiological and Imaging Association at Jaipur, Rajasthan in January 2017.
- Evaluation of urinary incontinence in women with clinical assessment and urodynamics: **Dr. Sumit Shimpi**. ASICON 2016 at Mysuru on 17th Dec, 2016.
- Perceived stress in care givers of patients with dementia: **Dr S. Anukarthika**, Dr Aditi Chaudhari, Dr K. Mazumdar, Dr Shobha Nair & Ms. Divya Ramdas. 69th ANCIPS at Raipur in Jan 2017.



Interview

Catching up with Our Own Real life Hero

Mr. R. V. Raghavan

Mr.R.V.Raghavan, popularly known as Vijay, is a snake expert and conservationist.

He is known for his mission to capture snakes from human inhabited areas.

Born in Tamil Nadu, Mr. Raghavan completed his education as Electronics Engineer from Chennai. He resides in Anushaktinagar, Mumbai, with his family. His efforts to capture snakes and to educate the people about the behaviour of snakes are heroic and truly appreciable.

An interview of the ET with this real life hero.

ET: Most of us are afraid of snakes. How did you develop an interest and the courage to catch snakes?

RVR: From my childhood I have I have loved all animals-right from insects, birds, reptiles to larger animals. I am actually fascinated by the animal kingdom. During my school days, in Chennai, I used to visit the then Madras Snake Park every week and observe the handling of snakes by the famous herpetologist Dr. Romulus Whitaker. He was my hero, who used to demolish various myths about snakes. But I never had a chance to try my hand on them until the year 2005. I dislike people killing snakes.

ET: Did you receive any training? How do you go about it?

RVR: No. I watched Animal Planet, NGC and discovery channels on TV and learnt the handling techniques. For the proper identification of Indian snakes I bought and read books. I made the snake-hook, restrainer and snake bag, etc. myself. In my early days I got bitten a number of times, but fortunately, all the snakes that I rescued were non-venomous. I had then taken anti tetanus injection and treated the wounds myself.

ET: Describe the first time you caught a snake?

RVR: It was in the year 2005- I happened to witness a commotion in our Mandala 'Apna Bazar' shop, one evening. I inquired and learnt that a 'lengthy' snake had entered the shop. I immediately realized that it was probably a Rat Snake. I offered to catch the same and did a perfect job. From then on I started getting rescue calls.

ET: What do you do after capturing a snake?

RVR: Initially I used to release the harmless ones in the jungle area. Later, an NGO would send their ambulance to collect and release the snakes in the Thane forest region. But they have stopped this now, so I myself release the venomous ones in the protected areas. The harmless ones are released back in the colony, keeping the wildlife laws in mind.

ET: How do you differentiate between poisonous and non-poisonous snake?

RVR: Since there are only four major venomous snakes in India, identification is not difficult. (Refer to table1)

ET: How many snakes have you captured /rescued till date?

RVR: I don't have the exact figure, but at least 3,000.

ET: Any memorable incident you would like to share?

RVR: Yes, when I was bitten by a Cobra on 6th July 2014, while rescuing it at the Nalanda police chowky. I kept my cool and reported to BARC Hospital, casualty in time. I was later shifted to MGM hospital, Vashi. I was given total of 15 vials of ASV in 24 hrs. The unfinished job of rescuing and releasing that Cobra was done by my daughter, Gargi.

Another incident that I always tell people is how a 7 feet long Rat snake climbed up the drain pipes to the 14th floor of our Vikram Bhavan building before I rescued it.

ET: In what form has your brave work been recognized?

RVR: The Mayor of Mumbai appreciated and awarded me

on 5th June 2010 (World Earth day). The award was instituted by the Radio City 91.1 FM.

The Director DCS&EM too had given a letter of appreciation on 15.08.2015 (Independence Day function).

ET: Have people approached you to learn the technique?

RVR: Many youngsters have, but I have never encouraged them, as it is too risky and against the law. My daughter has watched me from her school days and does it perfectly.

ET: Any message for our readers?

RVR: Yes, it is we, who have encroached upon the habitat of the snakes. We should allow them to coexist and never kill them. They do an immense silent service to the agrarian folks, by checking the rodent population.





