Association of Radiation Oncologists of India

NEWSLETTER

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PROTON BEAM RADIATION THERAPY: NEW ADVANCES

INTRODUCTION

Proton beam radiotherapy [PBT] is a type of external beam radiotherapy that differs from "traditional" x-ray therapy in that the treatment is delivered with positively charged subatomic particles (protons). Since protons possess both a discrete mass and an electric charge their interactions with human tissue are substantially different than those associated with x-rays, and it is this difference that forms the basis of their clinical appeal[1]. In contrast to x-rays, protons deposit the majority of their kinetic energy (and hence their ionization) at a specific depth; once this point is reached the proton comes to rest and no additional radiation dose is deposited in tissues distal to the desired target. The biologic effects of protons and x-rays on normal and malignant tissue are for all intents and purposes identical, but the lower "entrance dose" (dose proximal to the target) of protons as compared to x-rays, coupled with their lack of any "exit dose" means that, for any given clinical situation, the integral dose (total radiation dose delivered to normal tissue) will be 2-4X less with protons than with x-rays, while in many cases normal tissue can be completely avoided. An example of the latter is shown by the following comparison between proton and x-ray therapy dose distributions in the treatment of Medulloblastoma:

(Image courtesy of McLaren Healthcare)

Proton radiotherapy of the neuraxis eliminates "exit dose" to structures distal to the vertebral bodies, preventing radiation-induced injury of the lungs, heart, and abdominal organs.

The clinical potential of protons was first discussed by Robert Wilson in his seminal 1946 paper[2], but technological limitations coupled with the absence of any dedicated clinical treatment facilities restricted its use to those tumors in anatomically challenging sites (such as the base of skull) which were felt to benefit the most from proton-beam based dose escalation. The opening of the world's first dedicated clinical proton beam facility at Loma Linda University in 1990 [3] ushered in the routine use of proton therapy in the treatment of a number of common as well as uncommon tumors, and has led to the subsequent construction of a number of similar facilities in the United States, Europe, and Asia.

INTENSITY-MODULATED PROTON THERAPY

Most proton treatments performed to date have employed a "Passive scattered" approach in which a small proton beam is physically spread out by a number of devices (typically constructed of brass, Plexiglas, and Cerrobend) into a larger beam that is designed to irradiate the entire desired target volume. Limitations inherent in this technique include the need to physically manufacture a number of unique beam-shaping devices for each patient, difficulty in treating large, complex shapes, and the production of unwanted neutrons[4] when the proton beam interacts with the beam-shaping devices. These limitations have spurred the development of Intensity-Modulated Proton Therapy [IMPT] in which a "pencil beam" of protons (typically 3-5 mm in diameter) is electromagnetically steered to deposit thin, discrete layers of dose throughout the target. [5]This process is analogous to that by which a 3-dimensional printer deposits layers of material to create a complex solid object. The pencil beam can be used to treat fields up to 40 x 30 cm, and can efficiently irradiate irregular shapes. Also, as the name implies, IMPT can

From AROI, ICRO office & AROI Newsletter Editorial Board

First quarter of every new year is full of activities at professional, social, family and natural fronts.

As we usher into new year with a bagful of new resolutions on every walk of our lives, weather Gods takes us from harsh winter to autumn to pleasant spring. Children get busy with their exams. Lives at homes turn into battle fields with next day strategies to win the day. Festivals like Holi take the stress away and financial year ends with new hopes and appraisals.

With Baisakhi, Pongal ushering Indian New Year, it is time to chart out new roadmap on all fronts with hopes for the best to happen in near future.

Wishing you best of academics, professional and personal life always.

