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AROI OFFICE BEARERS

Dr. Rajesh Vashistha President
Bathinda
M 9316911970
E drvashistha@gmail.com

Prof. Manoj Gupta President Elect
Rishikesh
M 9816137344
E manoj.rt@aiimsrishikesh.edu.in

Dr. G V Giri Secretary General
Bengaluru
M 9342880379
E girishuba@gmail.com

ICRO OFFICE BEARERS

Prof. S Pradhan Chairman
Varanasi
M 9415228261
E satyajit.pr@gmail.com

Prof. D N Sharma Vice Chairman
Delhi
M 9868443319
E sharmadn@hotmail.com

Dr. V Srinivasan Secretary
Chennai
M 9841022366
E vsrinivasan09@gmail.com
E secretaryicro@gmail.com

Control of Head and Neck Cancer in India

Prof. G K Rath,
**Head, National Cancer Institute & Chief, DRBRAIRCH,
Professor, Radiation Oncology, AIIMS, New Delhi**

Supriya Mallick
Dept of Radiation Oncology, AIIMS, New Delhi

In the last decade cancer has emerged as one of the leading cause of death. According to the GLOBOCAN data of 2018 annual incidence in the country is nearly 1.15 million and the prevalence is 2.25 million with annual date due to cancer is 7.84 lakh. According to the analysis GLOBOCAN predicts nearly 9.6% chances of developing cancer before the age of 75 years and nearly 6.8% risk of dying. Worldwide lung, breast, colorectal, prostate and stomach are the top leading cancers whereas in India Breast, oral cavity, cervix uteri, lung and stomach are the leading cancers. Incidence of cancer varies widely in the country. The lowest incidence is reported in Barshi in Maharashtra, a rural registry has an age-adjusted incidence rate (AARs) of 51.8 a rural registry while AAR is of 273.4 in Aizwal district highlighting a seven fold difference in the cancer incidence. Among the urban registries Lung, colon and prostate has emerged as the three leading cancer in males whereas in females Breast, colon and uterine cervix are the leading cancer sites. In urban registries like Delhi, Mumbai and Thiruvananthapuram, breast cancer is the most common cancer in women and in registries such as Barshi, Aizwal and Guwahati, cervical cancer is most common in women. Cancer of the stomach and liver are among the most common malignancies in Mizoram and carcinoma of the gall bladder figures among the top five cancers in some registries such as Delhi and Dibrugarh. The GLOBOCAN 2018 data highlights importance of infection, UV radiation and obesity as risk factor for cancer worldwide. In India 21.4% of all cancers are attributable to infection whereas less than one percent is due to obesity. Doll and Peto in a pioneering research has highlighted tobacco to be responsible for 25-40% of cancers. Interestingly, India happens to be the 3rd largest producer and 2nd largest consumer of tobacco with nearly 40% of cancers in India are tobacco related and head and neck cancers top the list. Human Papilloma Virus (HPV) is another important emerging cause of cancer. Though globally 60-66% orophrynageal cancers are HPV related in India there number are 20-25%. However, point should be made that this number may increase in the coming decades and similarly HPV related oral cancers may pose to be a problem.

There is a saying that "Prevention is better than cure" and it is extremely true for cancer, more important in India as nearly 60% of cancers in India are preventable. Controlling head and neck cancer can be very easy if common people are encouraged to adopt mare healthy life style, avoid smoking, eat healthy food, reduce stress and perform regular physical activity. Cancer screening is an important method to look for early diagnosis in high risk asymptomatic population. Screening has been successful for breast, cervical, colon cancers. In head and neck cancer there is no established tool or method for screening. In an interesting paper Sankaranarayanan et al performed a cluster randomized controlled trial in the Indian state of Kerala which involved oral visual examination by health workers in nearly 2 lakh healthy individual. The authors reported Oral visual screening can reduce mortality in high-risk individuals and has the potential of preventing at least 37 000 oral cancer deaths worldwide. In an updated analysis the authors reported sustained reduction in oral cancer mortality during the 15-year follow-up, with larger reductions in those adhering to repeated screening rounds support the introduction of population-based screening programs targeting users of smoking or chewing tobacco or alcohol or both in high-incidence countries.
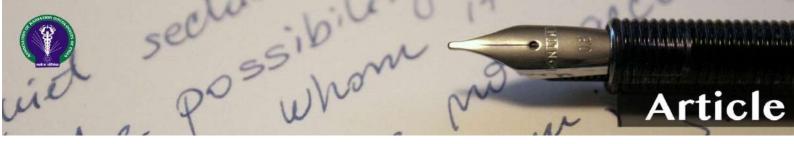
The results were sustained A similar study performed by dentist or physicians in Taiwan on high risk individuals defined as 18 years old with oral habits of cigarette smoking and/or betel quid chewing. The study reported 17% reduction in oral cancer incidence and 26% reduction in oral cancer mortality. Subsequently, Subramanian et al reported that

visual inspection for oral cancer should be offered in high-risk population and targeted screening of this group can be offered at a reasonable cost in a limited-resource setting.

In March 2011, ICMR developed National Centre for Disease Informatics and Research (NCDIR) to cover other common non-communicable diseases with more or less similar etiological factors like cardiovascular diseases (CVD), Diabetes and Stroke. Similarly NCCP which was launched by the Ministry of Health and Family welfare, Government of India, in the year 1975, has been replaced by National Program for prevention and control of cancers, diabetes, cardiovascular diseases and stroke (NPCDCS). The Govt of India has recently formulated "Operational framework" for the countries national cancer screening programme. In this programme population of 30-65 years of age will be screened once in five year by oral visual examination . Point should also be made that vaccine has been able to eradicate many disease and are in the process of controlling and elimination few deadly ailments. HPV vaccine appears to be beneficial for controlling cervical cancer and HPV related anal cancer and is being advocated by World health organization for vaccinating young adolescent girls, aged 9-14. Though there is no data available regarding efficacy of HPV in reducing incidence of oropharyngeal cancers, HPV vaccination merits evaluation through clinical trial.

Cancer treatment and research is an ever evolving process. The conventional methods of cancer treatment have reached a plateau. In a pattern of care analysis Nandakumar et al, reported surgery for primary and neck to be the cornerstone of therapy for oral cancer *yielding 5year survival of* 85.7%.This was followed by patients who received surgical treatment for the primary tumour only. Patients who received RT alone with or without CT had lower survival (FCS for RT+CT:57.8%; FCS for only RT: 69.1%). Patients with locally advanced (Stage III-IVB) disease surgery plus radiotherapy with or without chemotherapy appears the best modality.

 However, molecular research has proven that multiple subgroups exist in one disease which has completely different clinical behavior and hence treatment can also be different. The role of translational research comes here a major way to look for these differences. Wide arrays of techniques are being employed such as genomics, proteomics, metabolomics etc. These techniques are an avenue to broaden the use of biotechnology in the cancer diagnosis and treatment. Translational medicine is defined by the European Society for Translational Medicine (EUSTM) as "an interdisciplinary branch of the biomedical field supported by three main pillars: benchside, bedside and community. Translational research applies findings from basic science to enhance human health and well-being. Translational research adopts a scientific investigation/ enquiry into a given problem facing medical/health practices to surmount such problem which will helps to raise aggregate health performance. In a medical research context, it aims to "translate" findings in fundamental research into medical practice and meaningful health outcomes. Translational research implements a "bench-to-bedside", from laboratory experiments through clinical trials to point-of-care patient applications, model, and harnessing knowledge from basic sciences to produce new drugs, devices, and treatment options for patients. The end point of translational research is the production of a promising new treatment that can be used with practical applications that can then be used clinically or are able to be commercialized. Hence, India is working hard for control of head and neck cancers and achieved success. But it requires exploring and implementing prevention strategy with tobacco control, screening with visual examination and vaccination to control the incidence of head and neck cancers. India has already put forward a step as it has established National cancer Institute to strengthen translational research focused to problems like head and neck cancer and should be able to come up with newer modalities for head and neck cancer control.

Is Artificial Intelligence going to replace an Oncologist in Future?

Dr.Vivek Kaushal

Sr. Professor and Head, Department of Radiation Oncology
Post Graduate Institute of Medical Sciences, RCC, Rohtak, Haryana

Since the development of computers their capability has increased exponentially. Their speed has increased and time for a task has decreased. The intelligence of human mind over computers persisted till 1996 when Garry Kasparov the chess champion of world beat IBM computer Deep Blue[1]. However this human supremacy over computers was short lived; in a revenge match, Deep Blue defeated Garry Kasparov in 1997[1]. While exploiting the power of the computer systems, the curiosity of human, lead him to wonder, "Can a machine think and behave like humans do?" A branch of computer science named artificial intelligence pursues creating the computers or machines as intelligent as human beings. Artificial intelligence (AI) is an emerging field of computer science which uses computer models and algorithms to replicate human-like intelligence and perform specific tasks. Intelligence (in all cultures) is the ability to learn from experience, solve problems, and use our knowledge to adapt to new situations. Thus, the development of AI started with the intention of creating similar intelligence in machines that we find and regard high in humans

Artificial intelligence is progressing rapidly. While science fiction often portrays AI as robots with human-like characteristics, AI can encompass anything from Google's search algorithms to IBM's Watson to autonomous weapons. AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

Problem solving by a human being, a computer and an artificial intelligence system is different. As an example for expertise in chess, for a human being, to play at a professional level, you need 4 hours of playing practice and 6 hours of study every day. The computer approach is making a program, involving the value of pieces, rules of game, including data of all games played so far etc. In contrast to the two above, the Google's artificial intelligence system for playing chess, Alpha zero, started from scratch[1]. It was given the value of pieces and rules of the game and only 4 hours of learning (deep learning) by playing against itself. After this, it could beat the strongest chess playing computer (Stockfish) in the world. The essential difference was that AI could learn from its own experience and improve by playing million of games against itself in 4 hours[1].