ET: What immediate measures should one take when a person notices a snake in the vicinity?

RVR: Call the Security, Fire department or me (or any known rescuer). Keep a watch on its movements till help reaches. Never ever attempt to catch or kill. Besides being dangerous, it is a serious offense to kill a snake.

ET: Would you like to share your contact number, for our readers?

RVR: I may be contacted on mobile no: **9869077107**. Contact details are also available on Google's snake rescuer site.

Table 1: Four Major Venomous Snakes in India

| Photograph |  |  |  |  |
|--|--|---|---|---|
| Type | Cobra | Common krait | Russell's Viper | Saw scaled Viper |
| Toxicity | Neurotoxic | Neurotoxic | Haemotoxic | Haemotoxic |
| Fatal dosage of snake venom equivalent to dried venom in mg. | | | | |
| | 16 | 1 | 42 | 5 |

Article contd.

Recent Developments in Targeted Radionuclide Therapy: A Clinical Case Based Overview

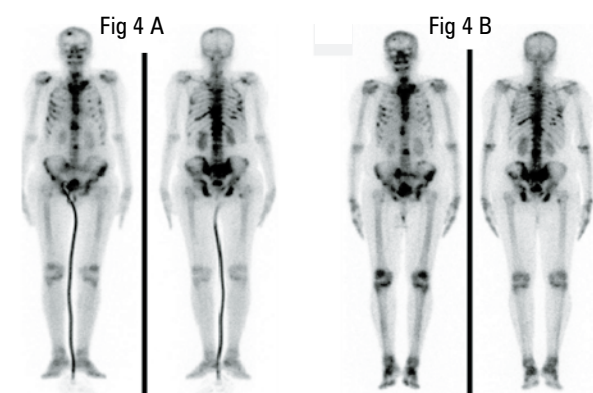
[C] Palliation of Painful skeletal metastasis:

¹⁵³Samarium/¹⁷⁷Lu-EDTMP/²²³Ra

Targeted therapy with unsealed sources for palliation of painful skeletal metastasis has been administered either with ¹⁵³Samarium or more recently with ¹⁷⁷Lu-EDTMP or ³²P, though former two are now the common form of therapy. Advantages with this therapy:

- Ability to simultaneously treat multiple sites of disease,
- Treatment on an outpatient basis, thereby reducing costs,
- Ease of administration and tolerability.
- Therapy can be repeated and there is potential for integration with the other treatments.

Case 4 and Figure 4. A 59 year old metastatic Carcinoma



Prostate. Figure A denotes pre-therapy ^{99m}Tc-MDP bone scan and Figure B denotes ¹⁵³Sm-EDTMP post-therapy scan.

²²³Radium: A new entrant in pain palliation

The particular advantages of ²²³Ra are the short range of alpha radiations (hence minimum myelotoxicity) and high linear energy transfer (more localized effect than the beta-emitters). Radium is taken up by bone by virtue of its chemical similarity to calcium. A statistically significant improvement in overall survival is documented in the recently concluded phase III ALSYMPCA (ALpharadin in SYMptomatic Prostate CAncer patients) study for bone metastases resulting from castration-resistant prostate cancer (CRPC) in 922 patients

[D]. Radiation Synovectomy

Among the non- oncological conditions, radiation synovectomy or Radiosynoviorthesis refers to local application of radioactive agents (radiolabelled particulates and/or colloid particles) to the joint. The common indications include rheumatoid arthritis, arthropathia psoriatica, hemophilic arthritis and poly-arthritis. Among these, hemophilic arthritis has the highest response rate.

The emitted beta radiation in the inflamed synovium causes phagocytosis in macrophages and other inflammatory cells eventually leading to fibrosis of inflamed synovium with decrease in effusion and hyperperfusion and thereby restoration of the synovia.

[E]. Unresectable hepatocellular carcinoma: Radio-labelled microspheres (TheraSphere and SIR-Spheres)

Intra-arterial infusion of yttrium⁹⁰ (90Y) labelled microspheres is used for the treatment of inoperable hepatocellular carcinoma to decrease tumour size and increase survival time. At times, this may allow enough liver resection or transplantation. Newer agents such as Intra-arterial rhenium¹⁸⁸ lipiodol are being examined in various clinical trials.

