



Radiotherapy in Breast Cancer



Carcinoma breast is the leading cause of cancer in female population of the world. In India too, the incidence of breast cancer is on the rise in urban India, where it has overtaken carcinoma cervix. The management of carcinoma breast involves a multimodality approach of surgery, radiotherapy, chemotherapy and hormonal therapy.

Breast conserving therapy (BCT) is now a standard treatment in the management of early breast cancer. Several large series have confirmed the equivalence of BCT compared to mastectomy in terms of disease free and overall survival rates. The major benefit of BCT is the preservation of the affected breast with significant consequent advantages in terms of psychological function and quality of life. Women preferring BCT want to avoid the feelings of disfigurement, mutilation, and insult to femininity that is feared with modified radical mastectomy.

The two important goals of BCT therefore are comparable local control and cosmetic outcome as compared to mastectomy. Cosmesis is an important endpoint while auditing treatment outcome and incorporates the sum total of the appearance of the breast after BCT and an aesthetic judgment of breast appearance. Cosmesis has the potential to influence physical, social and sexual functioning. A good cosmesis can therefore be considered as a cornerstone for the approach of BCT. Various patient, tumour and treatment related factors are known to affect the cosmetic outcome. While some of these factors have been established unequivocally, others still have undetermined significance. In this article, we have reviewed the concept of breast cosmesis, overviewed the methods of assessing cosmetic outcome and analysed the factors influencing it.

Radiotherapy (RT) to breast after breast conservation or to the chest wall and drainage areas after mastectomy results in 70% reduction in the incidence of local recur-

(Continued on page 2)

FARO Council Meeting 2015 (30/05/2015, Kyoto, Japan)

For membership & council minutes,
please visit website: <http://faroac.org>



From AROI office & ICRO Editorial Board

Natural events in last couple of months have been quite disturbing.

Nepal experienced one of the worst earth-quakes in recent decades. There has been a great loss of human lives and property.

India as neighbor was first one to send the rescue teams and extend financial & material support in hour of need.

We lost one of our AROI members, Dr. Dr. K K Singh from Loni at golden age of 54 years.

We need to extend not only heartfelt condolences but what so ever financial support to bereaved family in this hour of need.

Please contribute to appeal for funds.

**Dr. Rajesh Vashistha
Secretary General AROI**

Inside this issue:

Article	2
Happenings & Advts.	3
Happenings	4
Happenings	5
Fellowships & Awards	6
Events	7
Happenings & QA	8

Radiotherapy in Breast Cancer

rence. Landmark trials from Denmark and British Columbia have shown survival benefit with the use of RT in post mastectomy cases of carcinoma breast. The same has been proven for breast conservation as well in the recent Oxford metaanalysis. Thus, RT is an integral part of treatment of breast cancer. It not only improves local control rates but has nearly 5-7% absolute improvement in survival outcomes both in breast conservation as well as post mastectomy patients with large tumours or positive nodes. In short, all patients with breast cancer who undergo breast conservation should receive adjuvant radiotherapy. Also, all patients who undergo mastectomy and have a pathological tumour size of >5 cm or >3 positive nodes should receive post operative radiotherapy. There is however strong evidence emerging evidence of the benefit of radiotherapy in mastectomised patients with 1-3 positive nodes as well.

However, RT to breast also irradiates a portion of the heart, poses a risk of long term cardiac toxicity especially in left sided breast cancer. It is therefore imperative that radiation oncologists try to spare the heart as far as possible in their planning process. There has also been some concern regarding lung toxicity and contra lateral breast dose. It is important to realize that the full expression of cardiac side effects takes as long as 15 years to manifest. Fortunately, modern radiotherapy has proven to significantly reduce these adverse effects, making it a very cost effective modality for breast cancer treatment.

Some such newer advances in treatment planning include a switch

from conventional fluoroscopic based methods to CT based simulation. The actual treatment planning advances include Accelerated partial breast irradiation (APBI), 3 dimensional conformal radiotherapy (3D CRT, intensity modulated radiotherapy (IMRT) and image guided radiotherapy (IGRT). APBI is especially useful in a select group of breast cancer patients with favorable clinical and pathological features. The advantage with APBI is the reduction of treatment time from conventional 6 weeks to a mere 10 days or even shorter. Techniques such as IMRT and IGRT need to be judiciously used. If IMRT is used, it should be forward planning IMRT with a predominantly tangential field arrangement. These techniques are especially useful in treatment of patients with large breasts so as to avoid excessive acute and late reactions in breast. Such techniques ensure precision treatment delivery and achieve greater dose homogeneity within the breast tissue. IMRT is also useful to some extent in sparing the critical structures such as the heart in patients with left sided cancers.