After defeat in chess, human race looked for a game which is more complex than chess and where human brain could be proved better. According to mathematician I. J. Good the board game "Go" was such a game. "Go" a complex board game, is considerably more difficult to solve than chess[2]. Many in the field of artificial intelligence consider Go to require more elements that mimic human thought than chess. Therefore a match was arranged between Lee Sedol the current world champion and Google's artificial intelligence program Alpha Go in 2016. This match was also known as the Google Deep Mind Challenge Match 2016 and had one million US dollars as the grand prize[2]. The match was won by Alpha Go with a score of 3-0 comfortably. The era of Board games was declared over (for artificial intelligence) because of lack of competition provided by human brain[3]. In response to the match the South Korean government announced

on 17 March, 2016 that it would invest \$863 million (1 trillion won) in artificial-intelligence (AI) research over the next five years[2].

Artificial intelligence is a science and technology based on disciplines such as computer science, biology, psychology, linguistics, mathematics, and engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving. In the medical world, the knowledge has some unwelcomed properties; its volume is huge, next to unimaginable. It is not well-organized or well-formatted and it keeps changing constantly. AI is a manner to organize the knowledge efficiently so that it is perceivable, modifiable to correct errors, so that it could be useful in many situations though it is incomplete or inaccurate.[4]

Artificial intelligence today is properly known as narrow AI (or weak AI), in that it is designed to perform a narrow task (e.g. only finger print recognition or only internet searches or only driving a car). However, the long-term goal of many researchers is to create Artificial General Intelligence (AGI or strong AI). While narrow AI may outperform humans at whatever its specific task is, like playing Go or solving equations. AGI would outperform humans at nearly every cognitive task. By inventing revolutionary new technologies, such a super intelligence might help us eradicate war, disease, and poverty, and so the creation of strong AI might be the biggest event in human history. As pointed out by Max Tegmark, President of the Future of Life Institute "Everything we love about civilization is a product of intelligence, so amplifying our human intelligence with artificial intelligence has the potential of helping civilization flourish like never before – as long as we manage to keep the technology beneficial".

There is a different aspect of development of artificial intelligence. Should we be afraid of artificial intelligence?[5] According to one of the best brains of our time, Stephen Hawking "the development of full artificial intelligence could spell the end of the human race". The sequence of events may be: man designs an ultra-intelligent machine (better intellectually than any man however clever), the designing of such machine is an intellectual activity. An ultra-intelligent machine could design even better machines, There would be an intelligence explosion, The intelligence of man would be left far behind. Thus the first ultra-intelligent machine is the last invention that man need ever make.

Medicine is already benefitting greatly from machine learning (a subset of AI) in all areas from diagnosis to treatment to prediction of cure or death.[4,6,7-9] The potential is so much that we have barely scratched the surface. Some of the main applications of artificial intelligence in health care are: robotic assisted surgery, virtual nursing assistants, administrative workflow assistant, fraud detection, dosage error deduction, connected machines, clinical trial participant identifier, preliminary diagnosis, automated image diagnosis, cyber security, etc. Artificial intelligence (Machine Diagnosis) has been used successfully in medicine in pathology, cardiology, dermatology, ophthalmology, oncology etc. First FDA approval for Deep learning in Health care has been Arterys's medical imaging platform which can diagnose heart problems as accurately as human doctor. However it takes only 15 seconds to produce a result as compared to 30 minutes by human doctor.

AI curing cancer is a way off, but it possible if people get involved. Public health data can contribute to new discoveries.[4] The new approach is if you have a disease, join a clinical trial, if you are healthy, contribute your data to control studies." "Algorithms are the new drugs". Artificial Intelligence can recognize health patterns. Increasing amounts of more comprehensive health data from apps, personal monitoring devices, electronic medical records, and social media platforms are being integrated into harmonized systems such as the Swiss Personalised Health Network. The aim is to give machines as complete a picture as possible of people's health over their life and maximum knowledge about their disease.

It has been estimated that a physician should read 29 hours per working day in order to stay updated about new medical research.[4] An oncologist has to pay attention to other matters besides looking at

immense data for staying updated regarding recent advances. In contrast Artificial Intelligence, IBM Watson gathers data from the likes of PubMed can read 800 million pages per second.

IBM is a pioneer in AI technology and theirs is the most commonly used application in oncology. IBM had created an AI powered program called "Watson diagnostic", which harbors the library of huge cancer research data (over 20 million papers for now and increasing every minute) and steadily being fine-turned by real doctors to help it make precise diagnosis and suggestive treatment. Watson is already in the clinic now.[4,11] IBM's Watson has been implemented in more than 230 hospitals. 55 hospitals using Watson to aid in diagnosing various types of cancer. Memorial Sloan Kettering (MSK) main partner with IBM and providing data for Watson, Although IBM reported that Watson can identify tumors with 93% accuracy Many physicians are not convinced of its capabilities. Watson is constantly learning and absorbs impact of physician criticism and feedback. Recommendations made by Watson were the same recommendations made by physicians 81% of the time with colon cancer, 93% of the time with rectal cancer, and 96% of the time with lung cancer. In addition, a study in Thailand demonstrated that Watson can screen for lung cancer and breast cancer 78% faster than a pathologist can. As a reference, in Tokyo, Watson diagnosed a 60-year-old patient's rare form of leukemia within 10 minutes, a disease that doctors had struggled to correctly locate for months, even with her genetic information in hand. However, there have been hiccups; MD Anderson has broken up with IBM Watson, raising questions about artificial intelligence in oncology.[12]

A robot passed China's national medical exam, exceeding the minimum required by 96 points.[13] Google is developing an augmented reality microscope to help pathologists. AI has shown that it can significantly reduce the error rate of diagnosis as compared to a specialist on their own. In this field, Google is developing an augmented reality microscope that uses AI software to assist pathologists in the detection of cancer, which could reduce significantly some time-consuming activities such as manual cell counting.

Deep learning can improve the accuracy of pathologists' cancer diagnoses.[14] This "deep learning" is part of "machine learning," where systems learn constantly without the potential cultural and institutional difficulties intrinsic to human learning, such as schools of thought or cultural preferences. Deep learning drops the error rate for breast cancer diagnosis by 85%. A self-learning AI system developed at MIT can observe treatment regimens and adjust dosages in real time to generate optimal treatment plans. In an attempt to mitigate the debilitating side effects of radiation and chemotherapy, a team at MIT has developed a model that can reduce the toxicity of cancer treatments through a self-learning machine. Artificial intelligence can reduce the toxicity of these cancer treatments by up to 50% while maintaining the same effect with regard to tumor shrinkage. This is expected to increase patients' quality of life by reducing harmful side effects. In one trial simulation, the model was adapted for glioblastoma using traditional chemotherapy regimens including vincristine, temozolomide, lomustine, and procarbazine. Initially, the AI reads through established cancer treatment methods from clinical trials. Then, over several weeks or months, the self-learning machine adjusts the dosages of these drugs in response to the mean diameter of the tumor and the toxicity of the drugs. the AI can consider such factors as medical histories, genetic profiles, and various biomarkers, whereas clinical trials of large populations often cannot.

An eternal question for an oncologist is, which patient will recur out of all given similar treatment?[15]. AI can decipher complex datasets for both disease recurrence and patient survival. A study analyzing post-op data from colorectal cancer surgery patients with a neural network, yielded results compliant with standard regression methods and identified definitive reasons for readmission within the first 30 days after surgery.[15] Google is training machines to predict when a patient will die by reading a new type of algorithm containing more than one lakh data points. Initial predicts are better than humans.

One important use of artificial intelligence is for recommending targeted treatment[15] Oncologists have been trying for decades to define small subsets of cancer patients that can benefit from a specific treatment. However, the success of targeted therapies has so far been limited. At the moment, medical doctors are overcrowded with data from imaging, genomics, co-morbidities and previous treatments. This is where AI comes into play. The technology has the potential to crunch the data to predict the prognosis of the patient and advise doctors with different options available, including personalized medicine and clinical trials with experimental therapies.
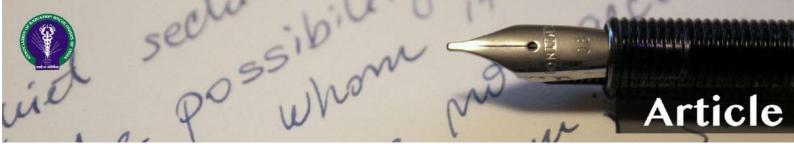
Adverse events are observed in over 3.7% of hospitalized patients. Over one-quarter of the adverse events were found to be caused by negligence. Out of these 2.6% caused permanently disabling injuries and 13.6% of those led to death. Severe injuries increased in probability due to negligence. Of the 2,671,863 patients discharged from New York hospitals in one calendar year, 98,609 were adverse events and 27,179 were adverse events involving negligence. Building on these findings AI will be used to identify probabilities for such events, design counter-active measures, and improve the measures according to the learned experiences.[15,16]

Pharma Companies have come in support of support artificial intelligence for cancer research, In late 2016, Pfizer announced a collaboration with IBM Watson for Drug Discovery in order to "analyze massive volumes of disparate data sources, including licensed and publicly available data as well as Pfizer's proprietary data." Sanofi and GSK have announced, respectively, $300M and $42M deals with Exscientia, a spin out of the University of Dundee, Scotland, to identify synergistic combinations of cancer targets, to then develop drugs against those targets. Roche, out of many other deals including the acquisition of Flatiron Health for $1.9Bn and a partnership with GNS Healthcare, is supporting an open research initiative called EPIDEMIUM to bring together multiple players and apply AI to the research of new cancer therapies. However, this field is still at an early stage. So far, only the British company Benevolent AI, in partnership with Janssen, has shown concrete results, which have led to a drug candidate now moving to a Phase II trial.

