Issue : April - June 2023 / vol. 1. No. 2

CNCI Bulletin

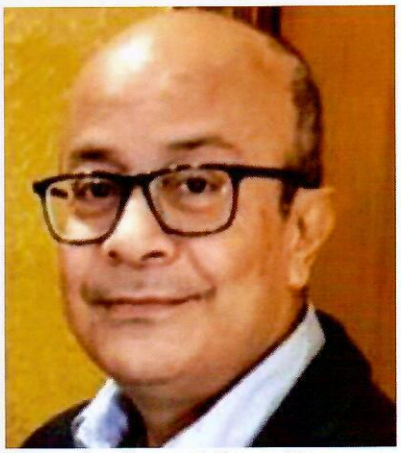
CHITTARANJAN NATIONAL CANCER INSTITUTE (KOLKATA)
(An Autonomous Body under Government of India, Ministry of Health & Family Welfare, Regional Cancer Centre)

Director's Message

Dr. Jayanta Chakrabarti
Director,

'Health for All' the theme of World Health Day 2023 has always been the moto of Chittaranjan National Cancer Institute. To attain the goal the Institute is organizing Cancer awareness Camps all over the State and the turn out of the mass in those Camps has been increasing ever since. According to a recent publication from NCRP, the incidence of Cancer cases is estimated to increase to 12.8 per cent in 2025 compared to 2020. To counter such a steep rise in Cancer Cases, CNCI is working pro-actively in following fields - introduction of LINAC at CNCI 2nd Campus, using latest Immunotherapy for treating patients, making tie-ups with the Corporate Organisations to cater their employees, running private clinics after OPD hours for paying patients, providing free of cost / minimal cost treatment for economically poor patients etc. Hope, that we shall overcome.

The ENT Specialist and Head & Neck Oncology: an Indian perspective.



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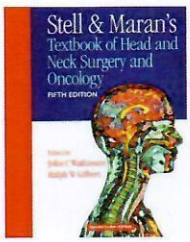
The complicated anatomy of the ear, nose and throat (ENT) coupled with its close proximity to vital structures makes Head & Neck Oncology a demanding subject. Since surgery still remains a vital component of most treatment protocols, training and acquiring the necessary surgical skills (both ablative and reconstructive) demands focus and dedication in this particular subspecialty of cancer care.

The ENT Specialist and Surgical Oncology:

Unlike in the US or Europe, in India even in the mid-1990's, the surgical management of cancers of ear, nose and throat region would largely remain within the purview of the general surgeons and practised widely by surgeons who had no specialised training in head and cancers. ENT specialist were not part of the team then as general surgeons at that time overlooked other surgical specialists like otolaryngologists and facio-maxillary surgeons from becoming involved in this field because of their apparent lack of training in general surgery.

Since 1980 the Tata Memorial Hospital (TMH) in Mumbai had its dedicated Head & Neck Services A, B, C within Surgical Oncology lead by general surgeons such as Dr A.R. Fakih, Dr Sultan Pradhan, Dr Ashok Mehta, Dr R. S. Rao and others. TMH Head & Neck Departments would then work closely with Dr Jatin Shah, Surgical Oncologist & Chief of the Head & Neck Services at Memorial Sloan Kettering Cancer Centre, New York and his text book "Head and Neck Surgery and Oncology" with its excellent surgical photographs would provide the inspiration for learning the intricacies of surgical approaches to this very complicated region. But it would take another two decades before ENT specialist would be taken as full-time faculty in the Head & Neck Services at TMH when Dr Prathamesh Pai joined the institute in 2002.

Even though the ENT-trained specialists were not at the forefront of its surgical management then, scattered centres of excellence in India existed where ENT specialist were delivering complicated oncological surgery having been trained and inspired by their colleagues in the US and Europe. Dr Hiranandani and Dr Piloo Hakim at KEM Hospital Mumbai, Dr Rajamma Rajan at Kasturba Medical College, Manipal, Prof Sudhir Bahadur in AIIMS, New Delhi, Prof N.K. Majumdar at JIPMER, Dr Kuddush Ahmed at B Borooah Cancer Institute, Assam, Dr Ashok Shenoy in Kidwai Memorial Institute of Oncology, Bangalore and Dr Subramanya Iyer at Amrita Institute of Medical Sciences, Kochi were few expert ENT surgeons in the field of head & neck onco-surgery at that time in India. These names and their Institutes not only delivered quality care to the patients but also followed up with good teachings and publications in the subject. Across the country many ENT specialists were inspired by their teachings and lectures and the training programs which allowed head and neck cancers to be surgically treated by more and more ENT specialists. British Otolaryngologist Dr Philip Stell and Arnold Maran's "Textbook of Head and Neck Surgery and Oncology" would provide a standard pedestal for the ENT surgeons for learning the intricacies of the treatment protocols of this very complicated region. As different head neck cancer topics began to enter the chapters of standard text books of Otorhinolaryngology, many next generation ENT specialists began to take active interest in this subject and trained themselves with the necessary surgical skills from the others. As the sub speciality of head & neck oncology grew in the country, many ENT Departments at various Medical Collages pursued independent ablative surgical treatment of cancer of this region and interacted with radiotherapy departments to offer better care to patients with head & neck cancer.