Dr. Rajesh Vashistha
Secretary General AROI

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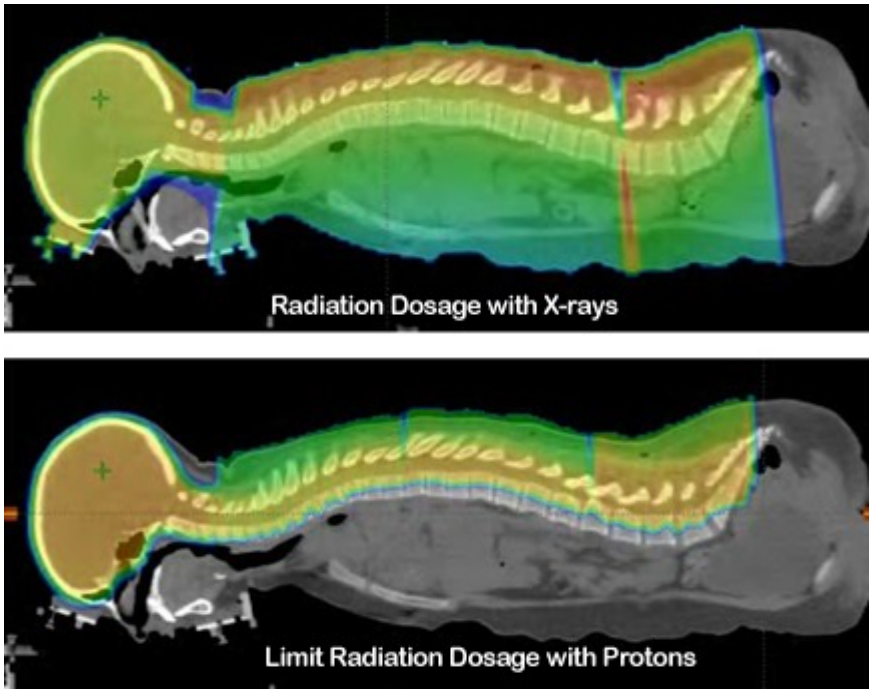
create differential dose distributions within the tumor or target volume, allowing the radiation oncologist to deliver a "Simultaneous Integrated Boost" if desired, while the elimination of physical beam shaping devices reduces the secondary neutron production in IMPT to levels approximately 1/10 of those seen with passive-scattered protons[6].

PROTON THERAPY AND IMAGE GUIDANCE.

Although it is often unappreciated today, image-guided radiation therapy had its origins in clinical proton therapy. Implicit in the Bragg Peak and the ability to conform the proton stream in three dimensions to the target is the need to precisely and repeatedly localize the targeted area, and the introduction of protons into clinical radiation therapy also ushered in the era of image guidance, which was accomplished by obtaining daily orthogonal radiographs and using these images (often assisted by placement of fiducial markers) to align the patient. These methods are still employed today and in fact orthogonal radiographs remain the primary method of image-guidance in proton therapy. However this is rapidly changing as commonly used image guidance techniques from the x-ray therapy arena are being adapted for use with proton therapy. This includes cone-beam CT scanning and surface-based imaging systems. The integration of cone-beam CT in particular will be of particular utility in pencil-beam scanned proton therapy as this form of proton delivery can be very sensitive to target motion and therefore would stand to benefit greatly from daily volumetric imaging.

INTEGRATING IMPT INTO THE CLINICAL ENVIRONMENT

Most existing proton therapy centers have, with varying degrees of success, begun the integration of IMPT into clinical proton therapy. For example, in 2008 the University of Texas MD Anderson Proton Treatment Center became the first facility in the United States to deploy IMPT and it is currently available in one of their four treatment rooms. However, as is often true of retrofits, the ideal situation would be to incorporate IMPT and modern IGRT into any proposed center from inception. This is now technologically possible and is the path being followed at several new proton centers currently under construction both in the USA and abroad. One such example is the Scripps Proton Therapy Center [SPTC] in San Diego. SPTC is the first facility in the US, and only the second one worldwide, to be designed and constructed with IMPT capability in all five



treatment rooms-indeed, the only type of proton therapy which can be delivered at SPTC is IMPT. In addition, cone-beam CT and infrared-based surface matching image guidance techniques are in the advanced development stage and these technologies, when coupled with the 40 x 30 cm maximum field size allowed by the IMPT system will permit the treatment of many tumor types which to date have been difficult if not impossible to treat with passively-scattered proton systems. SPTC will be operated as a "Regional resource" for Southern California and will be staffed by radiation oncologists from the University of California, San Diego, and Scripps Clinic.