Artificial intelligence has the potential to reducing trial costs.[17] Artificial intelligence has the potential to draw insights from tremendous volumes of real-world data and apply it to the design of clinical trials, which could reduce significantly the cost. Especially given that patient recruitment alone represents about 30% of the total clinical trial time. Recently, the Horizon 2020 program granted €16M to a huge European consortium — including big names like Institut Curie, Charité, Bayer, Philips and IBM — aiming to use AI technology to improve clinical outcomes in oncology at lower cost. However, precedents have not been that promising. In 2013, the M.D. Anderson Cancer Center launched a program to test whether IBM Watson could speed up the process of matching patients with clinical trials. In the end, the $62M program didn't prove to be efficient and cost-effective.[12]

Radiation oncology has several weak points, which are mainly found in the transcription processes of transferring information from one process of radiation oncology to the next.[18-38] A potential for error is created at these critical junctions due to human involvement and error. This effect can be minimized or eliminated by implementing AI. The radiation oncology teams, such as radiation oncologists, physicists, dosimetrists, and therapists, have developed methods and models that can be internalized and improved upon by artificial intelligence.[15]

The main role of artificial Intelligence in radiation oncology is avoiding errors. [18-38] AI can ensure the accurate transfer of information from hospital servers to the treatment planning system, the record-and-verify system, and the treatment delivery system. Physicists and treatment planning teams are working on providing rules and methods for the program, as well as alternative ways to improve its accuracy.

Computers can treat more precisely. Many clinical incidents occur in radiation treatment due to human error and equipment failures[31,32]. New laws are going to be needed which ensure that self documented errors found by artificial intelligence are not punished. Legislature will need to be put in place that will

allow the legal protection of institutions that are committed to the rigorous process of error recording and documenting institutional efforts to minimize mis-administrations. Such a minimization of a hospital's liability is expected to set the stage for a systematic AI-supported approach to error prevention and process automation.

The American Society for Radiation Oncology and the American Association of Physicists in Medicine established the radiation oncology incident learning system (RO-ILS). Presently, RO-ILS is actively collecting, analyzing, and reporting patient safety events. Learned experiences from the collected data are used to
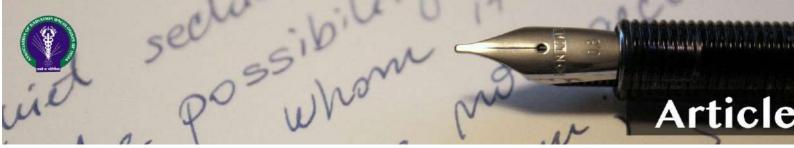
design systems not only optimized for efficiency but also for error minimization and elimination. AI is being developed to learn optimized processes to improve treatment planning and post-treatment evaluation. It builds on these processes to further improve efficiency and minimize errors. Treatment planning can be improved by allowing the optimization of processes and dosimetric results during the planning process. AI can verify transcriptions at all critical junctions of the radiation oncology process, such as prescription-to-plan, plan-to-record-and-verify, and to the treatment unit.[37]

Artificial intelligence can be used in radiation oncology in OPD for patient check-in, queuing shorter patient visits, Setups for treatment, imaging, and treating. It is predicted that AI will reduce the need for clinical medical physicists.[32] AI will improve efficiency and accuracy in radiation oncology. "By using the Bayesian inference, Monte Carlo methods Markov chain, and Markov chain Monte Carlo (MCMC) algorithms, as well as deep learning, data mining, predictive analytics, and genomics in health care, the accuracy and outcome of diagnosis, prognosis, and treatment of patients will be greatly improved".[15]

The idea of radiomics emerged from radiation oncology. Radiomics is a new word derived from a combination of Radio= Radiological images (medical images in a broad sense), omics = fields of study (e.g.genomics) .[14,18,24] There are associations between radiographic characteristics of tumors and biologic and clinically relevant outcomes in various types of cancer. For example, in lung cancer, radiographic characteristics were shown to be prognostic predictors associated with distant metastasis and pathologic response Radiomic approaches may have one practical application in precision medicine by predicting outcomes and toxicity for individual patients in radiation therapy.[10]

Essential in the radiotherapy planning process is radiotherapy target delineation or contouring. The process of manual contouring of tumour volumes and OARs in the radiotherapy target delineation process is a complex, labour intensive and time-consuming process. Artificial intelligence has been explored to help with this process by way of auto-delineate or producing auto-contours either to the tumour or normal structures.[19,20,22] Commercially available software to help with automatic segmentation has been available for a number of years and are predominantly divided into the atlas-based segmentation (ABS) or used in combination with model-based segmentation (MBS). A review paper on auto-segmentation use in head and neck cancer shows six out of ten studies reporting clinician time-saving in using such software. Application of artificial intelligence in radiotherapy delivery and image guided radiotherapy are promising. [18-38] The artificial intelligence approach has also been explored to help with radiotherapy quality assurance. A predictive model has been applied to help with the quality assurance of IMRT plans which has been able to detect deviations of up to 3% and set up errors with a good discrimination.[19]

Artificial Intelligence in Radiation Oncology can improve treatment efficiency, reduce transcription errors, steepen the learning curve for new programs, automate the radiation therapy process by the generation of templates, identify problematic trends, correct for potential errors, monitor corrections, replace

repetitive tasks in dosimetry and standardize the process in optimized ways. [4,10,15,31] Artificial Intelligence in Oncology" Journal has been started in 2018, keeping in view of upcoming rapid expansion of artificial intelligence in oncology.

AI is going to be cheaper than hiring doctors. [8,17,32,35] The key challenges for today's healthcare systems are economic: costs are rising everywhere. Introducing artificial intelligence driven systems could be cheaper than hiring and training new staff. artificial intelligence systems are also universally available and can even monitor patients remotely. This is important because demand for doctors in much of the world is growing more quickly than supply. [8,15] A think tank called the Finnish Business and Policy Forum published a report in 2016 suggesting that 20 percent of all nursing staff could immediately be replaced with robots.

Artificial intelligence is precise, reliable, and comprehensive. Even if machines are not yet universally better than doctors, the challenge to make them better is technical rather than fundamental because of the near unlimited capacity for data processing and subsequent learning and self correction. These systems continually integrate new knowledge and perfect themselves with speed that humans cannot match. Even complex clinical reasoning can be simulated, including ethical and economic concerns. [8]

Even patients who crave interaction, such as those with serious or terminal diagnoses, may find that their needs are better met by machines. Recent studies show that conversational agent systems have the potential to track conditions and suggest care and can even guide humans through the end of life. [33,34] Artificial Intelligence is less biased, less unstable but still caring. To say that patients always require empathy from human doctors is to ignore important differences between patients: many, particularly younger, patients with minor complaints simply want an accurate diagnosis and treatment that works. In other words: they may rate correct diagnosis higher than empathy or continuity of care. In some very personal situations the services of a robot could help patients avoid feeling shame.
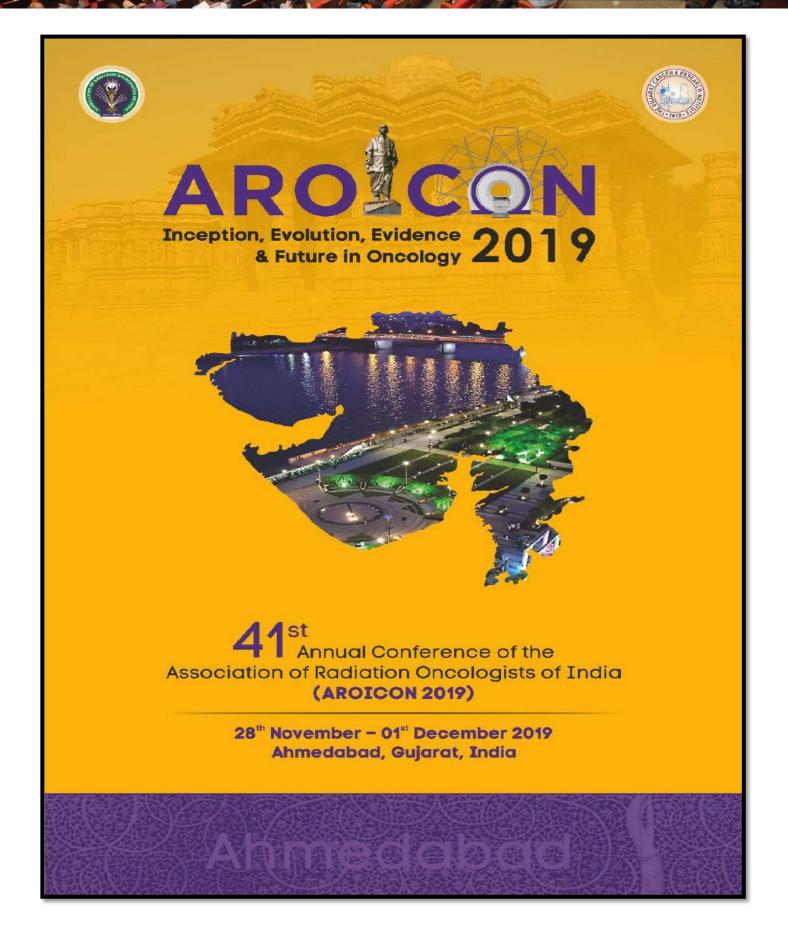
"Doctors as we now know them may become obsolete eventually. In the meantime, we should expect stepwise introduction of artificial intelligence technology in promising areas, such as image analysis or pattern recognition, followed by proof of concept and demonstration of added value for patients and society. This will lead to broader use of artificial intelligence in more specialties and, sooner than we think, human doctors will merely assist artificial intelligence systems.". [8]

What are the qualities which are unique to humans and lacked by a machines? These are; persuasion, influence, empathy, inspiration, building rapport, managing emotions, managing behaviour, humour and relating to patient. Coping with cancer often does not include curing illness, and here doctors are irreplaceable. [8] What should be the pace at which artificial intelligence should be replacing humans, especially in spheres it has proved better. It is up to organisations and regulatory bodies like the NHS, MHRA and FDA (in the US) to concur that artificial intelligence tests are valid and them implement these into hospitals etc.