During the late 1980s Dr Rammohan Tiwari, an Otolaryngologist from Government Medical College Nagpur, was working closely with his surgical collegues in the Free University, Amsterdam. He was a pioneer in Skull Base Surgery and backed up his work with some excellent clinical and research publications in various journals. During one of his many visits to the country (he would retire in Bangalore in the year 2000) he proposed the formation of a body of Otorhinolaryngologists in India to deal with the subject of head and neck cancer. The aim was that the Otorhinolaryngologists needed a platform to discuss this subject without the influence of the general surgeons or their own ENT colleagues not keen on cancer care. This was an idea rapidly growing across the world and even though it led to some tussle and ego clash with the general surgeons, the interest in the subject and the large volume of scientific publications from ENT specialists from across the country and the world also gave credence to his proposal. India had to quickly catch up with standard of care and offer the same treatment protocols as was available in the US and Europe at that time.

The ENT Specialist & Training in Head & Neck Oncology

राष्ट्रीय आयुर्विज्ञान आयोग
National Medical Commission

With wider appreciation of the subject amongst its practitioners, patients could access better clinical management of their ailment and the need for structured training for management of cancer of head & neck region was becoming a necessity in India. Even though the Medical Council of India (now NMC) and the National Board of Examinations (NBE) were offering MCh/DNB in Surgical Oncology for those with General Surgery post-graduation, the ENT Specialists were not eligible. It would take another ten years for MCI to offer MCh in Head & Neck Oncology as a separate three-years super speciality program eligible for ENT Specialist (as well as General Surgeons). As of 2022, there are only thirteen seats in MCh Head & Neck Oncology (through NEET SS Examination) and only a handful of institutes are allowed to take in students for this super speciality training. (Institutes such as AIIMS and PGI Chandigarh have additional seats in Head & Neck Surgery through NEET INI SS entrance exams). Interestingly from 2022 NBE also began a Fellowship (FNB) program Head & Neck Oncology as a two-year structured training course in the subject eligible for ENT specialist. CNCI has been chosen as one such centres to

offer this course under NBE. Coming years should allow CNCI to apply and qualify for the MCh course in H&N Oncology since centres such as TMH and Kidwai Memorial Institute, have been successfully running such courses for ENT colleagues since 2015. In comparison, the sub-specialty training in head and neck surgical oncology within the EU or the US at present is clearly underdeveloped.

The ENT Specialist & CNCI Head & Neck Oncology Department

In 1987 Chittaranjan National Cancer Institute was established as a tertiary care Regional Cancer Centre in West Bengal. Even though the subject of oncology was yet to be established in the country, CNCI was one of the very few institutes where a dedicated ENT-Head & Neck Oncology Department was created, a reflection of the far-sightedness of its founders. The only other cancer hospital in Kolkata with a dedicated ENT H&N department at that time was at Cancer Centre and Welfare Home (at present Saroj Gupta Cancer Research and Institute). However, during the early 1990's the State Medical College Hospitals had rudimentary oncology units and the vast majority of the surgical oncology cases were managed by the general surgeons in their different departments. ENT specialists contributed to such oncological ablative surgeries with support from their general surgery colleagues. But by 2000, with the entry of private cancer hospitals in Kolkata, dedicated Oncology services with well-equipped head & neck departments were offering standard of care to these patients. Many ENT specialists became a part of these departments and today, whether in these hospitals or in CNCI or in TMH, majority of the faculty in the head & neck services are from Otolaryngology backgrounds.

The ENT Specialist & Oncology Societies in India: IASO, ISO, ISHNO & FHNO

In 1998, with the merger of two societies, the American Society for Head and Neck Surgery (dominated by Surgical Oncologists) and the Society of Head and Neck Surgeons (dominated by the Otolaryngologists) the American Head and Neck Society (AHNS) was formed. In mainland Europe, even though head & neck surgery was intensely practised mainly by the Otolaryngologists, the European Head and Neck Society (EHNS) would be formed as late as 2005 predominantly by the amalgamation of the various European Otorhinolaryngological bodies.

In India the surgical management of most head & neck cancers were discussed under the umbrella of the Indian Association of Surgical Oncologists (IASO) (established in 1977) and Indian Society of Oncology (ISO) (established in 1983). A formal head & neck body in India was established only in 1990 by Dr Ashok Mehta at TMH called the Indian Society of Head & Neck Oncology (ISHNO). Under its banner focussed scientific meetings in head & neck cancers took place at various centres across the country. In early 2000, Dr R. M. Tiwari along with fellow Otorhinolaryngologists Dr Ashok M. Shenoy and Dr Subramanya Iyer formed the Foundation for Head & Neck Oncology (FHNO) exclusively for practicing Otorhinolaryngologists with interest in head & neck cancers. It would be the main platform for scientific sharing of clinical and research updates in head & neck surgery amongst themselves without the interference or domination by the general surgeons. Later as FHNO gained prestige and prominence though its excellent scientific meetings, it opened its membership to allied specialities like Radiation Oncology, Surgical Oncology as well as the Maxillofacial Surgeons interested in head & neck oncology. Today FHNO offers a structured 2-year FHNO Fellowship program conducted at various private hospitals across the country. While on a global level, Dr Jatin P. Shah and others conceived an international body of all specialists involved in the care of patients with head and neck cancer, the International Federation of Head and Neck Oncologic Societies (IFHNOS). Together with 55 Head and Neck Societies from 51 Countries, IFHNOS would bring the concept of the Disease Management Group (DMG) to scientific forums for discussing head & neck cancer.

The ENT Specialist in Disease Management Group for Head & Neck Cancer

As treatment protocols for head & neck cancer evolved over the last two decades, radiotherapy-chemotherapy combinations provided alternate organ preservation options and ablative surgery adapted with better reconstructive surgical options. It was soon realized that the burgeoning clinical knowledge in oncology needed the combined inputs of allied specialists like radiation oncologists, the pathologists, the radiologists, along with the plastic surgeons and speech-swallowing therapists and others for better management of the head & neck cancer patients. Hence, the concept of Disease Management Group (DMG) in Tumour Board discussions evolved. At TMH Mumbai organ specific DMG first started in 2007 and institutional care in head & neck cancer thus became a necessity. Today such multidisciplinary Disease Management Group in head & neck oncology would necessarily be led by the ENT-Head & Neck surgeon to provide a comprehensive care to the patients.