To summarize, radiotherapy in breast cancer has come a long way. High level evidence coupled with modern radiotherapy technology has led to emergence of a new horizon in breast cancer care.

*Dr Anusheel Munshi M.D.
Additional Director, Radiation Oncology
Fortis Memorial Research Institute, Gurgaon*

Dr Shyam Singh Bisht WINS ESTRO-Varian award

It is matter of pride for Indian Radiation Oncologists that Dr Shyam Singh Bisht, MD, Associate Consultant at Medanta the Medicity was given the ESTRO-Varian award for research on reducing the radiation induced cardiac toxicity in breast cancers at the recently concluded ESTRO conference 2015 at Barcelona. I would like to congratulate Dr Bisht for his work and request you to disseminate this information to all the members of AROI through the official Newsletter.



Invitations invited to host forthcoming teaching programmes

Applications are invited to host:-

- Three teaching programme of ICRO-SUN to be held in 2016.
 - 1st April/may
 - 2nd July/august
 - 3rd September/Oct
- AROI-ESTRO teaching programme to be held in 2017.
- 2nd Best of ASTRO in April/May 2016.
- Annual conference of AROI to be held in 2018

All application should come through the Zonal/State Chapter.

PIMS, Jalandhar held Uro-Oncolgy meet

Punjab Institute Of Medical Sciences , Jalandhar conducted a Multi disciplinary Uro-oncology Meet on Prostate Cancer : optimal therapy 2015 on 26th April 2015. This CME was jointly hosted by Dept of Oncology And Dept of Urology,PIMS. Dr Archana Dutta was the Organizing Chairman and Dr Vishal Vig was the Organizing Secretary. More than 300 delegates from all over north India attended the conference.



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ARO I plays vital role as council member in FARO

ARO I represented by Dr. M C pant , Dr. Shyam Shrivastava ,Dr. ramesh Bili-magga and Dr. G.V. Giri and Dr. Rajesh Vashistha participated in the council meeting at Kyoto.

FARO looks forward to membership by AROI members. It looks forward to strategy for education and training of its members and equal representation from council members in faculty. A strategy for joint clinical research is also being formulated with co-operation of FARO council members. FARO will also make a database of training institutes where FARO members could be trained. FARO is also evaluating IAEA Syllabus for Education and Training for Radiation Oncologists (IAEA Training Course Series No. 36) which could be endorsed by all council members as per recommendations. Dr. G.V.Giri become the member of scientific committee of FARO

ARO I feels proud in being part of FARO and will contribute whole heartedly to uplift together the status of Radiation Oncology in India and ASIA.

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Tel : 022-39829999 Fax : 022-24921392
Website: alkemlabs.com email: cytomed_info@alkem.com

National Symposium

"Physics, clinical and radiobiological aspects of
hypo fractionation in current radiotherapy practice"

8th August 2015

**BASAVATARAKAM INDO-AMERICAN
CANCER HOSPITAL AND RESEARCH INSTITUTE**

Dr. N V N Madhusudhana Sresty
Organizing Secretary
Mob: +919985151221
www.induscancer.com

Kerala Chapter AROI meet held in Kochi

The annual state meeting of Kerala chapter of AROI was held at Kochi on 19th April 2015 since we are unable to organize the same in November 2014. The meeting was preceded by a pre conference workshop for PG students. The theme for the workshop was "Radiation practices in pelvic malignancy". There was oral presentation session for PG, s with best paper



awards. The state conference was inaugurated by Prof. Jose TOM (State President) and lamb was lighted by Senior faculties. Dr. Kuruvila John memorial oration was delivered by Prof. T.K. Padmanabhan. Dr. Padmanabhan memorial oration was delivered by Dr. Francis V James. Scientific topics were presented by Dr. C.S. Madhu, Dr. P.G. Jayaprakash, Dr. Jayaprakash Madhavan, Dr. Dinesh.M, Dr. Mahadevan.R, Dr. Asha Arjun, Dr. Suresh Kumar.K, and Dr. Kainickal Cessal Thomas. Meeting also given opportunity for young oncologists like Dr. Rajeev (YROC), Dr. Arunlal (YROC), Dr. Anjali Menon (YROC) for presenting in the main conference

The annual general body was called to order by the chapter

president Dr. Jose TOM. After a silent prayer the annual report was presented by Dr. Suresh Kumar.K. The report thanked national executive for giving opportunity for conducting ICRO CME at RCC, Trivandrum. The annual accounts were also presented. The general body unanimously approved the minutes and accounts.