CONCLUSION

IMPT, especially when coupled to advanced IGRT, represents the latest and perhaps the final iteration of proton beam therapy. It will expand the list of tumor types and anatomic sites that can be treated by PBT and will allow radiation oncologists far greater freedom in their continuing efforts to define the optimal role of proton beam therapy in clinical radiation oncology.

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4th Annual Conference of Indian Brachytherapy Society (AIIMS-BSCON 2014)

The 4th Annual meeting of Indian Brachytherapy Society (AIIMS-IBSCON 2014) was organized by Department of Radiation Oncology, All India Institute of Medical Sciences (AIIMS), New Delhi from 14th -16th March 2014.

Over 250 delegates and faculties from different parts of the country as well as world attended the conference. Over 50 national faculties from premier institutes of different parts of the country along with international faculties enlightened the attendees with the principles and practices of brachytherapy. The conference witnessed the participation of not only radiation oncologists and medical physicists but also surgical oncologists, anesthesiologists, radiologists, scientists, biostatisticians, nurses and undergraduate students.

The meeting was inaugurated by chief guest, **Dr Vishwa Mohan Katoch (Secretary Department of health research and Director General Indian Council of Medical Research)** in the auspicious presence of **Dr Mahesh Chandra Misra (Director, AIIMS, New Delhi), Dr P K Julka (Dean, AIIMS, New Delhi), Dr G K Rath (Chief, Dr B.R.A IRCH, AIIMS, New Delhi), Dr R Bilimagga (President AROI) and Dr R Bhalavat (President, IBS).** The meeting started with the introductory note by chief guest laying emphasis on need based research in brachytherapy and radiation oncology overall. Key note address on "Brachytehrapy: Past, present and future" by **Dr GK Rath** and "Teaching and training in brachytherapy in India" by **Dr SK Srivastava** set the tempo right from the beginning of the conference.

The theme of this year`s conference was "**Brachytherapy: Exploring New Horizons**". Brachytherapy being the ultimate form of conformal therapy forms a key component of the curative treatment of cancer. Its central role in the management of gynecological malignancies and head and neck cancers which are among the common malignancies in India is well appreciated. However, brachytherapy remains underutilized for various other sites of the body, where it can produce excellent results. Excellent deliberations by **Dr Nikolaos Tselis, Offenbach (Germany),** on brachytherapy for brain tumors, liver malignancies, lung tumors exposed the delegates to newer dimensions of brachytherapy. **Dr Kazushi Kishi, Wakayama (Japan),** delivered an interesting talk on "Organ sparing techniques with gel spacer" and generated inquisitiveness in the minds of young radiation oncologists. Talks on brachytherapy for sarcomas by **Dr Kaled Alektiar from Memorial Sloan Kettering Cancer center (New York, USA),** , Mold brachytherapy for skin and superficial tumors by **Dr Alexandra Stewart, University of Surrey (England)** and interstitial brachytherapy for penile cancers by **Dr Jiri Petera, University Hospital Hradec Kralove (Czech Republic),** was also notable and created ripples in the minds of audience and received thundering accolades.

The entire meeting included over 16 sessions covering aspects of brachytherapy for various sub sites of the body including gastrointestinal, genitourinary, gynecological malignancies etc. Debate on "**IMRT vs. brachytherapy for cervical cancer"** was aptly justified by Dr Kannan and **Dr Alektiar** and was appreciated by the entire house. Panel discussion on **"Hurdles and challenges in brachytherapy"** moderated by Dr Bilimagga explored some of the untouched topics like acquisition of brachytherapy sources, practical issues in establishing brachytherapy facilities etc. and opened avenues of discussion between IBS and AERB (Atomic energy regulatory board). Video presentations on brachytherapy procedures and their complications which were new to this conference received applause by the delegates. Oral presentation and poster presentation by young residents and faculties showed the interest to research and brought up newer ideas of innovation. In the **"Video Session",** faculty members presented unique and innovative brachytherapy procedures. The main highlights of the two and half day conference was beautifully summarized in a 30 minutes session at the end of scientific programme by Dr Sudershan Bhatia, **University of IOWA (USA),** .

