"Workshop on Techniques of Diagnosis and Radiotherapy of Cancer"

9th September 2023

Report

Preamble

Vidyalankar Institute of technology (VIT) always promotes interaction with industries and research laboratories to inculcate research culture among faculty and students. In this regard VIT had conducted five workshops

1. "Application of Radiation and Radioisotopes in Diagnosis and Therapy of Cancer" on Saturday, 15 October 2016.
2. " Current Challenges in Diagnosis and Radiotherapy of Cancer "on 6 October 2018.
3. "Principles and Instrumentation of Radio-Diagnostic and Radiotherapy Techniques" on 1 February 2020
4. "Technological Advancements and Challenges of Radiation Based Techniques in Diagnosis and Therapy of Cancer" 20 March 2021
5. "Advancements in Radio-Diagnostic and Radiotherapy Equipment" 6 August 2022

Biomedical Engineering Department of VIT wanted to continue interaction with the Society. In the year 2023 under the mentorship of Dr. Badri.N. Pandey, Secretory of SRR it was decided to conduct a **"Workshop on Techniques of Diagnosis and Radiotherapy of Cancer" an** area important to Society. Dr. Badri suggested collaborating with **Dr. Sumit Basu** at **Department of Radiation Oncology and Nuclear Medicine, Kokilaben Dhirubhai Ambani Hospital, Andheri (W), Mumbai-400053.** A convenient date was proposed and agreed by VIT, Kokilaben Dhirubhai Ambani Hospital and SRR as 9 September 2023.

About Society for Radiation Research

Society for Radiation Research is a Society of Scientists, Clinicians, Students, Academia and Industries having interest in field of Radiation Research. The society is started with the following objectives:

1. To promote research in the areas of:
    - Radiation biology with basic and applied aspects.

- Clinical radiation biology and oncology.
- Radiation hormesis and low dose radiation biology.
- Environmental radiation biology, non-ionizing radiation effects.
- Radiation medicine, radiation technologies.
- Transnational research.
- Terrestrial and space radiation biology and any other relevant research areas.

2. To facilitate integration and interaction of different radiation research areas.
3. To promote the diffusion of knowledge in these research areas through organizing meetings, conferences, workshops, awareness programs, scientific publications etc.
4. Promote discussion, interactions amongst scientist-public-industry and acting as liaison to communicate facts and research developments to public, government and regulatory bodies.
5. Integration of Society with other National and International Scientific Bodies.
6. Facilitate and promote research in areas of radiation research by various means. Encourage and promote young researchers and students to pursue research and build career in the areas of radiation research.
7. Promote and facilitate education of radiation research in national Institutes and Universities.

About Biomedical Engineering Department, VIT

The Biomedical Engineering Department of VIT has a clear vision to become a **Centre of Excellence** in the field of Biomedical engineering where learners are nurtured in a scholarly environment to evolve into competent professionals to benefit society. Department has been accredited by National Board of Accreditation and has signed MoU with GE Healthcare for creating a Centre of Excellence lab. Biomedical Department at VIT also has signed MoU with Capgemini Engineering to promote Industrial and Academic interaction. VIT is also accredited with A+ grade by NAAC. The Competent Authority has granted Autonomous status to VIT from year 2023.

About the Workshop

VIT had approached SRR to organise a "Workshop on Techniques of Diagnosis and Radiotherapy of Cancer" for Biomedical Engineers, at any hospital associated with SRR. In response to our request Dr. Badri Pandey from SRR had contacted Dr. Sumit Basu at Department of Radiation Oncology and Nuclear Medicine, Kokilaben Dhirubhai Ambani Hospital, Andheri to organise the same. Jointly a convenient date was fixed, and a brochure was circulated among faculty and on SRR website. No of participants were limited to 31 as per Kokilaben Dhirubhai Ambani Hospital norms.

Brochure

SOCIETY FOR RADIATION RESEARCH (SRR)

in association with

Vidyalankar Institute of Technology
Wadala, Mumbai

Vidyalankar Institute of Technology
Accredited A+ by NAAC

organizes

"Workshop on Techniques of Diagnosis and Radiotherapy of Cancer"

DATE/TIME: September 9, 2023 (SATURDAY), 1 PM-5 PM

Venue

Department of Radiation Oncology and Nuclear Medicine,
Kokilaben Dhirubhai Ambani Hospital, Andheri (W), Mumbai-400053

Kokilaben Dhirubhai Ambani hospital & medical research institute
Every Life Matters