Conclusion

Artificial intelligence (AI) systems simulate human intelligence by learning, reasoning, and self correction. It has the potential to be more accurate than physicians at making diagnoses in specialties such as radiology, cardiology, pathology, dermatology, intensive care and oncology; and at generating prognostic models. Artificial intelligence has the capacity to reshape radiation oncology specialty. At present artificial intelligence is helping radiation oncologists. Is it going to replace an oncologist in future (?) is a matter of debate. My opinion is Yes. However, there are challenges for application of this technology in patient care. For fully automated radiation treatment planning and delivery, legal framework, governance, quality assurance and staff training are some of the vital issues that need to be addressed. For the time being, human race has to work with natural and artificial intelligence for the betterment of cancer patients.

Due to space constraint, References are not being published. Readers, who are interested in references, may write to dr.gautamsharan@gmail.com for a complete list.

Prof. Kishore Singh

Awarded with State Awards to Service Doctors working in Delhi by Hon'ble health Minister of Government of National Capital Territory of Delhi. This award recognizes work of distinction and is given for exceptional achievements/service in the field of specialization. The award included a memento, Citation certificate and cash award. I have started the Government service from 1991 and completed almost 29 years. Out of which 20 years are in MAMC. During my tenure Department has grown from strength to strength. It has added Brachytherapy, Simulator with Cone beam CT as well as dedicated OT for brachytherapy. Soon 4 D CT Simulator will start working and installation of Linear Accelerator (True Beam with FFF) will begin. Our center has been granted Tertiary Care Cancer Center by Government of India, and become eligible for grant related to it. Also, PG seats have increased to 5 per year. We are about to start Hospital Based Cancer Registry, whereas population-based cancer registry is going on for many years.

Prof. Manoj Gupta

Dr. Manoj Gupta is now Dean, AIIMS, Rishikesh
CONGRATULATIONS!

Dr Manoj kumar Gupta,

Dean, AIIMS Rishikesh &
Professor & Head
Department of Radiation Oncology
All India Institute of Medical Sciences,

Prof. Rakesh Vyas

Leadership shines at Balco Medical Centre

Life time Achievement Award conferred on Dr Rakesh Vyas

Central Chronicle News

Raipur, Sept 14: Dr. Rakesh Vyas, the Medical Director of "Balco Medical Centre" was conferred "Life time Achievement Award" for his dedicated service in Oncology by "Indian Cooperative Oncology Network" (ICON) in their 41st conference held on September, 13, 2019 at Ahmedabad, Gujarat.

ICON is an independent organization of distinguished oncology experts devoted towards the cause of cancer prevention and care, since 1999. He was recognized for his exemplary work for over 30 years in area of teaching and patient care. Earlier to joining Balco Medical Centre, Dr. Vyas was the director of Gujarat Cancer Research Institute (GCRI) which is first government cancer institute in Gujarat. BMC under his guidance, is providing modern comprehensive cancer care at an affordable cost in the areas of Surgical Oncology, Radiation Oncology and Medical Oncology.

Balco Medical Centre, is a 170-bedded, state-of-the-art tertiary care oncology facility with 40 specialist doctors located at Atal Nagar (Nava Raipur), Chhattisgarh.

Providing the latest in Cancer diagnostic like PET-CT, SPECT-CT, MRI/MRT, Frozen section, Histopathology, Biopsy, Mammography to medical treatments like Brachytherapy therapy, Blood transfusion, Radiation therapy through LINAC accelerator, Nuclear medicine, Pain and Palliative care, all under one roof. BALCO Medical Centre is also combating other diseases like Sickle cell anemia, Female centric health, Children blood cancer, Diabetes and Dentistry.

Speaking on this occasion, Dr. Vyas conveyed his gratitude to the council at ICON for bestowing him this rare honor and said he was happy that BMC, Central India's largest Cancer Hospital, with most modern amenities, is providing world class services to all patients especially focusing on under privileged section. Latest in radiation therapy is "Proton therapy" which has least effect of radiations on healthy cells, is changing the shape of medical treatment related to cancer in Children.

AROI - ESTRO

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Dr. Coen Rasch, Course Director (ESTRO)
Dr. Anil Kr. Anand, Course Director (AROI)
Dr. Uday P. Shahi, Course Coordinator

◆

National Advisor
Dr. Rajesh Vashistha, President, AROI
Dr G V Giri, Secy General, AROI
Dr Manoj Gupta, President Elect, AROI

Group registration will be encouraged
Contact Person
Dr. Sunil Choudhary
Department of Radiotherapy and Radiation Medicine, IMS, BHU,
Varanasi-221005 (UP) INDIA
e-mail: aroiestro2019@gmail.com • Cell: 9559481453, 9450592811

33rd ICRO PG Teaching Program
12th & 13th October 2019

Organised by
Dr. Ram Manohar Lohia Institute of Medical Sciences
Vibhuti Khand, Gmoti Nagar, Lucknow 226003 (U.P)

Course Chairman
Dr Madhup Rastogi
Professor & Head, Department of Radiation Oncology,
Dr. RML Institute of Medical Sciences
Email: drmadhup1@gamil.com
Mobile: 9418155955

Course Co-ordinator
Dr Ajeet Kumar Gandhi
Associate Professor, Department of Radiation Oncology,
Dr. RML Institute of Medical Sciences
Email: ajeetgandhi23@gmail.com
Mobile: 8176007283, 9140284994

This educational program is supported by
an unconditional grant from

SUN ONCOLOGY
a SUN PHARMA division

ICRO
Chairman
Prof. Satyajit Pradhan
Director,
Mahamana Pandit Madan Mohan Malaviya Cancer Centre,
Sundar Bagiya, BHU Campus,
Varanasi-221005, Uttar Pradesh
E.mail: satyajit.pr@gmail.com; pradhans@tmc.gov.in

Vice-chairman
Dr D N Sharma
Prof, Dept of Radiotherapy AIIMS, New Delhi
Mobile: 9868969899
Email: sharmadn@hotmail.com

Secretary
Dr. V Srinivasan
Head, Radiation Oncology
MIOT INTERNATIONAL Institute of Cancer Cure
Mobile: 98410 22366
Email: secretaryicro@gmail.com

AROI
President
Dr Rajesh Vashistha
Principal consultant & Medical Advisor, Max Superspeciality
Hospital, Bathinda (Punjab)
Mobile: 9316911970
Email: drvashistha@gmail.com

President Elect
Dr. Manoj Kumar Gupta
Professor & Head, Dept of radiotherapy AIIMS, Rishikesh
Mobile: 9816137344
Email: mkgupta62@yahoo.co.in

Secretary General
Dr. G V Giri
Consultant Radiation Oncologist, Dept of Radiotherapy
Sri Shankara Cancer Hospital & Research Centre, Bangaluru
Mobile: 9342880379
Email: girishuba@gmail.com

Indian College of Radiation Oncology (ICRO)
Academic Wing of
Association of Radiation Oncologists of India (AROI)

33rd ICRO PG Teaching Program
12th & 13th October 2019
On
Paediatric Malignancies

Organised by,
Dr. Ram Manohar Lohia Institute of Medical Sciences
Vibhuti Khand, Gmoti Nagar, Lucknow 226003 (U.P)

Venue
Conference Hall, Ground Floor, Administrative Block
Dr. Ram Manohar Lohia Institute of Medical Sciences

Course Goal

Indian College of Radiation Oncology (ICRO), the academic wing of Association of Radiation Oncology through the PG-teaching programs have consistently strived for quality education focused to a dedicated topic and has been widely appreciated by the radiation oncology peers. Over a period of one and half day faculties/teachers involve with the postgraduate trainees in didactic sessions to give basic as well as comprehensive knowledge of the subject. This year the theme of 33rd ICRO-PG teaching program hosted by Department of Radiation Oncology, Dr Ram Manohar Lohia Institute of Medical Sciences (Dr RMLIMS), Lucknow is "Paediatric malignancies".

Dr RMLIMS, Lucknow is an autonomous super specialty hospital and one of the reputed and leading teaching institutes established by the Government of Uttar Pradesh. The Department of Radiation Oncology has been conceptualized as a comprehensive cancer care centre providing cutting edge patient care services. The department is equipped with three functional linear accelerators, Microselection HDR and dedicated brachytherapy operating suite offering advanced external beam (IMRT, VMAT, IGRT, SRS) as well as modern image guided brachytherapy. We also train 5 MD residents, 2 medical physics interns and 10 radiotherapy technologists every year. In the past few years, the participation of our department has spanned several coveted national and international conferences and meetings.

We are pleased and honoured to welcome the participants of 33rd ICRO-PG teaching programs focused on a niche subject of paediatric malignancy.