The attendees also enjoyed Gala dinner and social get together at night on 1st and 2nd day of conference and shared some memories to keep for lifetime. The conference was declared a huge success by the IBS president (**Dr Bhalavat**) and Chief Dr B.R.A IRCH (**Dr Rath**) and ended on a high with 'holi celebrations' which made the end of the conference colorful and enthralling. All the delegates congratulated the entire team especially the organizing secretary, **Dr. D.N. Sharma**, for organizing such wonderful event.

Distinguished speakers, guests and organizers during inaugural session of the conference.

Dr. Paul Harari Delivers Dinshaw Oration at 1st Indian Cancer Congress

Dr. Paul Harari from the University of Wisconsin, USA delivered the Katy Dinshaw Oration at the 1st Indian Cancer Congress in New Delhi on November 22, 2013. This lecture entitled, Head and Neck Cancer 2014: Past Illuminates Futures paid tribute to the lasting legacy of clinical care, teaching, research and administrative excellence of Dr. Dinshaw. Her steady hand and dedication to patient care provided remarkable improvements in the caliber of cancer care for patients at Tata Memorial Hospital and the research activities of the Cancer Research Institute that continues today. Her impact on trainees remains powerful with many of her methods and teachings influencing the practice of radiation oncology across India and beyond.

Dr. Harari described modern advances taking place with the application of IMRT and IGRT for head and neck cancer (HNC) patients that are enabling improved tumor control rates and diminished normal tissue toxicities. He reviewed our improved understanding of fractionation regimens for HNC and the use of concurrent cisplatin chemotherapy or cetuximab to enhance the overall impact of radiation. The emergence of HPV-associated HNC was described and the future possibility to reduce dose intensity (within the context of controlled clinical trials) for selected patients with HPV-associated tumors in light of their highly favorable prognosis, particularly for those who are non-smokers. Despite the strong technical and biological advances taking place in HNC, Dr. Harari emphasized the importance of high quality clinical examination, and the use of straightforward and simple techniques for many patients that can be readily achieved in the absence of expensive technologies.

This Oration was dedicated to the memory of Dr. Dinshaw and to the many cancer patients, colleagues and trainees that she influenced so favorably throughout her career.

Young Radiation Oncologists meet at Vishakhapatnam

The 2nd young radiation oncologists' conference was held on 4th and 5th of January 2014 [YROC-2014- Young Radiation Oncologists forum of AROI] at the Park Hotel, Visakhapatnam, Andhrapradesh under the chairmanship of Dr Voonna Muralikrishna, the Managing Director and the organizing secretary Dr Kanhu Chararn Patro of Mahatma Gandhi Cancer Hospital and Research Institute, Visakahpatnam.

More than 100 delegates attended the conference from various parts of the country. AROI president, Dr Ramesh Billimaga attended as chief guest. Apart from him Dr Rajesh Vasistha, AROI secretary, Dr Sidhartha Laskar, president young forum, and Dr P S Sridhar, secretary young forum attended the same.

It was mostly an academic conference. Most of the invited talks were regarding controversies in planning, and target delineation in various sites which were very educative & informative to the postgraduate students and budding radiation oncologists. Every session had papers presented by young radiation oncologists and chaired by the senior colleagues.

We received around 6o abstracts, consisting mainly of research subjects of their own. Most of the abstracts were selected as oral presentations and 15 abstracts were selected for poster presentation. In each category award was given for the best paper, adjudged by the chair persons of the respective session. In the poster session 3 best papers were awarded. To encourage young radiation oncologists four fellowships have been awarded to four postgraduate students. Under this fellowship the awardees are invited to attend the Mahatma Gandhi Cancer Hospital and Research Institute, Visakhapatnam to get training on available techniques there. The management of Mahatma Gandhi cancer Hospital and Research institute agreed to bear the expenses for travel [by train] and 15 days accommodation in the institute.