Limited Participants
(First-Cum-First Basis)

No Registration Fee

Kokilaben Dhirubhai Ambani hospital & medical research institute
Every Life Matters

Vidyalankar Institute of Technology
Accredited A+ by NAAC

SRR GOVERNING COUNCIL

Designation	Name
President	**Dr R. Bilimagga,** Prof. Emeritus and Senior Consultant, Radiation Oncology, HCG Hospitals, Bangalore
Vice President	**Prof. Venkatachalam Perumal,** Professor and Head, Department of Human Genetics Sri Rama Chandra University, Porur, Chennai
Secretary	**Dr Amit Kumar,** Radiation Signalling and Cancer Biology Section, Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai
Treasurer	**Dr Chandan Kumar,** Radiopharmaceutical Division, Bhabha Atomic Research Centre, Mumbai
Founder President, SRR and Editor-in Chief, Journal of Radiation and Cancer Research	**Dr K. P. Mishra,** Ex-Vice Chancellor, Nehru Gram Bharati University, Allahabad, Ex-Head, Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085
Editor-in Chief, Journal of Radiation and Cancer Research	**Dr Nagraj Huilgol,** Advanced Centre for Radiation Oncology, Dr Balabhai Nanavati Hospital, Vile Parle (W), Mumbai 400 056

Members
Dr Chinmay Kumar Panda, Dept of Oncogene Regulation, Chittaranjan National Cancer Institute, 37 SP Mukherjee Road, Kolkata
Dr Gautam Sarma, Department of Radiation Oncology, All India Institute of Medical Sciences (AIIMS), Guwahati
Dr J P Agrawal, Head, Department of Radiation Oncology, Tata Memorial Hospital, Mumbai
Dr Kamlesh Mumbrekar, Manipal Academy of Higher Education, Manipal
Dr Pramila Sawant, Head, Internal Dosimetry Section, Radiation Safety and Systems Division, Bhabha Atomic Research Centre, Mumbai
Dr Sandeep Shukla, Institute of Nuclear Medicine and Allied Sciences, Delhi
Dr T Verma, King George's Medical University, Lucknow
Prof. Vandana Jain, Head, Department of Radiotherapy and Oncology, Rural Medical College, Loni, Ahmednagar

Kokilaben Dhirubhai Ambani hospital & medical research institute

Every Life Matters

VIT Vidyalankar Institute of Technology

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PROGRAM OUTLINE-Topic Covered

- Principles of Radiation therapy in the management of Cancer
- Evolution of Radiotherapy Machines and Techniques
- PET CT and Cancer diagnosis
- Quality Assurance
- Patient preparation before and during treatment
- Radiation Oncology Department Tour

Contact details

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Prof. Arunkumar Ram, Mob: +91 8850860004
Email: arunkumar.ram@vit.edu.in
Registration can be done online.
Last Date for Registration: August 31, 2023
Intimation of Selected Participants: Sept. 01, 2023

Society for Radiation Research (SRR)

(Registration No.: Maharashtra State, Mumbai 2280, 2014 GBBSD)
Registered Office: Advanced Centre for Radiation Oncology, Nanavati Max Super Speciality Hospital, Vile Parle (W), Mumbai 400 056
Email: srrindia1415@gmail.com
Web page: www.srrindia.org
Facebook: https://www.facebook.com/Society-for-Radiation-Research-SRR-771727076329168/

Registration Link
https://forms.office.com/r/9WXPR62HHk

Program Outline

Topic	Speaker
Principles of Radiation therapy in the management of Cancer	Dr. Sumit Basu, Senior Consultant &Head, Department of Radiation Oncology, Kokilaben Dhirubhai Ambani Hospital
Evolution of Radiotherapy Machines and Techniques	Dr. Harshwardhan Bhosale, Clinical assistant in Radiation Oncology, Kokilaben Dhirubhai Ambani Hospital
Radiotherapy functions and therapies	Mr. Shaju Pilakkal, Chief Medical Physicist, Kokilaben Dhirubhai Ambani Hospital
Quality Assurance	Ms Asmita Doiphode, Medical Physicist, Kokilaben Dhirubhai Ambani Hospital
Patient preparation before and during treatment.	Mr. Debojoyti Dhar, Senior Radiation Therapy Technologist Kokilaben Dhirubhai Ambani Hospital
PET CT and Cancer diagnosis	Dr. Anshu Sharma, Head, Department of Nuclear Medicine, Kokilaben Dhirubhai Ambani Hospital
Radiation Oncology Department Tour	