Course Brief

Paediatric malignancies constitute 0.7-4.4% of all malignancies in India. The most common types of cancers in children aged 0-14 years are leukaemia, brain and other central nervous system tumours and lymphomas. Paediatric cancers are not always treated like their adult counterparts and requires a multidisciplinary approach most of the times. Intricate surgeries, personalized radiotherapy decisions, genomic driven systemic therapies along with supportive treatments are the cornerstones of optimal outcome. Perhaps more important than treatment in childhood cancers is long term sequalae of treatment and survivorship care. The expertise and experience of treating childhood tumours are also limited to selected centres and descent exposure toward the management is not readily available to residents in training during their post-graduate curriculum. The 33rd ICRO teaching program has been designed to cover the basic understanding as well as evidence-based management of the common paediatric malignancies. Residents would also get an opportunity to interact with subject experts actively involved in the management of paediatric malignancy.

Eligibility & Recruitment Criteria

- 2nd and 3rd year MD / DNB (Radiation Oncology) Post Graduate students to be nominated by the Head of the Departments / Institutes

- AROI Membership is mandatory to apply for the Course.

- Maximum two students from one Institute.

- Last date for submission of application with CV: 20th September, 2019.

- Candidates who have attended the last program will not be given preference.

- Selection will be done by ICRO teaching course training committee. Merely applying for the teaching course does not guarantee selection.

- Selected candidates will have to pay Registration fee of Rs. 1,000/- in the form of Demand Draft in favor of "AROI – ICRO, payable at Ludhiana" or can do online payment in below mentioned account details.

  Bank: State Bank of India
  Account Name: AROI – ICRO
  Account No: 30619770736
  Address: Millerganj, Ludhiana
  IFSC Code: SBIN0000731

- Stay on twin sharing basis and local hospitality, from 11th October 2019 2:00PM to 13th October 2019 10:00AM will be provided by ICRO.

- No family members are allowed to stay at venue or attend ICRO program.

- For any correspondence please contact Secretary, ICRO at Secretaryicro@gmail.com or icro.git2019@gmail.com
The decision of ICRO body will be final and binding

APPLICATION FORM

I would like to participate in the 33rd ICRO PG teaching Program

Name (in CAPITAL letters only) : ....
....
....

Gender : Male ☐   Female ☐

AROI Membership No.: ....

Name of Institution ....
....

City ....   Pin code ....

State ....

PG Course: MD ☐   DNB ☐

Date of Enrolment to PG Course

Date: .... Month .... Year ....

Mobile No: ....

Email ID (write in CAPITAL letters only) ....
....
....

Signature ....

I recommend the candidature of above candidate for participation in 33rd ICRO PG Teaching Course.

Name of HOD ....
Mobile No: ....
Email ID: ....

Date   Signature of HOD   Seal of Institute

PRODVANCE PGIMER, Chandigarh

The AROI ICRO PRODVANCE course on head and neck cancers was held at Department of Radiotherapy & Oncology, Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh on 7th & 8th September 2019. The course was well attended with participation of early career radiation oncologists from all parts of North India. The Course was inaugurated by Prof Rajesh Kumar Dean Academics PGIMER and Prof Arvind Rajwanshi Dean Research PGIMER. The workshop was conducted under the chairmanship of Prof . S Ghoshal with Prof Rakesh Kapoor as the Organizing secretary and Dr Amit Bahl as course coordinator. Senior AROI and ICRO faculty delivered lectures as per ICRO programme on various treatment related aspects of head and neck cancers. The teaching course provided a comprehensive coverage of all aspects of head and neck cancers including epidemiology, radiological anatomy, radiobiology and treatment aspects including talks on surgical techniques, brachytherapy, chemotherapy and targeted therapy. Teaching lectures and interactive discussions were held by   senior faculty members including Prof GK Rath, Prof Satyajit Pradhan, Dr Rajesh Vashishta , Prof Manoj Gupta, Prof Vivek Kaushal, Prof R Seam, Prof BK Mohanti, Prof P Lal , Prof A Gupta ,Prof DN Sharma,Prof J Bakshi,Prof M Gupta, Dr K Sood Sharma, Dr Aman Sharma and others. The participants and delegates expressed desire for more such interactive teaching courses. The course ended with a vote of thanks to the esteemed faculty who conducted the teaching programme.

25th NZAROICON Amritsar

25th NZAROICON was held successfully at Amritsar on 21 22 September 2019. The conference was attended by over 225 faculty and delegates. Inauguration was done by Dr Hardas Singh Sandhu founder Rotary Cancer Care Foundation, Trustee SGRD hospital trust. Dr Roop Singh Secretary SGPC, Dr A P Singh Dean SGRDUHS and Dr M S Uppal Director Principal SGRDUHS were guest of honours. Dr Rajesh Vashistha President, Dr G V Giri Secretary AROI, Dr Rakesh Kapoor President NZAROI, Dr Deepak Abrol secretary NZAROI were also present. Over 45 papers were presented. There were lectures debates and panel discussions. Dr Neeraj Jain Organising Secretary and Dr Meena Sudan Organising Chairman thanked the faculty and delegates for active participation.

CRABECON

A national level cancer conference CRABECON Fifth, A Date with Cancer was Inaugurated by Financial Commissioner, Health & Medical Education, Sh Atal Dulloo, IAS who was the chief guest. CRABECON Fifth was organized by LajawantiBhagatnath Radiations of Hope in Collaboration with NorthZone ASSOCIATION of Radiation ONCOLOGISTS of India and Supported by Government Medical College Kathua.. The conference was attended by galaxy of oncologists all over the India some of whom are of international repute. The conference was supported by Fortofino& 91.1 Red FM, A platform from where cancer awareness message was circulated amongst the masses. EK AUR PARAMARSH, Another Consult was organized for cancer patients by LBN Radiations of Hope. Doctors of International & national repute gave their consultation to patients of J&K.

The LBN KarkCharak - THe Annual Award of LBN ROH was awarded to 2 world renowned oncologits Dr Anil D'Cruz, President Elect, UICC & Dr Shyam Shrivastava, President, FARO. Chief Guest Sh Atal Dulloo while speaking on the occasion highlighted the importence of such conferences in knowledge sharing & providing the platform for upliftment of academics for faculty. He appreciated the efforts made by the organizers & ask the doctors to work with more missionary zeal for the betterment of patient care. Dr Suleman Choudhary, Principal GMC Kathua& Patron Organizing Committee also lauded the efforts of all those concerned in making this events successful. Dr Deepak Abrol, The Organizing Secretary thanked

"Masterclass on Stereotactic Radiosurgery (SRS/SBRT) of Brain and Spine Tumors"

Medanta-The Medicity, India, 30th -31st August, 2019
Dr Shyam Singh Bisht, Dr Deepak Gupta.
Radiation Oncology, Medanta -The Medicity.

"Masterclass on Stereotactic Radiosurgery (SRS/SBRT) of Brain and Spine Tumors", a two day academic conference, endorsed by International Society of Radiosurgery (ISRS) was successfully organised by Division of Radiation Oncology, Medanta Cancer Institute, Medanta-The Medicity on 30th-31st August 2019. This program, first in the series of Masterclass from Medanta School of Radiosurgery/SBRT was aimed primarily for Radiation Oncologist, Neurosurgeons and Medical Physicist who are in the early phase of their Radiosurgery/SBRT program. It covered all the aspects of benign, malignant and functional indications of cranial and spinal SRS. The scientific program was crafted delicately with emphasis on decision making, case selection, target delineation, dose prescription, plan/toxicity evaluation and follow-up. To the best of our knowledge, first time such a dedicated conference on cranial and spinal Radiosurgery was conducted with Radiation Oncology and Neurosurgery collaboration under the aegis of ISRS in India. The meeting was attended by over 300 National/International delegates and eminent faculty with enormous experience in the field of Cyberknife, Gamma Knife and X-Knife Radiosurgery. Keynote address were delivered by Dr Arjun Sahgal (PMH, Canada) and Dr Romanelli Pantaleo (Milan, Italy). Inaugural lecture "Synchrotron-generated microbeams : a new frontier for radiosurgery and microimaging- by Romanelli Pantaleo" gave a mission of future in neuro-imaging and intervention in a few decades from now and was overwhelmingly appreciated by all. This meeting also had one day dedicated separate session on Radiosurgery Physics including hands on training for planning of complex cases. Many oncologist from different part of country also shared their institutional experiences in cranio-spinal Radiosurgery. This meeting was conducted under dynamic leadership of Dr Naresh Trehan (CMD, Medanta-The Medicity), Dr Tejinder Kataria(Chairperson, Radiation Oncology, Medanta-The Medicity) and Dr V P Singh (Chairperson, Neurosurgery, Medanta- The Medicity).

HIGH PRECISION RT SUMMIT & RAJAROICON 2019 – JAIPUR

"High Precision Radiotherapy Summit" was the theme for BMCON-VI & RAJAROICON 2019. The summit, held in Jaipur, assembled 160 participants from all over India and South East Asia. It was organized under the joint aegis of Bhagwan Mahaveer Cancer Hospital and Research Centre, Jaipur and Rajasthan Chapter of Association of Radiation Oncologists of India (RAJAROI). Dr. Nidhi Patni (Organizing Secretary), Dr.Tej Prakash Soni (Joint Organizing Secretary), Dr. Naresh Jakhotia (Scientific Advisor), Dr. Dinesh Kumar Singh (Treasurer), Dr. H.S. Kumar (President, RAJAROI), and Dr. Shankar Jakhar (Secretary, RAJAROI) meticulously planned and worked deligently to make this conference successful. The conference began on 13.9.19 with SRS/SBRT contouring workshop on Eclipse TPS and Image Guided Brachytherapy Workshop on Oncentra TPS. More than 40 delegates were benefitted from the renowned experts. On 14.9.19 more than 30 medical physicists participated in SRS/SBRT planning and QA workshshop.