Upcoming New Targeted Radionuclide Therapies in Oncology

¹⁷⁷Lu-PSMA (prostate-specific membrane antigen): A novel targeted therapy of metastatic prostate cancer that appears promising in hormone refractory and/or chemo-refractory patients with distant metastases and progressive disease.

¹⁷⁷Lu-transtuzumab: Trastuzumab (Herceptin) is a humanized IgG₁ monoclonal antibody that inhibits cell proliferation by binding to the extracellular domain of the HER2 receptor and by blocking activation of the intracellular tyrosine kinase. It has been used in treating HER2-positive breast carcinoma. The same molecule is labeled with ¹⁷⁷Lutetium and utilized for targeted therapy for metastatic breast carcinoma.

Conclusion: The potential advantage of targeted radionuclide therapy has been utilized for delivering a high radiation dose to a wide range of tumour and non-oncological conditions. This rapidly developing therapy option is likely to witness rapid expansion in the future years for several more cancer types.

Review of MRSA (Methicillin Resistant Staphylococcus Aureus) isolates from samples at BARC Hospital

Dr.Sunayana Jangla, Microbiologist, Dr Susan Cherian, Pathologist, BARC Hospital.



Introduction: MRSA (Methicillin Resistant Staphylococcus Aureus) are bacteria that are resistant to many antibiotics especially the beta- lactam group like Penicillin (Methicillin, Oxacillin, Dicloxacillin) and Cephalosporins.

Significance of MRSA: In the general community, MRSA commonly causes skin infections, pneumonia and other diseases. If left untreated, MRSA infection can become severe and cause sepsis. Community acquired MRSA (CA- MRSA) are generally sensitive to other group of antibiotics like Clindamycin, Erythromycin, Quinolone group and Aminoglycosides. In the hospital, MRSA cause severe problems like blood stream infections, pneumonia and surgical site infections .They can spread from one person to another in the hospital and are called health care associated MRSA (HA-MRSA).These isolates are resistant to many other groups of antibiotics also.

It is important to treat and control the spread of MRSA especially in a hospital because:

1. They are difficult to treat as they are resistant to many antibiotics.
2. The treatment with higher class of drugs is very expensive.

3. They are associated with morbidity and at times mortality.

Mode of spread: MRSA usually spread by direct contact with an infected wound or from contaminated hands, usually those of health care providers, and fomites.

Mechanism of resistance: Staphylococcal resistance to oxacillin/methicillin occurs when an isolate produces an altered penicillin-binding protein PB2a which is encoded by mec-A gene. The variant penicillin binding - protein binds beta- lactams with lower avidity which results in resistance to this class of antimicrobial agents. Cefoxitin is used as a surrogate for mec-A gene mediated oxacillin resistance.

Laboratory testing for MRSA: At BARC hospital, we detect MRSA by following methods:

1. Oxacillin MIC values and cefoxitin screening (Automated /Vitek2 method)
2. Cefoxitin disc screening test (manual method)

Data from BARC hospital:

Out of all samples received between January 2016 and December 2016 from the in- patient (IPD) as well as out-patient departments(OPD), the total Staphylococcus aureus isolates reported were 232. Out of these, 61 isolates i.e. 26% of the total Staphylococcus isolates were MRSA.The commonest samples from which these were isolated was pus followed by wound swabs, urine, sputum, blood, pleural fluid and ascitic fluid. Most

of these MRSA isolates were from patients who reported to OPDs. The commonest being the surgical and ENT OPDs. Most of the MRSA isolates responded to in vivo antibiotic treatment, except two isolates. Out of these two isolates, one isolate was from the blood of an elderly immunocompromised male patient who eventually expired due to sepsis. Another patient was a young female whose urine sample grew MRSA. She was a known case of recurrent urinary tract infection since the last six years. The patient is currently on antibiotic and supportive treatment.