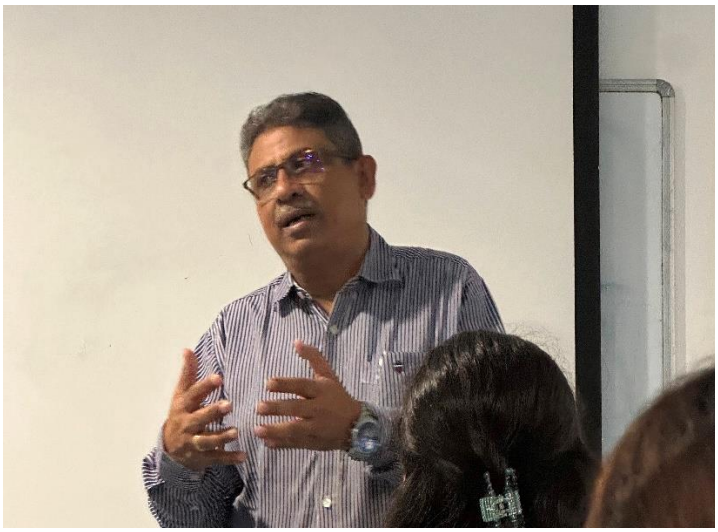
Overview of the Workshop

The participants were assembled near Kokilaben Dhirubhai Ambani Hospital at 12.45pm pm. After security checks and permission from Centre students were assembled in HRD training centre at 7th Floor.

Participants at **Kokilaben Dhirubhai Ambani Hospital**

The program started with an Introduction to Principles of Radiation therapy in the management of Cancer by Dr. Sumit Basu, Senior Consultant &Head, Department of Radiation Oncology, Kokilaben Dhirubhai Ambani Hospital.

The session was followed by Dr Harshavardhan Bhosale who elaborated on the evolution of radiotherapy equipment. He explained the 5 R's of radiotherapy namely Repair of sublethal damage in normal cells ; Redistribution of tumour cells in cell body ;Reoxygenation of tumour cells Repopulation of tumour and normal cells and Radio sensitivity. He also talked about radiation treatment modalities-IMRT, VMAT, SBRT,3DCRT and surgical methods of radiotherapy.



Dr. Sumit Basu "Introduction to Principles of Radiation therapy in the management of Cancer"

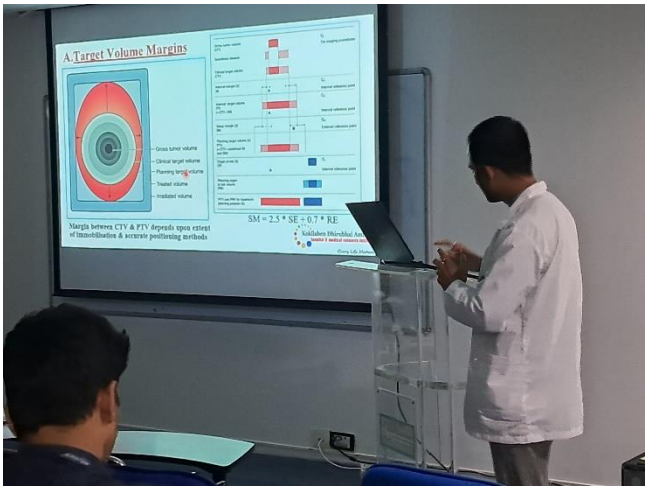
Dr. Harshwardhan Bhosale on "Evolution of Radiotherapy Machines and Techniques"

Dr. Anshu Sharma on "PET CT and Cancer diagnosis"

Mr. Shaju Pilakkal on" Radiotherapy functions and therapies"

This session was followed by "Radiotherapy functions and therapies" given by Mr. Shaju Pilakkal, Chief Medical Physicist. He explained about Ionizing radiation, quantization, planning of CFRT and also gave introduction to CT, PET scan, MRI, Brachytherapy, X ray beam therapy, LINAC etc. He also introduced participants to adaptive radio therapy.

Quality assurance in radio therapy is very important, this was explained by Ms Asmita Doiphode, Medical Physicist, Kokilaben Dhirubhai Ambani Hospital. She elaborated on QA process and effects on patients, machine specification and patient specification by taking example of LINAC QA, Wedges QA, Imaging QA and PATIENT SPECIFIC QA.