Concluding remarks

In conclusion, from an Indian perspective, the ENT specialist have kept pace with their colleagues across the world in delivering cancer surgery for head and neck cancers in India. Along with the others in the disease management group, the ENT-Head and Neck surgical oncologist can confidently deliver complicated ablative and reconstructive surgeries of the oral cavity, thyroid and salivary glands, tumours of the base skull regions as well as updated treatment protocols for laryngeal and nasopharyngeal cancers. Considering the sheer volume of head and neck cancer patients it also becomes the responsibility of future generations of ENT-Head & Neck Oncologists in India to lead the world in providing solutions for early detection and prevention protocols to improve the survival of these group of cancer patients.

Tobacco Cessation Strategy: Winning the War

Dr. Rajdeep Guha,
Surgical Oncology Head & Neck

"Doctor, I have reduced smoking after I found I have cancer. Try as I might, I am just not able to stop smoking. Please doctor, help me..."

"Doctor, I am very frightened about my husband's white patch on his tongue. But he just doesn't listen to me and continues to have paan. What do I do now?"

Conversations like this plague the clinicians every day. Most clinicians are dismissive about such complaints, saying something like "Aah, you should have quit long back!" or "I don't know how, but you better stop smoking," putting the blame and onus to quit tobacco addiction on the patient or their caregivers. But what is missed is that one size does not suit all - in most instances (70%), patients quit tobacco out of sheer willpower. But it takes a massive toll on his/her mental strain and the deaddiction is usually short-lasting. In a study conducted by Burke in 2009, 30% of Head and Neck caner patients continued tobacco usage underlining the importance of Tobacco Deaddiction in patients.

Tobacco is the single most significant risk factor in head and neck cancer with almost 85% of patients linked to its use(Kulkarni, 2013; Global Burden of Disease 2013 risk factors collaborators, 2016)

The challenge is the low priority assigned by the relevant functionaries, inadequacy of resources, poor engagement of health and insurance sector and health care workers along with low intent to quit by the users and the suboptimal and discontinuous enforcement of Cigarette and Other Tobacco Products Act 2003 (COTPA) and the indifference of the non-user.[1] Tobacco users have a low intent to quit as a direct result of lack of information on benefits of quitting versus easy access and availability of various tobacco products. Smokers usually underestimate their susceptibility to tobacco related health hazard. [2]

31% of world's population now has some form of coverage to tobacco cessation.[3] It is hoped that WHO MPOWER and WHO FCTC (Framework on Convention on Tobacco Control) Article would help shape the worlds fight against tobacco, thus preventing premature deaths and achieving sustainable development goals. India launched its tobacco cessation efforts from 2001 comprising of Tobacco Cessation Clinics (TCC), National Tobacco Control Program (NTCP), National Quitline (1800-11-2356), m-Cessation (a mobile telephone message driven program) and Deaddiction clinics run by various Government Psychiatric Departments. In spite of this, India is plagued by dismally low and almost stagnant rate of quitting with 2 million new initiators and 5.87% tobacco related deaths annually. 13% of annual death in India can be attributed to use of tobacco.

The government's failure to prioritize tobacco cessation activities stems from the perennial shortage of human resources, inadequate fund allocation and failure to initiate private health sector to deliver cessation services and insurance sector to

reimburse the costs of tobacco deaddiction treatment.

Multitasking of the State Tobacco Control Cell (STCC) leads to dilution of the efforts of the NTCP as well as shortage of staff and funding. Also, the effort lacks political will with a general apathy to adopt the suggestions and recommendations of the expert committees. No accountability is sought from healthcare workers for non-participation in cessation efforts.

The support of the government to the Tobacco Board towards cultivation of tobacco and its export and indirectly promoting bidi and smokeless tobacco industry in the garb of rural employment is in direct opposition to concern for the health of the country's population. India is the second largest producer and consumer of tobacco after China. Justification of this industry is based on its revenue generation and government's silence on the expenditure of treating tobacco associated disease and absence of work for the treatment.[4] The thriving Tobacco industry despite its products killing half its users points to a generous political patronage it enjoys.

Some of the strategies [1] suggested are -

a. Mandatory issuing a smart card to be renewed annually with a purchase limit. The use of such smart card to be mandatory to buy tobacco products. Users to be counselled regarding benefits of quitting tobacco.

b. 'Tobacco is a disease and every Tobacco user is a Patient'. Involving all the doctors, healthcare workers, nurses, counsellors, ASHA and Aanganwadi workers to reach out to tobacco users and help deaddiction. High visibility of TCC with mandatory referral of addicted individuals to such centers without any exception by treating healthcare workers. Those unable to quit in a specified timeline should be supported by families, workplaces, and educational institutions to which they are affiliated. Their incentives, pay rise and perks to be held back till they quit successfully.

c. Restriction on Tobacco sale with restriction on number, location and working hours of such vendors and to have a high licensing and renewal fees with severe punitive measures to violators. In a study conducted at PGIMER, Chandigarh, most nicotine-dependent subjects suggested breaking of supply chain as the most important measure which can ensure success of deaddiction measures [5]

d. Stricter norms on amendments of COTPA with strict punishments on sale of loose tobacco products and sale to minors.

e. Novel techniques [6] like using AI for Computer Tailored Health Communication (CTHC) and Patient Experience recommender System for Persuasive Communication Tailoring (PERSPeCT) which sends personalized messages to quit smoking rather than general messaging. These use the principles of Data Mining and Predictive Analysis of the consumer to integrate with Machine Learning Algorithms (ML) and trials have proved to be more effective than routine messages. It may also prove effective in follow-up of tobacco cessation clinics for patients.