A break-up account of the MRSA isolates from samples, is given below:

| Sample | OPD | IPD |
|---------------|-----|-----|
| Pus | 7 | 9 |
| Wound swab | 24 | 6 |
| Urine | 5 | 1 |
| Sputum | 2 | 2 |
| Blood | - | 2 |
| Pleural fluid | - | 2 |
| Ascitic fluid | 1 | - |
| Total | 39 | 22 |

Treatment of MRSA: Various drugs such as Vancomycin, Teicoplanin, Linezolid, Daptomycin, Rifampin and Clindamycin are available for treatment of MRSA cases systemically. Mupirocin ointment is available for topical application. The choice of drug depends on various factors like age, site of infection, severity, clinical condition and other relevant factors.

Prevention of MRSA spread in hospital settings: Due to difficulties in controlling MRSA infections, prevention of its spread is of utmost importance. This can be done by:

1. Implementation of standard precautions like hand hygiene, use of gloves, gown and personal protective equipment.
 2. Appropriate handling of patient care equipment, instruments and devices
 3. Cleaning and disinfection of furniture surfaces.
 4. Proper handling of hospital laundry.
 5. Using contact precautions which include:
 - Patient placement in single room if possible or cohorting with other MRSA cases.
 - Use of gloves and gowns while in close proximity to the patient.
 - Care during patient transport.
 - Use of disposable non –critical patient dedicated equipment where possible. If not possible, clean and disinfect such equipment before use on another patient.
 - Frequent cleaning and disinfection of patient rooms with a focus on frequently-touched surfaces and equipment in the immediate vicinity of the patient.
- Detection of MRSA carriers and their treatment:**
This could be done according to the hospital policies and guidelines.

In-house research

Effect of two different doses of Intravenous Dexmedetomidine on intraoperative sedation and spinal anesthesia

Dr.Mandar Mote, Dr. Pritee Bhirud, Dr. Shrividya Chellam and Dr. Pratibha Toal, Dept. of Anaesthesia, BARC Hospital

Aims and Objectives: To study the effect of two doses of intravenous dexmedetomidine on onset, duration and regression of subarachnoid block as well as intraoperative sedation in patients undergoing elective lower abdominal and lower limb surgeries.

Methods: 80 informed, consenting, consecutive patients posted for infraumbilical and lower limb surgeries under spinal anesthesia (SAB) were randomized into two groups, A and B, 40 patients each.

Patients in both groups were administered intravenous dexmedetomidine 0.5 mcg/kg in saline through infusion pump over 10 min. prior to spinal anesthesia followed by 0.25mcg/kg/hr infusion for Group A and 0.5 mg/kg/hr infusion for Group B, started after SAB and continued throughout the duration of surgery.

Spinal anesthesia was given using 3 cc of 0.5 % heavy bupivacaine. Sensory block was assessed by loss of pin prick and motor blockade by Modified Bromage Scale.

Sedation was evaluated throughout the surgery using Ramsay Sedation Score (RSS) at 15 min. intervals. Vital parameters were recorded every 15min. till the first postoperative hour.

Results: The time for two segment regression of SAB was significantly prolonged in Group B with a value of 0.026. In Group A the time was 139.7 +/- 29.7 minutes where as in Group B it was 152.3 +/- 18.7 minutes. Total duration of motor blockade was significantly longer in Group B with a p value of 0.0002. Total duration of Motor blockade in Group A was 235 +/- 12.38 minutes where as in Group B it was 245.28 +/- 9.32 minutes.

Conclusions: Dexmedetomidine bolus followed by 0.5mcg/kg/hr prolonged the duration of SAB. It provided stable intraoperative hemodynamics and comparable sedation where patients had clear headed recovery without significant effect on respiratory rate and hemodynamics.

Medical breakthrough – from BARC

New anti-cancer medicines developed

Scientists of Radiation Biology and Health sciences at BARC, have developed two anti-cancer medicines from the fruit extract of the Rampatri plant. The plant which is used as a spice in foods, belongs to the Myristicaceae family and is found in western coastal region of the country. The medicines may help destroy tumours and revive cells

damaged by radiation. On testing these on mice, they have found that these may help in treating lung cancer and neuroblastoma, a rare cancer found in children. They have sought permission of Drug Controller General of India to test it on humans. They have also applied for a patent.