The election was conducted by the chapter President Dr. Jose TOM. Dr. Jayaprakash Madhavan was nominated as the president. The general body re-elected Dr. Suresh Kumar.K as State secretary. Dr. Francis V James will continue as the treasurer. All elections were unanimous. The meeting expressed concern over the prospects of clinical oncology practice of radiotherapy graduates in future and suggested nomenclature change for the course as MD in clinical Radiation oncology. The meeting also discussed various future activities. It was concluded with award ceremony and national anthem.

Contacts

Obituary



Dr. K.K. Singh
(1961-2015)
Prof. & Head,
Dept. of Radiotherapy & Oncology
Rural Medical College,
Pravara Institute of Medical Sciences, Loni

On behalf of AROI members & association, let us pass our deepest condolences on the passing of a very eminent doctor and our dearest friend Dr. K.K. Singh. He will always be remembered as a great person and a wonderful buddy along with an efficient doctor. It is indeed a great loss to the Indian Radiation Faculty. Our deep condolences to his family for their irreparable loss. May God give them the strength and comfort in this time of grief and May his soul rest in peace.

Appeal

I would like to put a request to all the AROI members. Dr. K.K. Singh sudden demise has really created a void in all of us. I think we all should contribute financially to his family. According to our own will without any compulsion, as his wife is a home maker and he has left two children behind it won't make much difference to us but we can help them at least in this

way if not otherwise.

The details of bank account are
Name- Seema Kailash Kumar Singh
Bank- Central Bank of India
Branch- PMT, Loni
A/C- 1680983156
IFC Code- CBIN0283278

Dr. Rajesh Vashistha
Secretary General, AROI

The sands of time are passing through the hour glass. Day by day it will continue to empty till there is nothing left. Make your life worth remembrance when you leave for heavenly abode.

We sincerely thank all individuals who have already contributed.

Report of 19th ICRO PG Teaching Program

19th ICRO PG teaching program was organised by Department of Radiotherapy, R. R. Cancer Institute and Research Center, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly on 18-19th April 2015. The theme of teaching was "Management of Brain Tumors".

The course curriculum was designed in such a manner as to deliver lectures on all aspects of brain tumors ranging from anatomy, radiology, pathology, nuclear medicine (PET-CT) and surgical aspects. There was also in depth discussion on treatment planning and newer techniques in management of brain tumors.

The eminent faculties included Dr. Shaleen Kumar (SGPGIMS), Dr. S. Gambhir (Nuclear Medicine, SGPGIMS) and Mr. Yoganathan (Medical Physics, SGPGIMS), Dr. G. K. Rath (AIIMS), Dr. Vaishali Suri (Pathologist, AIIMS), Dr. Jayant S. Goda (TMH), Dr. Anusheel Munshi (Fortis, Gurgaon), Dr. S. Hukku (BLK Superspeciality Hospital), Dr. S. Pradhan (BHU), Dr. Vivek Kaushal (PGI, Rohtak) along with Dr. G. V. Giri (President, ICRO) and Dr. Rajesh Vashishtha (General Secretary, AROI), besides the institute's own faculties- Dr. Kamal Sahni, Dr. D. P. Singh, Dr. Piyush Kumar, Dr. Jolly Agrawal (Anatomy faculty), Rajneesh Madhok (Radiologist), and Dr. Shashank Sah (Neurosurgeon)

About 60 PG students from various institutes all around India like Chennai, Vellore, Bangalore, Mangalore, Ahmedabad, Chandigarh, Cuttack, Jaipur, Wardha, Varanasi, Aligarh, Lucknow, New Delhi, Shimla, Bikaner, Faridkot, Mumbai and Kolkata attended this teaching program.

The teaching schedule was divided into 6 sessions. Dr. Kamal Sahni, Professor, SRMSIMS, Bareilly, gave lecture on "Overview of brain tumors" which was followed by lectures "Anatomical location of brain & spinal tumors & clinical considerations" by Dr. Jolly

Agrawal, SRMSIMS, Bareilly, "Radiology of brain & spinal tumors- Interpretation of CECT/ MRI contrast images" by Dr. Rajneesh Madhok, SRMSIMS, Bareilly and " Role of PET- CT in brain tumors" by Dr. S. Gambhir, SGPGIMS, Lucknow.