Low dose Immunotherapy: Newer horizons for cancer care

Dr. Chandrani Mallik
Specialist Grade I, Medical Oncology

Immunotherapy the new age weapon has drastically changed the landscape of treatment of advanced cancer.We belong to the Indian peninsula where the major low income group population hardly affords such treatment and accepts the destiny to no treatment in major advanced cancers especially Head and neck cancers which is one of the most commonest cancer and the menace to the oncologists for its nature, biology , risk factors and late detection.

Here is a case of a young girl with carcinoma buccal mucosa who was never operable and failed all the lines of treatment with standard chemotherapy. She hails from very low socio economic background.

There was a day when she was told she would just live for few months in June 2022, till today when she is active with her daily chores living life at its best.

This was completely a huge surprise to us how she transformed gradually and her cancer responded to the use of low dose immunotherapy.

She received the treatment almost monthly due to lack and delay in the finances. After six such treatments her response was unimaginable. She improved clinically and radiologically.

(Attached pictures)

The question lies what is the rationale of the treatment

Scientific: The pharmacokinetics, mode of action, receptor occupancy, phase 1 clinical trial results, and analysis from Seoul, it can be concluded that low-dose levels of nivolumab may be adequate.

Social: The affordability of the therapy to poor people and hence serving a huge population.

Finally the landmark study from TMH Mumbai boosted the concept of low dose immunotherapy which is now a worldwide discussion for further optimisation of treatment for better cancer care at affordable limits.

Further clinical trials and patient treatment will probably answer all our questions and definitely help our patients to receive high end treatment at affordable cost.

As we move towards the future may we hope that these newer treatments will improve survivals, quality of life and break the myth to say "Yes, Cancer does have an answer."

New trend in drug development in cancer: repurposing & remodeling

Dr. Ugir Hossain Sk,
Clinical and Translational Research

In the year 2020, it was observed that in India nearly 1,392,179 (~1.4 million) cancer cases were projected, leading to 850,000 (~0.85 million) deaths due to cancer.Moreover, in oncology only 5% FDAapproved drug entered in phase I clinical trial. Therefore, oncologic drug development is an emergent need. By involving chemist with the expertise of synthesis of small novel molecule, and drug delivery approach of the known therapeutic clinical drug molecules to enhanced efficacy has been adopted. However, small drug development starting from synthesis to laboratory based study to clinical approach is time taking and expensivemethod. Oncologic drug discovery based on repurposing of non oncologic drug is an alternative and eventually cost-effective and time saving, coined by Ashbern and Thor (2004). The non oncology drugs utilization as repurposing in the area of cancer research is less time consuming and pocket friendly compared to traditional drug discovery method. With the newly derived molecule would enable the drug resistance rendered by the presently used chemotherapeutic drug. As an example, in 2006 the sedative drug thalidomide successfully approved by US-FDA and repurposed in treatment of multiple myeloma combined with dexamethasone. There are several non oncogenic drugs like aspirin(NSAID) repurposed in newly diagnosed multiple myeloma, prostate Cancer, HER2 negative breast cancer, the present status of the study is reducing recurrence rate (Phase3 (completed). The antifungal drug itraconazole showed 50% decline in serum Prostate Specific Antigen (PSA) Phase 2 (completed) clinical trial repurposed in adenocarcinoma prostate/ recurrent prostate carcinoma/ stage I, II, III prostate adenocarcinoma. The opioid analgesic methadone completed its phase 4 studies, resulted as improvement of the pain management in head-neck cancer patients. The broad spectrum antibiotic doxycycline repurposed in inducing metakaryotic cell death in primary pancreatic tumor (phase 2 clinical trial). The amyotrophic lateral sclerosis drug riluzole in combination with sorafenib repurposed in recurrent melanoma treatment and metastatic colorectal carcinoma (phase1 study) The anti-malarial drug artesunate clinical trial has completed to validate the tolerability of an add-on therapy with artesunate with duration of 4 weeks in patients with advanced breast cancer. Report indicates antitumor activity in a small randomized clinical trial against colon cancer, also rapidly decrease tumor size and prostate-specific antigen levels in a patient with advanced prostate cancer. To an extend our group is working on the repurposing of non oncogenic drug molecules to oncogenic drug application after remodeling. In our recently filed patent, we have considered artesunate and remodeling by attaching with biomoleculetargeting moiety. The synthesized repurpose-remodeled drug has shown effective against lymphoma. Patent application no. 202231032973, entitled "Synthetically developed DNA-targeting naphthalimide-artesunate derivatives andtheir tumoricidal effect against lymphoma".

Other research team members are:

1.	DebapriyaRoyMahaPatra	ICMR-SRF
2.	Rubi Roy	CSIR-JRF
3.	Tasnim Ria	CNCI-JRF

Acquisition of Radiotherapy Technology in India in the past decades

Dr. Tapas Maji,
Head, Department Of Radiation Oncology

Like in any other field of technology, the acquisition of radiotherapy equipments in India in the past decades was driven by the invention of radiation modalities in the abroad. Procurement of those high cost equipments often suffered from fund crunch. Historically, first radiotherapy equipment in many premier cancer institutesin the country came through charity and philanthropy.