This conference included more than 30 scientific sessions which were carefully chosen and well presented by the experienced and competent speakers. The scientific program included basic radiobiology of ultra hypo fractionation, role of SRS/SBRT in brain metastasis, pituitary adenoma, spinal tumors, lung, liver, prostate cancer. Inter and intra fraction motion management for thorax and abdomen IGRT, SRS/SBRT is of utmost importance. Motion management was discussed in depth by the eminent speakers. Important aspects of reirradiation in CNS and Lung tumors were discussed. Debates and panel discussions were well received and applauded and so was the quiz. Modern proton therapy, Deep Inspiration Breath Hold Techniques to prevent cardiotoxicity in left side breast cancer, and Image Guided Brachytherapy were also deliberated upon. Opportunity and challenges for High precision radiotherapy in Indian scenario was also discussed widely. The list of speakers included masters in their respective fields such as Dr. A. K. Anand, Dr.G.V.Giri, Dr.J.P.Agrawal, Dr. Rakesh Jalali, Dr.Vivek Kaushal, Dr. D. N. Sharma, Dr.Tejpal Gupta, Dr. Sharmila Agrawal, Dr.VineetaGoel, Dr.Supriya Chopra, Dr.Debnarayan Dutta, Dr.Vedang Murthy, Dr. Prasad Dandekar, Dr.Gagan Saini, Dr. Tanveer Shahid, Dr. Deepak Gupta Dr. Ramesh Purohit Dr. Sudesh Deshpande etc.More than 10 research paper in oral paper category and 36 papers were presented in e poster category competition. The scientific sessions, selection of speakers, overall quality of the conference was appreciated by the all the participants.

The winners of oncology quiz were Dr. Manoj Kumar Gupta and Dr. Sanjay Kumar Godara from ATRCTRI, Bikaner. Winners of e-posters competition was Dr.Taruni Bhattacharya from BMCHRC, Jaipur. Winner of Oral paper presentation was Dr. Falak Khan (SMS Medical College, Jaipur), was awarded Dr. D.P. Punia Memorial Trophy.

11th AROI ICRO

<u>ICRO Report (11th AROI ICRO Radiobiology Teaching Course: East Zone)</u>

The 11th AROI ICRO Radiobiology Teaching Course on "Clinical Radiobiology for Radiatioin Oncologist" was conducted in the Department of Radiation Oncology, AH Regional Cancer Centre, Cuttack on 10th August 2019. The Course Director was Prof Manoj Gupta, Head, Dept of Radiation Oncology, AIIMS, Rishikesh. The Course Chairman was Prof SN Senapati and the Course Coordinator was Dr Lucy Pattanayak, Assoc Prof, Dept of Radiation Oncology, AH Regional Cancer Centre, Cuttack

50 delegates attended the Radiobiology Teaching Course all over India and there were around 12 students from various parts of West Bengal. The Course comprised of the various modules of Radiobiology which started at 9:00 am and continued till 5:00 pm. The students attended the teaching course with much enthusiasm and interest and actively participated in the post lecture discussion.

The course was concluded by a Vote of Thanks by Prof SN Senapati followed by a visit to the Dept of Radiation Oncology, AH Regional Cancer Centre, Cuttack.

It was followed by a Recap Session the next week where lessons learnt were discussed by PG students and faculties. A Competitive Quiz was conducted and 1st, 2nd, 3rd prizes of Rs 5000/-, Rs 3000/- and Rs 2000/- were given to Dr Samir Mohanta, Dr AjiteshAvinash and Dr Arya Pradhan respectively by Prof SN Senapati.

Thie 11th Radiobiology Teaching Course was indeed very helpful for all PG students as well as other faculties present. The Recap was a brainstorming session for the students and the Quiz was an encouragement to study further Radiobiology for clinical application and understanding.

Report of 1st AROI JHARKHAND CHAPTER

1st AROI Jharkhand Chapter along with 7th ONCOCON was held on 17th and 18th August 2019 at Hotel BNR Chanakya Ranchi organised by Dr (Prof) Anup Kumar, Secretary- AROI Jharkhand Chapter and Dr (Prof) Rajesh Kumar Singh,Organizing Secretary- ONCOCON.

The conference was inaugurated by Dr (Prof) N R Biswas-Director, IGIMS Patna, Guest of Honour- Dr (Prof) D K Singh, Director-RIMS Ranchi. & Dr Rajesh Vashistha-National President, AROI as the Chief Guest.

During the two day conference, malignancy of Lung, Breast, Brain, Gastrointestinal, Ovary, Uterine Cervix, Head and Neck, Hematological along with Pain & Palliative management were discussed.

Faculty from Mumbai, Delhi, Chennai, Kolkata, Varanasi, Indore, Pune, Bangalore, Patna & Other parts of the country attended the said conference.

Dr. Anup Kumar

Prof. & Head

Department of Radiation Oncology, RIMS-Ranchi, JharkhanD

10th ICRO Radiobiology course
13th July 2019

10th ICRO Radiobiology course was held at Sri Guru Ram Das University of Health Sciences, Amritsar. Program was presided by Dr M S Uppal, Director Principal of the institute. Dr Rajesh Vashistha President AROi was also present as guest of honour. Dr Manoj Gupta course director explained Radiobiology in an excellent and elaborate way. Over 40 delegates from different parts of India and Nepal attended this course and their feedback was very encouraging.

Second teaching course in Radiobiology and Medical physics was organised at Aurobindo Medical College, Indore on 10th and 11th August, 2019. 42 Students from MP, Rajasthan and Gujarat attended and were benefited, as per their feedback.

BEST OF ASTRO 2019 Kolkata

AROI-West Bengal Chapter hosted the 5th Best of ASTRO-India meeting at Taj Bengal, Kolkata on 29-30 June 2019 in the esteemed presence of Dr Rajesh Vashistha , President AROI and Prof Purna Kurkure, Chairperson, Narayana Health Oncology Collegium. The hosting institute was Narayana Superspeciality Hospital, Howrah, a unit of Narayana Health.

The Organizing team included Prof Santanu Pal-Organizing Chairman, Dr Suman Mallik -Organizing Secretary and Dr.JyotirupGoswami –Scientific Chairman.   The meeting included presentation of 100-odd abstracts from ASTRO Annual Conference (originally held in October, 2018), along with related interactive sessions.

Since 2015, the AROI has been proud to host an officially licensed Best of ASTRO Meeting in India, which has been a new and exciting internationally aligned event where members are able to experience at close quarters, selected new research presented at the Annual Conference of American Society of Radiation Oncology (ASTRO), the world's leading organization in Radiation Oncology.

The goal of modern -day oncology is individualized treatment, coupled with use of innovative technologies to improve disease control & reduce side-effects. This has to be balanced against the escalating costs of advanced treatment techniques, which calls for resource-sparing strategies & Government/ regulatory body initiatives. These were some of the underpinning messages of this year's BoA.

The event was attended by over 150 delegates and faculty.The USPs of the event were the presentations, which allowed young specialists to present at a major forum along with the lively Panel Discussions , where middle -tier and senior specialists rubbed shoulders .Notable among the Faculty were Prof JP Agarwal & Prof Tejpal Gupta (TMH Mumbai) and Prof Sushmita Ghoshal (PGI Chandigarh).

The event had to transcend a major hiccup, with Cyclone Foni leading to the postponement of the event from the original planned dates on May 4-5, 2019. The organisers would like to thank all the sponsors for their support and also Hotel Taj Bengal, which waived off all charges for the postponement, to enable the event to eventually run without a glitch on the rescheduled dates.

Breast Cancer Conference, 18 - 19 January 2020, Mumbai

Dear Colleague,

Women's Cancer Initiative - Tata Memorial Hospital and Nag Foundation Invites you for the "5th edition of Year in Review: Breast Cancer Conference". This conference will be held on Saturday, 18th - Sunday, 19th January 2020, at Tata Memorial Hospital, Parel, Mumbai.
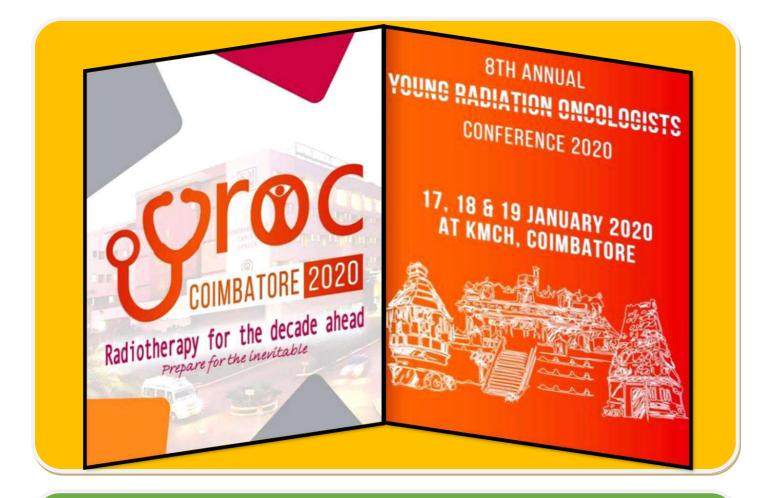
Organizing Chairperson:

Dr. Sudeep Gupta
Director, ACTREC
Professor of Medical Oncology
Tata Memorial Centre
Mumbai
sudeepgupta04@yahoo.com

Dr. Shona Nag
Director of Oncology
Sahyadri Hospital
Pune
shonanag3@gmail.com

Federation of Asian Organizations for Radiation Oncology

FARO MEETING 2019
14 - 16 NOVEMBER, 2019, SHENZHEN

The Abstract Submission is now OPEN!!   Please visit http://www.faromeeting.com

The 4th FARO Meeting - 14-16 November 2019, La Waterfront Hotel, Shenzhen, CHINA

5th Edition

Apollo Cancer Conclave

&

8th Edition Cancer CI 2020
Cancer Care, Education & Research Conference International

14th - 16th February 2020
HICC (Hyderabad International Convention Centre), Hyderabad
Pre-conference Workshop : 13th February 2020
HICC (Hyderabad International Convention Centre), Hyderabad

CURE foundation

Apollo Cancer Institutes

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Dr. J.P. Neema, Ahmedabad
Dr. Suman Das, Visakhapatnam

Dear Colleague,

Apollo Cancer Institutes and CURE Foundation are organizing the 5th Edition of Apollo Cancer Conclave and 8th edition of their biennial Conference CANCER CI - 2020 from 13th - 16th February 2020 at HICC (Hyderabad International Convention Centre), Hyderabad

The conference will deliberate on new developments, controversies and evidence based practice guidelines in Oncology.