Second session included lectures on "Surgical techniques of brain tumors- Past, present & future" by Dr. Shashank Sah, SRMSIMS, Bareilly, "Neuropathology & molecular biology of brain tumors" by Dr. Vaishali Suri, AIIMS, "Toxicity considerations in brain tumors and Reirradiation in Brain Tumors" by Dr. Jayant S. Goda, TMH, Mumbai.

Session 3 had lectures by Dr. Shaleen Kumar, SGPGI, Lucknow on "Target volume determination in various brain tumors" and Dr. Anusheel Munshi, Senior Consultant, Fortis, Gurgaon on "Radiotherapy techniques in brain tumors (2D, 3D CRT, IMRT) including craniospinal irradiation".

Newer radiotherapy techniques i.e. SRS/ SRT, Gamma knife/ X-knife, Cyber knife and role of protons and heavy ions, boron capture in brain tumors were discussed by Dr. S. Hukku and Dr. G. K. Rath.

Further, Dr. D. P. Singh, SRMSIMS, Bareilly, lectured on chemotherapy and targeted agents in brain tumors followed by lectures on management of low grade and high grade brain tumors, management of pediatric brain tumors, role of radiation in benign brain tumors and an overview of spinal cord tumors and less common brain tumors by Dr. Piyush Kumar, Dr. S. Pradhan, Dr. Vivek Kaushal, Dr. Jayant S. Goda and Dr. G. V. Giri respectively.

In the end of the teaching program, a quiz was held for the post graduates in which the first prize was won by Dr. Priyamvada, TMH, Mumbai and second prize by Dr. Anne Srikanth, AIIMS, New Delhi academic schedule.



AROI fellowship details

S.No.	Name of Fellowship	Nos	For	Age Group (Years)	Fellowship Grant (in Rs)	Basis	LM AROI since (Yrs)	Min. Papers	Regularly Attending AROI conferences	Already availed fellowship in last 5 years
Overseas										
1.1	AROI- Kirloskar Therapeutics	2	Radiation Oncologists	>50	1.5 lakhs	MD/ DNB	10	5	yes	No
1.2	AROI- DR. Reddy's Lab AROI- Merck India Ltd. AROI- Novartis India Ltd.	2/3	Radiation Oncologists	41-50	1.5 Lakhs	MD/DNB	10	5	yes	No
1.3	AROI- Dr. Reddy's Lab AROI- Fulford AROI- Elekta	2/4	Radiation Oncologists	35-40	1 lakh	MD/DNB	5	5	yes	No
2. Within India										
2.1	AROI- Dr. Reddy's	2	Radiation Oncologists	30-35	50,000	MD/DNB	3	1	yes	No
2.2	AROI	1	Medical Physicist	<40	20,000	DRP/MSc (MP)	2	1	Yes	No
2.3	AROI	1	Radiation Oncologists	< 35	20,000	MD/ DNB	3	-	-	-
2.4	AROI	1	RT Technologist	<45	10,000	AERB certified	yes			No
2.5	Neil Joseph Fellowship	1	Radiation Oncologists	5	15,000	Student MD/DNB 3 rd Year PG	yes	Presenting Paper in Conference		
3 Best Paper										
3.1	Best Preferred Paper for Senior Members >40 years	1	Radiation Oncologists	40-50		Post MD/ DNB >10 Yr	10-15	To be decided In conf. upon Presentation	Conditions for fellowships 1. Applicants have to send a copy of date of birth certificate. 2. Applicants to send a copy of the publications mentioned under each Fellowship 3. Self certified proclamation that they are working full time in radiotherapy. 4. Fellowship amount will be given to candidates from money received from sponsors after tax deduction and 15% contribution to AROI fund. 5. All the applications for fellowship/ best paper awards be sent along with the letter from head of department/ institute to the office of Secretary General AROI by 5 PM, August 31 st 2015. 6. No Objection certificate from their head of Department if selected to go for fellowship. 7. PG Students shall send their certificates through Head of the Department. 8. For the best paper award, applications should be sent along the full paper. (soft copy by email & hard copy by post) 9. Abstract along with the letter from the head of dept. for publication in JCRT should be sent along with the paper. 10. For fellowship more than 35 years age category should be member of ICRO. 11. Applicants to send softcopy also thru email	
3.2	Best Preferred Paper Senior Members < 40years	1	Radiation Oncologists	35-40		Post MD/ DNB 5-10 yr	5-10	To be decided In conf. upon Presentation		
3.3	Dr. G C Pant Young Doctor Award	1	Radiation Oncologists Post MD/ DNB	<40	20000 for fellowship + plaque	Post MD/ DNB 3 yrs	3	To be decided In conf. upon Presentation		
3.4	Dr. M S Gujral Gold Medal	1	Radiation Oncologists Doing MD/ DNB		10000 + medal		yes	To be decided In conf. upon Presentation		
3.5	Gold Medal Dr. J. M. Pinto	1	Radiation Oncologists		7500 + Medal		yes	To be decided In conf. upon Presentation		
3.6	Best paper	1	Medical Physicist/ Radiation oncologist with physicist paper	<30	7500	DRP/MSc in med. Phy.	yes	To be decided In conf. upon Presentation		