There was a plan for **young achievement award**, but because of less number of applicants it was deferred and planned to discuss it in AROI committee. It was also decided to select two best papers from presented papers for best paper session in AROI-2014.

General body meeting was held on 4th evening, presided by AROI President Dr Ramesh Billimaga. Apart from him Dr Rajesh Vasistha, AROI secretary, Dr Sidhartha Laskar, president young forum, Dr P S Sridhar, secretary young forum, Dr Kanhu Charan Patro, organizing secretary YROC 2014 were present in the meeting.

It was decided that the next conference will be held at Bhubaneswar. The bidding was among the Max hospital Delhi [bidder-Dr Vineeta Goel]; West bank hospital Kolkatta [bidder-DR Suman Mallick] and Hemalata Hospital, Bhubaneswar [bidder-Dr Sanjib Mishra].After the general body meeting the formal inauguration was held. Next day on 5th the conference was completed after valedictory function.

Dr Voonna Muralikrishana
Organizing chairman

Dr Kanhu Charan Patro
Organizing secretary

CME Programme at PGIME&R, Chandigarh

A continuing medical education programme on "Advance Radiotherapy techniques – Treatment Planning and Delivery (IMRT/IGRT/VMAT & SBRT) was organized department of Radiotherapy & Oncology at Regional Cancer Center, Postgraduate Institute of Medical Education & Research, Chandigarh on 1-2nd March, 2014. The programme was attended by more than 200 delegates from all over the country , which included radiation oncologists and medical physicists. The CME programme was inaugurated by Dr. B.D. Gupta, Professor Emirtus and Former Head Dept. Of Radiotehrapy, PGIMER, Chandigarh and the function was presided over by Dr. Y.K. Chawla, Director, PGI, Chandidgarh. Dr. S. Ayyagari Former Head of Radiotherapy department at SGPGI, Lucknow was the Guest of Honour, and he also released the Souvenior.

A highly experienced and learned faculty was invited to deliver lectures on treatment planning and delivery of various advance technqiues like IMRT, IGRT,VMAT & SBRT. International faculty included Dr. William Song and Dr. Kim – Medical Physicists from Moores Cancer Center, SanDiego , USA . Dr. Sushil Beriwal from University of Pitisburg and Dr. A.P.S. Sandhu from Moores Cancer Center, San Diego, USA. All of them delibrated on physics, treatment planning and delivery of IGRT, VMAT and SBRT. The national faculty , which included Dr. Shelly Hukku, Dr. A.K. Anand , Dr. Anusheel Munshi and Dr. T. Ganesh from Delhi and Dr. R. Jalali from TMH, Mumbai. Dr. R. Kapoor and Dr. Arun Oinam Singh from department of Radiotherapy, PGIMER, Chandigarh also delivered lectures on IGRT. Every aspects of these advanced techniques were discussed and there was active participation by the delegates. The programme was highly successful and informative to the delegates.

In the evening a Cake Cutting Ceremony was held during the Dinner time to celebrate and wish Happy 80th Birthday to Dr. B.D. Gupta, the senior most radiation oncologist in the country. who has completed 80 years of his highly successful life. All the delegaets wished him long and happy life.

Obituary

Dr A D Singh (1929- 2014)

Dr A D Singh was one of the renowned clinical oncologists of India. He was born in 1929 in Bihar. He graduated from Patna Medical College in 1953 and attained the Fellowship of Royal College of Radiologists (FRCR) in 1960.

After returning to India in 1961 he worked as Assistant Professor of Radiotherapy in PGI Chandigarh. He Joined CMC Vellore in 1962 and became administrative head in 1966. In 1967 he moved to Benaras Hindu University and played an important role in establishment of Department of Radiotherapy and Radiation Medicine there. Subsequently he moved to Patna Medical College and elevated to the post of Professor and Head of the Department in 1970. He rejoined the department of Radiotherapy in CMC Vellore in 1976 and was the head for 13 years till retirement in 1989.