The first usable, calibrated Cobalt-60 Tele-therapy machine was developed in 1951 at Saskatchewan University, Canada by a team of medical physicists led by Dr. Harold Johns. The scar of World War-II was still conspicuous over the minds of people as it was nick-named "Cobalt Bomb". Subsequently, under the Colombo Plan undertaken by Canada for Cooperative Economic Development in South & South-East Asia, India received an atomic reactor in 1956.USA provided the heavy water (Deuterium oxide) for the operation of the reactor.This was named Canadian Indian Reactor US (CIRUS).In December 1957, Canadian cabinet approved expenditure for three Cobalt-Bomb units (60 cm SSD)under Colombo Plan, to be sent as a donation for Indian hospitals through Atomic Energy of Canada Limited (AECL) andto be installed in the three centres in the country. On 19th February 1959 the machines landed in India and were distributed to Tata Memorial Hospital (TMH)-Bombay, Christian Medical College-Ludhiana and Chittaranjan Cancer Hospital (CCH)-Calcutta. Canadian experts came to India for guidance to construct the buildings and to commission the units. The machine at CCH was inaugurated by Pundit Jawaharlal Nehru, Prime Minister of India in 1960.In 1968, AIIMS-New Delhi received one Tele-cobalt unit of 60 cm SSD as a donation under Colombo plan.

As found in the old records, from 1950 to 1963, Chittaranjan Cancer Hospital attended to 57,128 new cases of which 25,292 were found affected with cancer. Unfortunately, only 12,370 cases (about 50%) could be taken up for treatment, the remainder were either too advanced or accommodation for treatment could not be provided as the patients were also coming from other states and even from neighbouring South-East Asian countries. In year 1964 the hospital treated around 6000 patients.

In year 1957, Chittaranjan National Cancer Research Centre (CNCRC) was inaugurated and taken over by the Union Ministry of Health; Govt. of India.In the same year, on 1st April, the ministry took charge of Tata Memorial Hospital from Sir Dorabji Tata Trust in the greater interest of the nation.But unfortunately owing to its multifarious commitments and responsibilities, it was unable to provide resources for sustainable growth of the hospital. On 1st February 1962, the President of India transferred the administrative control of TMH and its research wing ICRC, from the Ministry of Health to Department of Atomic Energy (DAE) and in the next year TMH & ICRC merged together.

In year 1965 a Tele-Caesium therapy unit from M/S Picker was installed in CCH Calcutta,funded by Ministry of Health and was inaugurated by Sri Prafulla Chandra Sen, the then Chief Minister of West Bengal. In the same year TMH Bombay installed another Tele-Cobaltunit (Theratron-60) from M/S Theratronics. Laterin year 1978, a 12 MV Linear Accelerator from M/S Siemens (Mevatron 12), was installed in TMH by DAE.

Chittaranjan Cancer Hospital (CCH) was taken over by the Government of West Bengal in 1972. Though its merger with CNCRC was conceived by the Union Ministry of Health in 1987, the file was finally signed in 1992 with retrospective effect.

At S. N. Medical College-Agra, LaxmiPannalal Radium Institute was established by the renowned Prof. (Dr.) P. K. Halder in 1950-51 with a donation of Rs. 1 Lakh. It had a 250 KV Deep X-Ray unit and Radium needles in sufficient quantity.

Cancer Institute (WIA) Madras, Adyar began as Women's Indian Association (WIA), formed in 1918 by two European women theosophists Margaret Cousins and Jina Raja Dasa. Dr. Muthu Lakshmi Reddy was its first Indian member and later became its secretary. Dr. Reddy set up a cancer relief fund of WIA and established the cancer institute in year 1954 with just Rs. 2 Lakh. Pundit Jawaharlal Nehru, Prime Minister of India laid its foundation stone. In 1956, the Canadian Government gifted a Tele-cobalt unit to this institute and in the same year it opened its Nuclear Medicine department.In 1974, the institute became the Regional Cancer Centre and was declared as "Centre of Excellence" by the Ministry of Health & Family Welfare.

At Cancer Centre and Welfare Home, Thakurpukur-Calcutta, a West German philanthropic organization,shortly calledEZE, extended financial assistance of DM 375,000 (Rs. 16 Lakh approx.) in 1979 for its first Tele-cobalt machine, courtesy to Mr. Werner Hancke the then consul general of the Federal Republic of Germany through whom the said West German Lutheran agency had channelled fund for the equipment. The amount was 75% of the total project cost (21 Lakh). One Mr. KalidasMullick made a largest single donation of Rs. 5.5 lakh to complete the project. Indigenously made 4MV Linear Accelerator, 'Jeevan Jyothi' was installed in CCWH in year 1993 which came as a grant from Government of India.

Acquisition of radiotherapy technology in CNCI

Since its inception, the story of this hospital is one of steady progress and it always tried to maintain state-of-the-art equipment to providehigh quality health care at Government subsidized and affordable rate.This was possible only due to the generous grants received from the central and state governments.

Tele-radiotherapy equipmentof past and present in the Department of Radiotherapy

ATC-C9: An External Beam Radiotherapy (EBRT) machinewith 80 cm SSD, manufactured by M/S Picker having cobalt-60 radioactive source, purchased in 1982 and commissioned in 1983. The radioactive cobalt source was replaced once in 1997.The machine was decommissioned in year2011.

Theratron-780C: An EBRT machinewith 80 cm SSD,manufactured by M/S Theratronics having cobalt-60 source, purchased in 1992 and commissioned in

1993.The radioactive cobalt source (180 RMM) was replaced once in 2004 that was procured from BRITT. The machine was decommissioned in year 2018.