Highly accomplished faculty from across the world will be participating in this conference.

Apollo Cancer Conclave & CANCER CI and is going to be very exciting and content intensive.

HIGHLIGHTS
- Workshops on Robotic Surgery, SRS/SBRT & BMT
- Dedicated half day sessions on Gyn., Breast, Head & Neck, G.I., Uro, Neuro, Lung, Lymphomas & Leukemias
- Practice changing innovations of the past 2 years
- Case Capsules - Audience response and practice guidelines
- Poster presentations for Students and Young Oncologists

Apart from the academic feast, we will ensure that your stay is memorable. The city of Hyderabad, as you may already know, has many interesting places to see and its sumptuous local cuisine to enjoy, especially the world famous Hyderabadi biryani.

Kindly block your dates. I will be sending you more information soon. Feel free to speak or write to us for any further information.

The first hundred Post Graduate students and Post MDs to register can avail free accommodation on request!

Yours sincerely,

Dr. P. Vijay Anand Reddy
Chairman, Org. Committee
DIRECTOR, Apollo Cancer Institutes
Hyderabad

Dr. T. Raja
Co-chairman, Org. Committee
Sr. Consultant Medical Oncologist & BMT
Apollo Hospitals, Chennai

Conference Secretariat
DIRECTOR, Apollo Cancer Institutes, Apollo Hospitals, Jubilee Hills, Hyderabad, T.S., INDIA 500 096
Tel: +91-40-2360 7777 Ext: 3333, Direct: +91-40-2355 6357, Email: contact@cancerci.org
Website: www.cancerci.org

FHNO   IMA   PATEL HOSPITAL   AOI-NWZ   ASI

6th Annual Live Head / Neck & Otolaryngology Surgical Workshop

November 15-16 (Fri-Sat), 2019

Head and Neck Forum VII

Managing Morbidity | **Courting Controversy**

November 16-17 (Sat-Sun), 2019

Hotel ITC Fortune Avenue & Patel Hospital, Jalandhar, Punjab.

Endorsed By:-Foundation For Head & Neck Oncology | Association of Otolaryngologists of India - North West Zone
Association of Surgeons of India | Indian Medical Association
Organised by:- Head & Neck Multidisciplinary Team At Patel Hospital

SCIENTIFIC PROGRAM HIGHLIGHTS

Over 80 regional & national faculty of global recognition.

PMC HOURS APPLIED FOR

- **Resolution of controversies in Head & Neck cancers** through debates and discussions
- **Discussions on all aspects of Morbidity mitigation in Head & Neck cancer.**
- **Key opinion leaders & national faculty**
- **Live operative workshops in Head & Neck Surgery and Otolaryngology.**

Registration details:-

	Early Bird	After Oct 15th
Regular Registration	1500/-	2500/-
Subsidized rate for local IMA members residents & trainees	1000/-	1500/-

For Registration:-

- 92162-74444, 92162-64444
- headnecksurgery@patelhospital.com
- Bank Details :-
  Beneficiary name – MULTIDISCIPLINARY CANCER SYMPOSIUM
  Bank- HDFC
  Current A/c no – 50200004328576
  IFSC Code - HDFC 0000046
  Branch- 911, G.T. Road, Jalandhar, Punjab (India)

THE HEAD AND NECK CENTRE OF EXCELLENCE @ Patel Hospital
Super Speciality Care
www.patelhospital.com

BEST PAPER & FELLOWSHIPS 2019

Dear Friends,
We have the list of applicants who applied for Best paper & fellowships

Best proffered paper more than 40		
1	Dr. Madhup rastogi	Dr. RMLIMS, Vibhuti Khand, Gomti Nagar,Lucknow - 226010 (U.P) INDIA	Single institutional retrospective analysis of post-operative buccal mucosa cancers
2	Dr. Kanhu Charan Patro	Mahatma Gandhi Cancer Hospital, 1/7, MVP, Viskhapatnam - 530017, AP, India	
3	Dr. Rajesh Pasricha	AIIMS - Rishikesh (U.K)	Socio-economic factors affecting transtuzumab usage in breast cancer patients belonging to hilly regions of north India

Best proffered paper less than 40		
1	Dr. TejshriTelkhade	Tata memorial hospital Mumbai	' Toxicity and outcomes of Ultra Hypofractionation with stereo tactic body radiation therapy for high risk and node positive prostate cancer '
2	Dr. Trinanjan Basu	HCG Cancer Centre,Borivali (W), Mumbai	Radical chemoradiation with adaptive modulated simultaneous integrated boost for locally advanced non metastatic squamous cell carcinomas of head and neck: Preliminary outcome.
3	Dr. Supriya Mallick	AIIMS-New Delhi	Hypofractionated accelerated radiotherapy (HART) with concurrent and adjuvant temozolomide in Hypofractionated accelerated radiotherapy (HART) with concurrent and adjuvant temozolomide in
4	Dr. Manjinder Singh Sidhu	Max SuperspecialityHospital,Bathinda	Assessment of toxicity and survival outcome of neoadjuvant chemotherapy followed by reduced dose radiotherapy in HPV positive oropharyngeal cancer
5	Dr. Aarathi	MNJ IO RCC, Lakdikapul, Hyderabad, Telangana	"Verification of setuperrors in planning external beam radiation therapy on linear accelerator in head and neck cancers"
6	Dr. Abhishek Soni	RCC, PGIMS, Rohtak	Retrospective review of prognostic significance of anemia and neutrophil-to-lymphocyte ratio in head and neck cancer treated with neoadjuvant chemotherapy

BEST PAPER & FELLOWSHIPS 2019

G C Pant Young Doctor Award			
1	Dr. Subeera Khan	GMCH, Nagpur	If chemoresistance is a harbinger of radioresistance: can it be circumvented by a hybrid fractionation schedule?
2	Dr. Grishma Singh	Indraprastha Apollo Hospital, New Delhi	Subjective and objective assessment of quality of life in patients undergoing postoperative radiotherapy for oral cancer
3	Dr. Kushal Goswami	Medical college Kolkata	A prospective study comparing Supraclavicular Dose & Clinical Toxicity among 3 types of Beam arrangement involving node positive Post MRM patients undergoing 3D-CRT.
4	Dr. Ayush Garg	Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly	"Dosimetric Comparision of Heart and Left Anterior Descending Artery in Left Breast Cancer Patients Treated by 3-Dimensional Conformal Radiotherapy and Intensity Modulated Radiotherapy
5	Dr. Sobin V Jacob	CMC Vellore	Patient reported health related quality of life and neurocognitive function assessment in patients with high grade glioma
6	Dr. Ajay S. Krishnan	AIIMS, Rishikesh	Dosimetric Comparison of Volumetric Modulated Arc Therapy (VMAT),with 3-Dimensional Conformal Radiotherapy (3D CRT) in Craniospinal Irradiation
7	Dr. Rohit Kabre	P. D. Hinduja Hospital, Mumbai	pre-op neoadjuvant RTCT for rectal cancer
8	Dr. Shipra Gupta	PGIMER, Chandigarh	Hematological & amp; biochemical changes (liver functions and tumor markers) during and post sbrt for hcc : an institutional study
9	Dr. Rishabh Kumar	Institute of Liver and Biliary Sciences New Delhi	Efficacy and Toxicity of SBRT for advanced Hepatocellular Carcinoma(HCC) - results from a clinical audit

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	Dr. M S Gujaral / Dr. M C Pant		
1	Dr. Saikatbhowal	PGIMER, Chandigarh	A study on prognostic value of pathilogical response to nact in cases of unrespectable advanced ovarian cancer among patients attending
2	Dr. Barnini Ghosh	Medical College, Kolkata	Twice weekly versus weekly ct-based hdr intracavitary brachytherapy schedules in locally advanced carcinoma of the uterine cervix using iridium-192 source: a single institutional study from eastern india
3	Dr. Lekshmi R Shenoi.	PGIMER and SSKM hospital, Kolkata, West Bengal	A prospective study to see the feasibility,toxicity and efficacy of twice weekly interdigitated intracavitary brachytherapy in patients of carcinoma cervix stage iib undergoing concurrent chemoradiation
4	Dr. Anish Dasgupta	Medical College Hospital , Kolkata	Combined 3D-CT based interstitial and intracavitary brachytherapy in cervical cancer using a modified approach of template based interstitial brachytherapy along with central tandem of Intracavitary brachytherapy applicator: A single institutional experience
5	Dr. Souransu Sen	Medical College and Hospital, Kolkata	A prospective study to compare the pathological outcome and acute toxicity profile in patients of resectable adenocarcinoma of rectum treated with short course radiotherapy followed by delayed surgery versus long course chemo radiotherapy followed by delayed surgery
6	Dr. Subhadra Choubey	MAMC & LNH, Delhi	Comparison between the clinical outcomes of two hypofractionated palliative radiotherapy schedules in locally advanced inoperable head and neck cancers
7	Dr.Vinodh Kumar Selvaraj	Basavatarakam Indo American Cancer Hospital and Research Institute, Hyderabad	Sinonasal tract malignancies and rare case study of intracranial extra skeltal myoxid chondrosarcoma
8	Dr Rina Barman	Burdwan Medical College and Hospital, West Bengal	Title: A Retrospective Study of Thyroid Functional Status in Patients Treated with Radiation Therapy over Head and Neck Region for Squamous Cell Carcinoma of Head and Neck
9	Dr. Ankita Mehta	Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly	Comparison of dosimetric parameters of 3-DCRT and IMRT in Cancer breast patients undergoing adjuvant radiotherapy after modified radical mastectomy