Mr. Debojoyti Dhar on "Patient preparation before and during treatment"

Ms Asmita Doiphode on "Quality Assurance"

The next session was taken by Mr Debojyoti Dhar on "Patient immobilization techniques". In his session Mr. Dhar explained about need of immobilization, errors in RT process, Patient setup, alignment and positioning, device regulation, ideal characteristics and immobilization techniques and set up for: cranial, breast, abdominal radio imaging.

This was followed by Radiation Oncology Department Tour where Dr. Anshu Sharma explained about PET CT and Cancer Diagnosis.In the tour the participants visited PET-CT, Isolation room, radiation injection machine, Radiation counting room and LINAC MACHINE (new and old)

Radiation Oncology Department Tour

A group photograph was taken at the end of the session. Later faculty had discussion with Dr. Anshu Sharma and Dr. Sumit Basu regarding possibility of collaborative projects at the centre. We had also discussed the possibility of visit to Endoscopy rooms.

All the sessions were quite interactive, and the participants were involved in the demonstrations which were obvious from the level of questions asked by them. The speakers were also interested in all demonstrations as the participants were interactive and were asking specific doubts

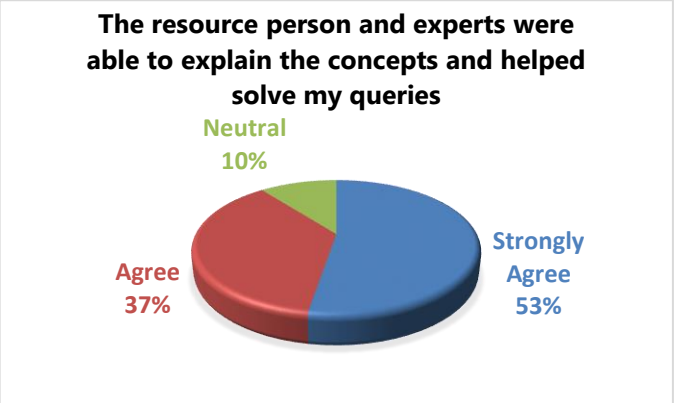
The workshop was really useful for all the participants. The session concluded with feedbacks from the participants. This was followed by a meeting and vote of thanks by faculty from VIT.

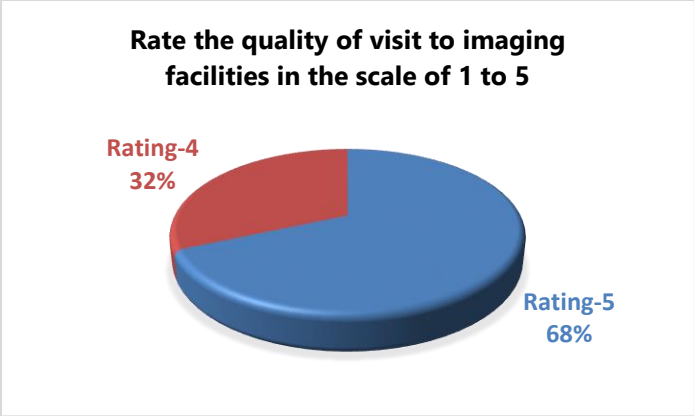


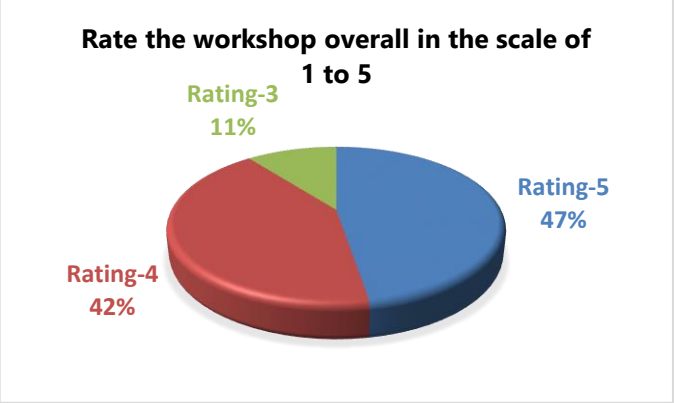


Token of appreciation from VIT

Feedbacks on various aspects of the workshop







Do you have any remarks/ suggestion for the subsequent workshop

- It was good and many doubts related to radiation and how the process goes on was cleared. Looking up for more such workshops.
- There should be a break for atleast 20 min and they should provide some solid snacks to the students and not just read and biscuits
- Great experience
- It was very interesting. There should be more workshops of this kind
- No suggestions
- It was indeed informative and useful in understanding concepts of radiotherapy and it's practical use.

Convener

Head Biomedical Engineering