Mevatron KD-II Linear Accelerator: A Dual-energy LINAC having two photon energies (6&18 MV) and five electron energies (6,8,12,16&18 MeV), commissioned on May 2002. The machine could be successfully utilized for patient treatment from year 2002 to 2011 and was decommissioned subsequently.

Radiotherapy Simulator (AXIM-II): The 2D Radiotherapy Simulator from M/S Mecaserto, France, was procured in 2004 supplied by M/S KirloskarTheratronics India Pvt Ltd. replacing the old one after 15 years of effective use.

Three- Dimensional Treatment Planning System (PLATO): Purchased from M/S Nucletron its original manufacturer on October 2000 after the supplier company accepted a buy-back agreement for the old 2D TPS of their own make that was abandoned due to Y2K problem.

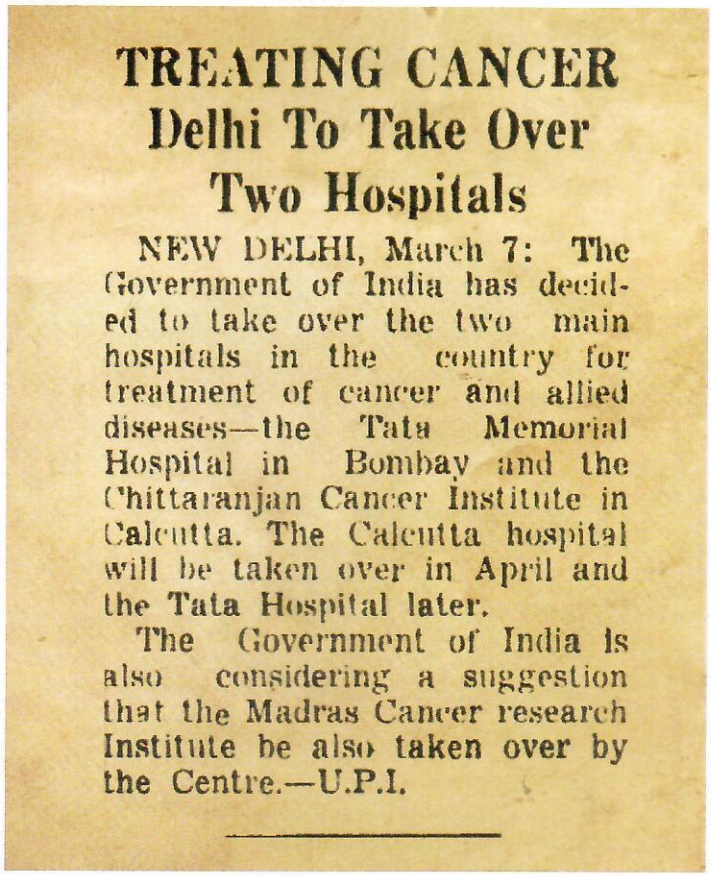
Dual Energy Linear Accelerator (6 & 15 MV) with 3D CRT, IMRT/VMAT and IGRT facilities: Model & Make: Synergy from ELEKTA. Commissioned in 2012 replacing the old LINAC of SIEMENS. A robust Linear Accelerator machine and is still working.

4D Wide Bore CT-Simulator from GE: Being commissioned in year 2018, it is perfectly functioning till date. An essential equipment for performing IMRT and IGRT and has also served as a diagnostic CT-Scan during crisis.

Low Energy Linear Accelerator (6MV) with 3D CRTand IMRT/VMAT facilities: Model & Make: Synergy Platform from ELEKTA. Commissioned in 2020 replacing the old Tele-cobalt (C9) machine. A robust Linear Accelerator machine and is now working very effectively.

Brachytherapy machines of past and present in the Department of Radiotherapy

Selectron HDR: Procured in 1988 from M/S Nucletron and was decommissioned in early 2004. The machine was used for the intracavitary treatment of carcinoma cervix and it catered a large number of patients during its active life period of almost 15 years.Aremote-controlled after-loader had20 spherical, titanium-coated cobalt-60 sources each of diameter 2.5 mm and of maximum activity 500 mCi (18.5 GBq). The active sources from the main safe were selected by magnetic attraction to form a train of active pellets interspersed with required number of non-active spacer pellets from a stock of 144, of same dimension as active ones. The pellet trains from the intermediate safe werepneumatically driven into the intra-vaginally placed applicator tubes. There were 48 pellet positions for each train therefore a maximum length of 12 cm (48 x 2.5 mm) could be treated by a single channel.



TREATING CANCER
Delhi To Take Over
Two Hospitals

NEW DELHI, March 7: The Government of India has decided to take over the two main hospitals in the country for treatment of cancer and allied diseases—the Tata Memorial Hospital in Bombay and the Chittaranjan Cancer Institute in Calcutta. The Calcutta hospital will be taken over in April and the Tata Hospital later.

The Government of India is also considering a suggestion that the Madras Cancer research Institute be also taken over by the Centre.—U.P.I.

Micro-Selectron LDR: Procured in February 1991 from M/S Nucletron, was commissioned in 1992. In the next year Dr.JohnBatterman came and demonstrated a breast implant over a 30 year old female patient as the first case treated in this machine.Source consisted of pneumatically driven Low Dose Rate Caesium-137 ribbons of various lengths. Twenty-four pieces of such ribbons of different lengths were chosen to be procured specially to achieve a pyramidal shape for the breast implant.There was a mobile, cylindrical storage container having 45 wells to harbour the ribbons. The first 15 wells contained inactive dummy ribbons for check cable runs and the rest 30 (16-45) wells contained the active ribbons.Source-ribbons of choice were to be brought in the intermediate safe from the storage container before treatment by means of a main transfer tube fitted to the intermediate safe.At most 15 ribbons could be selected at a time during an implant-treatment in this machine having 15 channels.The main drawback of the machine was fixed active lengths of the source that prevented to arrive at an optimum configuration in single-plane or multi-plane implants.The supporting company- M/S Nucletron declared 'End of Maintenance' for this machine in year 2001.