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		Dr. M S Gujaral / Dr. M C Pant	
10	Dr. Kritika Mehrotra	Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly	3D Conformal versus Intensity Modulated Radiotherapy in Head and Neck Squamous Cell Carcinoma: Comparative Analysis of Compliance, Toxicities and Dosimetric Parameters
11	Dr Arindam Chaudhury	Burdwan Medical College and Hospital, West Bengal	A prospective comparative study of neoadjuvant concurrent
12	Dr. Kritika Mehrotra	Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly.	chemoradiation with single agent Capecitabine versus Capecitabine-Oxaliplatin combination in locally advanced adenocarcinoma of rectum
13	Dr. smriti srivastava	Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow.	PD-L 1 expression in Oropharyngeal cancers receiving definitive chemo-radiotherapy : A correlation with toxicities and response.
14	Dr. Janmenjoy Mondal	Medical College & Hospital, Kolkata	Dosimetric Feasibility and Clinical Outcome of Image guided Interstitial Brachytherapy using two different fractionation schedule in Carcinoma Cervix
15	Dr Dhananjay MAndal	Burdwan Medical College and Hospital, Burdwan, West Bengal	A prospective randomised comparative study of two palliative radiotherapy regimens in advanced squamous cell carcinoma of head and neck region
16	Dr. MadhusudhanPerumandla	Burdwan Medical College and Hospital, Burdwan, West Bengal	Epidemiology of lung cancer in Eastern India with focus on histopathological subtypes and smoking history: A single rural tertiary center experience
17	Dr. Arundhati Mondal	Burdwan Medical College and Hospital, Burdwan, West Bengal	Dosimetric analysis and Toxicity Comparison in IMRT versus 3DCRT for the treatment of mid and lower third esophageal carcinoma: A randomized propective single Institutional Study
18	Dr. Manan Sarupria	Medanta-The Medicity Gurgaon	Correlation of MRI Features with molecular marker in high grade gliomas or high risk low grade gliomas
19	Dr. Luri Borah	BBCI	Dosimetric analysis and Toxicity Comparision in IMRT versus 3DCRT for the treatment of mid and lower third oesophageal carcinoma: A randomised propective single Institutional Study

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20	Dr. Kumar Prabhat	Maulana Azad Medical College, Delhi	Biodosimetric evaluation of head and neck cancer patients undergoing radiotherapy or concurrent chemoradiotherapy by dicentric chromosomal aberration assay
21	Dr. Treshita Dey	PGIMER, Chandigarh	A prospective study to evaluate the role of valproic acid as radiosensitizer in patients of high-grade gliomas
22	Dr. Hambir Chowdhury	R G Kar Medical College & Hospital, Kolkata	Evaluation of response and toxicities with MRI based adaptive brachytherapy for locally advanced carcinoma cervix using Cobalt-60 source - a prospective single institutional study
23	Dr Nidhi Sharma	AIIMS Rishikesh	Prospective Randomized Study Comparing Three Dimensional Conformal RadiationTherapy and Intensity Modulated Radiation Therapy in Locally Advanced Carcinoma Cervix
24	Dr. DebanjanSikdar	AIIMS Rishikesh	Pattern of failure in Head and Neck Squamous cell cancer treated with radiotherapy
25	Dr. Sagar N Raut	AIIMS Rishikesh	Dosimetric Comparison of Coplanar Volumetric Modulated Arc Therapy (c-VMAT) with Non-Coplanar Volumetric Modulated Arc Therapy (nc-VMAT) for Treatment of Brain Tumors.
26	Dr. Anil Gupta	Institute of Liver and Biliary Sciences	4D CT Simulation with Synchronized intravenous contrast injection in Hepatocellular Carcinoma for Target Delineation
27	Dr. Aathira TS	AIIMS Rishikesh	Blood Parameters as Surrogate Markers to Predict Treatment Response after Radiation therapy in Head and Neck Malignancies
28	Dr. Himabindu N	MNJ Cancer Hospital, Hyderabad, Telangana	Experience and outcomes in Olfactory neuroblastoma over a decade at tertiary cancer centre

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	Best Paper For Medical Physicist		
1	Mr. Gaganpreet Singh	BLK Super specialty hospital	A novel approach for voxel based radiobiological evaluation of the two-phase sequential radiotherapy treatment plans with different dose regimens.
2	Mr. Balbir Singh	Max super specialty Hospital Bathinda	Radiobiological Modeling of Clinical data of Radiation Induced Acute toxicity(Rectal Mucositis): An Institutional Study

	AROI –Kirloskar Radiation Oncology fellowship over 50 years	
1	Dr MunishGairola	Rajiv Gandhi Cancer Institute & Research Centre,Sector-5 Rohini, New Delhi-110085
2	Dr. Pamela Alice Jeyaraj	Christian Medical College &Hospital,Ludhiana- 141008
3	Dr.Suparna Ghosh (Ray)	Calcutta National Medical College & Hospital

	AROI 41-50 year age group	
1	Dr Gautam K Sharan, MD (BHU)	M N B Cancer Institute,Inlaks&Budhrani Hospital Koregaon Park, Pune
2	Dr. Sunil Choudhary	Institute of Medical Sciences Varanasi 221005
3	Dr. Jayant S Goda	Tata Memorial Centre,Kharghar,Navi Mumbai

	OVERSEAS 35 TO 40 YEAR	
1	Dr. KUNAL KISHOR	State Cancer Institute, Indira Gandhi Institute of Medical Sciences,Sheikhpura,Patna, Bihar-800014
2	Dr. Divya Khosla	PGIMER, Chandigarh
3	Dr. Renu Madan	PGIMER,chandigarh
4	Dr. Maitrik Mehta	GCRI, Ahmedabad,Gujarat
5	Dr. Rashi Agrawal	Max Cancer Centre Vaishali, PPG Delhi
6	DR. ABHISHEK BASU	R. G. Kar Medical College & Hospitals
7	Dr. Uday Krishna	Kidwai Memorial Institute of Oncology,Bangalore- 560029

	AROI Fellowship between30 -35 years (WITHIN India /International)	
1	Dr. Rohith Singareddy	Indo American cancer hospital and research institute, Hyedrabad
2	Dr. Koustav Majumder	Mohonananda cancer hospital Durgapur
3	Dr. Ayush Garg	Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly
4	Dr. Subeera Khan	GMCH, Nagpur.
5	Dr. Ritika Harjani Hinduja	P. D. Hinduja Hospital, Mumbai
6	Dr. Deepti Sharma	MAX SuperspecialityHospital, Shalimar Bagh Delhi

	Fellowship -Medical Physicist		
1	Mr. Gaganpreet Singh	PGIMER, CHANDIGARH	A novel approach for voxel based radiobiological evaluation of the two-phase sequential radiotherapy treatment plans with different dose regimens.
2	Mr. Hitesh Gandhi	INLAKS & BUDHRANI HOSPITAL, PUNE	Early experience with 3D Ultrasound based Image Guided Radiotherapy

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	Neil Joseph Fellowship	
1	Dr. Karan Sood	Government medical College & Hospital Chandigarh
2	Dr.Saikat Bhowal	PGIMER
3	Dr. Anish Dasgupta	Medical College and Hospital, Kolkata
4	Dr. Varshu Goel	MAMC & LNH, Delhi
5	Dr. BARNINI GHOSH	Medical College, Kolkata
6	Dr. Lekshmi R Shenoi.	IPGME&R and SSKM hospital, Kolkata, West Bengal
7	Dr. Ankita Mehta	Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly
8	Dr Kushal Goswami	Medical college Kolkata
9	Dr. Souransu Sen	Medical College and Hospital, Kolkata
10	Dr. Kumar Prabhat	MAMC & LNH, Delhi
11	Dr. Kavita Sehrawat	MAMC & LNH, Delhi
12	DR.HAMBIR CHOWDHURY	R.G. Kar Medical College and Hospital, Kolkata
13	Vinodh Kumar Selvaraj	Basavatarakam Indo American Cancer Hospital and Research Institute, Hyderabad
14	Dr. Subhadra Choubey	MAMC & LNH, Delhi
15	Dr. Kritika Mehrotra	Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly.
16	Dr. Nishana Paul	R G Kar Medical College & Hospital, Kolkata
17	Dr. Harshithajain	Ramaiah Medical college Bangalore
18	Dr. Kuntal Ray	R.G. Kar Medical College, Kolkata - 700004
19	Dr. Janmenjoy Mondal	Medical College & Hospital, Kolkata
20	Dr. Nitesh Anand	CHITTRANJAN NATIONAL CANCER INSTITUTE, KOLKATA
21	Dr. AjiteshAvinash	A.H.R.C.C., Cuttack
22	Dr. Samir Kumar Mohanta	AHRCC Cuttack
23	Dr. AryaPradhan	A.H.R.C.C.,Cuttack
24	Dr. Sagar N Raut	AIIMS Rishikesh
25	Dr Nidhi Sharma	AIIMS Rishikesh

Applicants whose name are missing may inform AROI office with their name & email address

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