Mailing address:

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Email: Secretaryaroi@gmail.com, Vashistha.aroigmail.com, drvashistha@gmail.com

Forthcoming Events 2015

National

July, 2015

11 **Basic Radiobiology for Radiation Oncologists**
Host Institute: Department of Radiotherapy,
Institute of Post Graduate Medical Education & Research, Kolkata
Key faculty: Dr M. K.Gupta Professor & Head, RCC, Shimla

18-19 20th ICRO teaching programme
Apollo Cancer Hospital, Jubilee Hills, Hyderabad, Telangana.
Email- cancercare@drvijayanandreddy.com
Email- vinithapalwai@yahoo.co.in

Aug, 2015

29-30 **Annual Conference of Indian Brachytherapy Society (IBSCON 2015)**
Department of Radiotherapy, Apollo Gleneagles Hospital, Kolkata
Contact Person: Dr. Subrata Saha, Organizing Secretary
Email: saha1958@yahoo.co.uk

Sept. 2015

29-30 **Neuro Oncology: Evidence and practice in 2015**
3rd Fortis Radiation Oncology Annual -2015 , FMRI, Gurgaon
Email: 3dradonannualfmri@gmail.com

Nov 2015

20-22 **APMICON-2015**
Division of Radiation Physics, RCC, , Thiruvananthapuram
Contact person: Saju Bhasi Email: ampicon2015@gmail.com

Nov. 2015

26-29 **AROICON15**, Lucknow
Asstt.Prof. Sudhir Singh ,Organizing
Secretary
Dr. MC Pant, Organizing Chairman
Email: aroicon2015@gmail.com

Dec 2015

5th AROI-ESTRO
Max Superspeciality Hospital, Saket
Contact person Dr. A. K. Anand
Email: anandka.55@gmail.com

Jan 2016

Jan 30-31 **YROC**
Aaruni Hospital, Rajkot
Contact person: Dr. Hemendra
Organizing Secretary 9726360025

Mar2016

34th ICON
Molecular Oncology Society
Contact person: Dr. Nikhil S
Ghadyalpatil, Organizing Secretary
Email: nikhilghadyalpatil@gmail.com
www.iconconferences.com

NOTICE

Notice for General Body Meeting

General body meeting to be held on 28/11/2015 in main conference held at 5:30pm or just after completion of Best Paper.

Agenda will be circulated by email.

Dr. Rajesh Vashistha
General Secretary

ICRO GBM

ICRO GBM to be held on 26/11/2015 after completion of ICRO programme at main conference hall, Lucknow.

Dr. V V Giri *Dr. S Senapoati*

Best of ASTRO

The officially licensed Best of ASTRO was held for the first time in India and the first year outside USA as a pilot project with Mexico and Turkey being the other 2 countries. Hosted by Kokilaben Dhirubhai Ambani Hospital in association with Association of Radiation Oncologists of India (AROI) on the 2nd and 3rd of May, 2015, the program saw the most influential abstracts of ASTRO 2014 encompassing the various sites Breast, Head and Neck, GI, Genitourinary, Gynaecology, CNS, Lung, lymphoma, patient safety and Physics, being presented and discussed by International and National faculties. On this occasion Mrs. Tina Ambani, Chairperson , Kokilaben Dhirubhai Ambani Hospital emphasised the importance of Cancer Education in India. Dr Rajesh Vasistha , Secretary general welcomed such an event of significance .