Micro-Selectron HDR: Procured from M/S Nucletron, the equipment was commissioned in year 1992and was decommissioned in year 2012 after its long successful use. This was amotor driven, High Dose Rate, Iridium-192 stepping source, remote controlled after-loading brachytherapy machine.

Integrated Brachytherapy Unit (IBU): Procured from M/S Nucletron, was commissioned in year 2009 and it is functional till date. Applicator insertion, imaging&planning and accurate treatment delivery without moving the patient are done with this equipment.

Medical equipment accounts for 40% to 45 % of the total expenditure of a hospital. Sustenance of the infrastructure and constant up gradation of technology is a challenge. It is becoming increasingly difficult for a budgetary institute like CNCIto cope with the rising cost of healthcare delivery to the poor cancer patients.There is a huge requirement of tertiary level cancer care facilities in India with cancer disease burden increasing every day. Our second campus at New Town Rajarhat, Kolkata, a 540 bedded comprehensive tertiary cancer care centre with all modern equipment and facilities, funded by MoH&FW, Govt. of India and the Govt. of West Bengal is definitely a silver lining over the dark cloud.

Fight against Cancer with Neem Leaf Glycoprotein

Mohona Chakravarti,
Senior Research Fellow, Department of Immunoregulation and Immunodiagnostics,

If one had to ask what separates us from our very closely related ape neighbors, the correct answer would be well the minute alterations in our DNA. But does these ramifications in DNA is what makes us humans human? The complicated answer would be no. Since the dawn of our origin, what gave us humans, the physically fragile creatures, a large advantage is our social cohorts. We inclusively shared information on foods, climates and potential dangers such as diseases. Our need to collectively pull the harmed or ill ones from the grasp of ailment pushed the development of medicine. This discovery had a huge evolutionary impact. We could now live in conditions that other species could not even think to dwell on.

Scientists and clinicians have come up with a magnitude of treatment modalities - chemotherapy, radiotherapy, targeted therapies and when needed the surgery. These avenues have given us a good feedback, increased overall survival and just enough time to scrutinize where we went wrong. Several drawbacks that we are facing today are therapy associated toxicity and development of multi drug resistance.

This is where immunomodulation and immunotherapy comes along. To understand the concept of these novel strategies we have to trace a few steps back and look into the inner machinery during cancer. During the early stage of malignancy, cancer tries to weaken the immune system. It tries to dampen the first line of our defenses- the anti-tumor barricade made by neutrophils, macrophages and NK cells. When these walls are torn down, they try to overpower our very smart cancer killing sentinels - T and B cells. They actively exhaust the tumor killing functionality of infiltrated T cells. Cancer cells then very efficiently bring down the entire immune network by promoting immunity suppressing cells such as T-regulatory cells (T- Reg), myeloid derived suppressor cells (MDSC) etc. With this eroded immune system, cancer cells flourish within the host. Once they have utilized all the resources in their primary site, they move to another location by making new blood vessels on the go.

Immunomodulation and Immunotherapy on centralize around in this notion - if the dampened immune system could be revitalized somehow, they could fight off cancer by itself, without the added toxicity and resistance. Keeping this concept in mind, the department of Immunoregulation and Immunodiagnostics, CNCI has been working with the potent immunomodulatory called NLGP for the past two decades, which shows promising for clinical translation.

NLGP is a derivative from our beloved household plant, an aqueous glycoprotein extract from mature neem leaves, experimentally proven to be nontoxic, haematostimulatory and immune stimulatory. It has effectively reduced tumor growth across various murine tumor models such as - melanoma, sarcoma and carcinoma.

However, it is interesting to note that NLGP by itself does not kill cancer cell, it does so via modulating immune cells, as reported in the study by Bose and Baral (Phytother Res. 2007).

NLGP performs very well in their therapeutic candidature in three principal ways. It restores and revitalizes the weakened immune system, normalizes immune imbalance, and inhibits the cancer to spread further. If we go into further detail, NLGP induces the frontline defenders - NK cells, which exhibit renewed enhanced cytotoxicity against the cancer cells (Bose A, Baral R et al. Hum Immunol. 2007). This eventually contributes to tumor growth arrest (Haque E, Baral R. et al. Immunobiology. 2006). NLGP also significantly stimulates another pivotal player - dendritic cells (DCs) that junction between innate and adaptive arms of immunity. DCs recognize and process antigens and present them to naïve T-cells thus regulating immune response, which is heavily disrupted during cancer. NLGP-educated DCs regain their functional maturity with increased expression of CD83, CD80, and CD86 (Goswami S et al. Vaccine. 2010). In the follow up studies NLGP-influenced-DCs demonstrated appropriate Cytotoxic T cell stimulation and were capable of eliminating cervical cancer cells (Roy S. et al. Clin Vaccine Immunol. 2011).