Dr A D Singh was instrumental in starting MD program in Radiation Oncology under Madras University in 1967. His technical contribution to the department of Radiotherapy at Vellore was immense. The first 42 MeV Betatron in India (as a gift from Denmark) was installed in 1978 and treatment with high energy X-rays and electron therapy was possible. He was also interested in brachytherapy and many radium implants for tongue and cheek cancer was done. Dr A D Singh initiated the use of wedge filters in the treatment of maxilla and oral cancer. Dr Singh was acquired Amersham applicators for gynecological brachytherapy. Elpro GE simulator was acquired in 1986. In the same year computerized treatment planning system "Therpac" was installed. He developed an indigenous manual device for thyroid uptake studies.

Odisha AROI holds its annual meet & elections at Puri on Feb 8-9, 2014

New Office Bearers

1.Prof. Dr. Kailash Ch Sahu	President
2.Prof Dr Mrs P.M. PATTNAIK	Vice President
3.Prof. Dr S N Senapati	Hon. Secretary
4.Dr SANJIB KU MISHRA	Joint Secretary
5.Dr DEBASHIS ACHARYA	Treasurer
8 Prof Dr D KUMAR PARIDA	Executive Member
6.Dr NIHARIKA PANDA	Executive Member
7 Dr SANJUKTA. PADHI	Executive Member

International Multi disciplinary Breast Cancer Meet at Cochin

The International Conference on Multidisciplinary Management on Breast Cancer, Breast Oncology 2014 was held at Hotel Le Meridian, Cochin from 6th to 9th March 2014.

The pre-conference workshop was inaugurated by Prof. Bellarmine Lawrence retired Prof. of Medical Oncology, Madras Medical College. The distinguished faculty from abroad included Prof. Willaim Gradisher Chicago, USA, Prof. David Dodwell, Prof. Nisha Sharma Leeds UK, Professor Edward Yu, Toronto, Canada, Dr. Najeeb Mohideen, Chicago USA, Dr. Kurian Joseph, Alberta, Canada, Dr. Ajith Venniyur, Oman Dr. Ingo Diel, Germany, Dr.Sanakara Narayanan, France, all gave orations on important topics in the conference. Besides this, leading oncologists from major cancer centre's in India such as AIIMS, New Delhi, Cancer Institute Adayar, PGI, Chandigrah, TMH, Mumbai etc. also actively participated.

The conference was officially inaugurated by Honourable Governor of Kerala Sri. Nikhil Kumar on 6th March 2014. More than 100 topics were extensively discussed in the pre-conference workshop and the conference proper. The conference was followed by a public health function on 9the March 2014 on breast cancer awareness and Prof. C.S. Madhu, Chief Oncologist of Lourdes Hospital, Ernakulam and the chairman of Breast Oncology 2014 delivered a lecture on various aspects of breast cancer. This was followed by a video demonstration on breast self examination. Prof. C.S.Madhu, the Chairmnan Breast Oncology 2014 delivered welcome speech. Professor K.V.Thomas honorable Central Minister for Food & Civil Supplies inaugurated the breast cancer awareness programme. Mr.Hibi Eden MLA, presided over the function. Sri. P.Rajeev MP, Fr. Sabu Nedunilathil and. Dr Santhosh John Abraham Chief surgeon and Deputy Superintendent, Lourdes Hospital addressed the gathering.

Prof CS Madhu MD
Chairman Breast Oncology 2014
and Chief Oncologist
Lourdes Hospital

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Thyroid Cancer Forum at Jalandhar

Head, Neck and Thyroid cancer forum had their meeting on Feb 22-23 under aegis of Patel Cancer and Superspeciality Hospital, Jalandhar. Meeting was well attended by experts and oncologists from all over North India.