The event was well attended with faculty from all over the country . The total attendance was around 350 and radiation oncologists from the country felt a long pending need for such an event as it would save the time and resources to travel to the USA to update on practice changing abstracts .

Dr Kaustav Talapatra
Organising Secretary and Coordinator
1st Best of ASTRO , India



BREAST ONCOLOGY 2015 at Cama Hall, GCRI, Ahmedabad, Gujarat

Nearly 150 delegates attending this conference from all over the country. The conference ran successfully with very informative lectures. There were 17 very educational and informative talks and three brainstorming panel discussions. There were 15 poster presentations on very exciting topics three out of which were given best poster awards.



Dr. J. P. Neema, Professor, Dept. of Radiation Oncology. The organizing secretaries were Dr. Pooja Nandwani Patel, Associate Professor, Dept. of Radiation Oncology and Dr. Apurva Patel, Professor in Dept. of Medical Oncology. Inauguration ceremony was done in presence of Mayor Smt. Meenaxiben Patel.

GMCH, Chandigarh held GI cancer CME

The CME was inaugurated by Dr G K Rath, Chief, BRAIRCH, AllIMS, New Delhi and discussed about the revolutionary advancements in Gastric and Esophageal Cancer management modalities. Among other dignitaries present included Dr Atul Sachdev, Director Principal, GMCH, Dr B D Gupta and Dr S C Sharma, and Dr Ajay Duseja, Department of Hepatology, PGI, Chandigarh who highlighted the rising incidents of liver cancer and also explained the contribution of advanced imaging techniques in detecting the liver carcinomas with utmost precision. Dr. Reena Engineer from TMH, Mumbai gave a talk on the latest developments in management of gastric cancers. Dr. Sandeep Batra, Medanta, Gurgaon highlighted the role of systemic therapy in pancreatic cancers. Among other eminent speakers in the academic event included Dr. Rakesh Kapoor, PGI, Chandigarh, Dr. Manoj Gupta, IGMC, Shimla and Dr. D.N. Sharma, AllIMS, New Delhi.

Dr. A.K. Pandey, Organizing Chairperson & Mr. Kisley Dimri Organising secretary of the CME expressed the need of more such academic events which serve as a platform for a productive academic interaction among the medical faculties.

Response to last issue question

Potential of proton/ion therapy in Indian context

The ultimate goal of radiation therapy technique is to maximize tumor control probability with minimum normal tissue complication probability. X-rays and protons can be equally effective in destroying cancer cells, but there are some important benefits of proton therapy. Unlike X-rays, protons (heavily, positively charged atomic particles) can be precisely controlled so that most of their radiation ends up directly in the tumor.

This is an especially important benefit when the tumor is located near critical organs or structures such as the brain, heart or spinal cord. With proton therapy, there is also a lower occurrence of secondary tumors which may appear many years after receiving radiation treatment.

Proton therapy can be especially beneficial for children, who can experience more serious short- and long-term side effects from X-ray radiation than adults. Since their bodies are still growing, children are more sensitive to healthy tissue damage caused by X-rays. Clinical studies suggest that proton therapy reduces the risk of growth and developmental problems, as well as secondary tumors.

As of August there are 43 particle therapy centers in the world but none in India. In developing countries, the major hazard in the development of proton/ion therapy centers is high cost and large size of equipment and facility.

Global statistics indicate that approx 10-15% of patients receiving radiation therapy would be benefit from treatment using photon beams. Tata Memorial Centre reports that in India approx 40,000 children are diagnosed with cancer every year.

Approx 1400 of them would potentially benefit from proton beams. Similarly a much larger number of adult population would also benefit from the treatment.

In India, cancer patients are increasing like an epidemic and more and more young generation is being affected. Proton therapy may play an important role in improving quality of life and reducing secondary cancer. The cost is expected to reduce as better proton technology becomes more widely available. Before availability of high end photon therapy, there was question regarding their use in India, now these techniques are widely used. Proton therapy needs higher levels of expertise and delivers higher level of precision.

Thanks and regards

Dr Rashmi Agrawal

Radiation Oncologist, Pusanjali Crossley Hospital, Galaxy Cancer Centre

Views expressed are of author.

Question of this issue

Do you think radiation oncologists need to focus on sub specialties in present era of disease specific management?

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

We wish to initiate small articles on tech facts, tech tips, tit-bits with your input. Please send your entries. - Editorial Board