Input by Dr. Harpreet Singh

"AROICON MP CG GUJARAT CHAPTER 2014" at Regional Cancer Centre, Pt. J.N.M. Medical College Raipur Chhattisgarh, on 1st &2nd March 2014.

Forthcoming Events 2013/14

National

June 2014

27-29 **Best of ASCO, Hyderad**

International Events

Apr 2014

4-8 **ESTRO 33**
Vienna, Austria

5-9 **AACR Annual Meeting**
San Diego, USA

11-13 **THE ASIAN ONCOLOGY SUMMIT, Malysia**
www.asianoncologysummit.com

May 2014

8-10 **IMPAKT BREAST CANCER CONFERENCE**
Brussele, Belgium

June 2014

May30 **ASCO,**
1-3 **Illinois, Chicago**

12-15 **EHA 19th ANNUAL CONGRESS**
Milan, Italy

25-28 **WORLD CONGRESS ON GI CANCER**
Barcelona, Spain

Compilation by :Dr. Pardeep Garg, *Faidkot*

Response to last issue question

Future of Multi-Disciplinary cancer Care in India

Cancer or the proverbial crab with its claws digging deep into the surroundings is a fit representation of the disease which in many occasions just refuses to die and therefore the treatment of Cancer is an amalgam of a multitude of specialties. Traditionally cancer was managed between surgeon and the oncologist where the latter would provide chemotherapy as well as radiotherapy as required. Over the course of time a plethora of skills, ideas and their supporting evidence have emerged which has improved upon the outcomes and a cancer patient is now mostly managed by the specialties of surgical oncology, radiation oncology and medical oncology i.e. in a Multi-Disciplinary set-up.

It is no more possible for a single professional to treat a cancer patient by practicing more than one modality themselves. What is notable is the fact that the neither the patient nor the diagnosing physician are likely to know what modality is best suited for the patient's management and therefore it is being increasingly realized that a cancer patient is best managed in a Multi-Disciplinary institute where all disciplines or specialties for cancer treatment are available so that the right specialist can provide their expertise at the right time. The future therefore holds promise for such multi-disciplinary institutions, hospitals and clinics that nurture all cancer specialties since best treatments can be offered under one roof and no guideline or practice is circumvented for the lack of availability of a modality or service.

Also a patient with cancer who is faced with complex decisions would prefer a one-stop shop and would not like to negotiate within multiple treatment teams across cities or towns. A recent case of a patient of breast carcinoma with FNA proven axillary nodes comes to mind where she was negotiating within multiple doctors who had different opinions, when she finally visited a multi-disciplinary center she invested her faith on their tumor board which is a simple concept that serves as a keystone of multi-disciplinary cancer care where all professionals discuss new cancer cases to provide their professional insights and to provide the least invasive and most effective treatment plan which has minimal side-effects and the least cost. As the awareness in masses is increasing so will a demand for such multi-disciplinary discussions.

It is being increasingly realized that it is not only the clinical specialties mentioned before that are imperative for cancer management but also the specialties of Pathology, Radiology, Nuclear-Medicine, Onco-Nursing, Psychologists, Nutritionists, Physiotherapy and Social-workers etc that are equally important bricks of the multi-disciplinary structure. While the number of capable professionals in the team seems large the number of players are only going to increase in the future. For example in the recent years the cancer treatments and cancer screenings have become so refined down to the genetic profile that the Cancer Geneticist is fast becoming a part of the multi-disciplinary cancer-care starcast. In the end I would like to say that the cancer treatment has perhaps always been multidisiplinary and in the interest of our patients the future is only going to expand the bouquet of specialties even further because as the wise men say, "a stitch in time, saves nine".

It is no more possible for a single professional to treat a cancer patient by practicing more than one modality themselves.

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Views expressed are personal by respondent to question of the issue.—Editor

Question of this issue

Role of evidence based Radiation Treatment Management in current practices ?

Please send your reply for publication in next issue of AROI newsletter to deepak.arora3@maxhealthcare.com