NLGP is highly proficient in invigorating the adaptive immune system also. It triggers the activation, expansion and recruitment of CD8+ T cells in the tumor microenvironment (Mallick A. et al. PLoS One. 2013). This study also showed a significant increase in the activators vs. suppressors' i.e. T cells to Tregs ratio suggesting a normalization of tumor niche. When NLGP-influenced-tumor-niche was further explored, a huge decline in the frequency of suppressor cells namely Tregs, MDSCs, mesenchymal stem cells (MSCs) and tumor associated macrophages (TAM) was found, which was otherwise upregulated in cancer. Upon additional inspection, it was revealed that NLGP modulates these immune-stimulatory cascades by normalizing tumor intrinsic cytokine imbalances such as IL-12:IL10 ratio, low IFN-? production etc. (Singh A. et al. Hum Immunol. 2022). A significant decline in angiogenesis was also observed in the presence of NLGP (Banerjee et al, PLoS One, 2014), which prevented metastatic spread (Bhuniya A. et al. Front Oncol. 2020). Cumulatively these positive changes not only contributed to increased overall survival but also prevented post-surgical tumor recurrence.

Currently studies are being held to check NLGP's efficacy in other arenas such as cancer stem cells, multi drug resistance etc. So far the results appear to be promising. The next challenge for us is to bring it in the clinic. In this objective, we need to elucidate the structure of the glycoprotein and to know how it interacts with immune cells. Investigation of later part is on the verge of completion. Next steps are GLP (Good Laboratory Practice) clearance, DCGI permission and then Phase 1 clinical trial with required ethical clearance. If we are successful in this journey, cancer patients may get non-toxic, affordable medicine, which will revitalize the battered immune system to fight against cancer.

Cancer Awareness Camp at Purulia

Dr. Prosenjit Saha, HOD, Cancer Chemoprevention

Awareness about the different symptoms of the common cancers and cancer self-screening procedures will help in early diagnosis and better outcome in subsequent treatment to fight against the disease. Science and Engineering Research Board, Govt. of India directed to organise cancer awareness programme and sanctioned separate fundalong with the core research grant (SERB-CRG/2021/007813). To achieve this goal, our department is organising mass awareness camp from last year,among the poor rural population in WB.

This time, we select a small village at Kashipur in district of Purulia, a land of mystical folk cultures with its surprising fire-like reddish Palash of spring time. It is incredible enough to surprise weary city-dwellers. With this elusive red, another shade of black is also flowing like subterranean river inside this district. That is 'CANCER'. Recent reports are showing us an image where this demon is crawling bit by bit into their plain-vanilla lifestyle and here, down to the earth, native people are combating even not knowing anything about it. The countryside area of Purulia is still now deprived from the modern health facilities, which compiled them to be dependent on local, tribal therapies. In a nutshell, this complete frame of cancer scenario in Purulia made us belief thatthis area demands convey of proper facts about the disease, cancer. With the ingenious intention to at least fulfil a very tiny part of this need, one fine morning, we, the troop of Cancer Chemoprevention arrived at Purulia.

The next morning the folk of people reached at the destination with eagerness to know about what is cancer, how to get rid of this disease, how to keep it far away from our regular lifestyle.The rural mass was addressed and interacted by Dr. ProsenjitSaha, Dr. SubhadipHajra and Dr. Arijit Bhowmik.

Research scholars of the Department of Cancer Chemoprevention have performed astreetplay entitled "SusthoJibonJaponKorun, Cancer ThekeDureThakun" which was immensely enjoyed by the audience. The programme was attended by the local Medical Officer Dr. FerojMondal, "Kalloli Rural Hospital, Kashipur, Purulia" and Acting Child Development Project Officer of ICDS, Kashipur, Purulia, Mr. Ashok Kumar Mondal. At the twilight of our programme, we arranged an interactive session where senior scientists and physicians answered the questions of the folk regarding cancer.These experience and interactions to the rural people would aid in making systematic changes in the mode of awareness to improve uptake of the screening programme and to visit hospitals at early stage of disease.

Our sincere gratitude is paid to Dr. Jayanta Chakrabarti, Director, CNCI, for his support to organise this programme which create an alternative means for spreading awareness.The Department of Cancer Chemoprevention, CNCI, Kolkata will always be one step ahead and will be glad to organize this kind of awareness camps again in near future.

Transfusion Medicine & Blood Bank

Dr. Rathindra Nath Biswas
MD (IHBT)
Department of Transfusion Medicine
and Blood Centre

Blood transfusion is a life-saving medical therapy where, transfusion of blood or blood components must be ordered and administered safely and appropriately. Transfusion is more than a single discrete event, but a process. The transfusion chain begins with donor considerations (whether their donation is safe for them to make and whether the donation is safe for any patient to receive). Once blood is collected, the safety of the blood product is a focus of activity (infectious disease testing, compatibility testing, necessary modifications such as irradiation or leukocyte reduction). The endpoint of the transfusion process involves recipient considerations, proper identification of the unit and the patient, appropriateness of blood as the best treatment modality, administration of the unit, and evaluation of the recipient.

The division of Transfusion Medicine provides a stable supply of blood and blood components to patients in our institute and also to patients in hospitals outside the Centre Right from inception, the division started 100% component separation technology to make optimum use of the collected blood unit. We have the state-of-the-art equipments in commensurate with technological advances in blood component preparation and immunohaematology. For prevention of transfusion transmitted infection, we already started advanced chemiluminescence technology for early detection of viral serology.

With the continued support of a pool of repeat regular donors, patient relatives ,voluntary blood donation organisations, students from institutions in and around the city and our staffs who donated voluntarily for support of our patients transfusion.

Our aim to provide transfusion services for every patients uninterruptedly. Thank all consultants of CNCI for counselling and motivating of patient parties to donate in-house regularly. Regular in-house donation may consistently maintain blood components inventory and 100% of our patients may get blood components whenever transfusion required.

Restrictive blood components transfusion policy already started to decrease the over transfusion and long term mortality rate.We have been conducting regular public awareness programmes on voluntary blood donations, with an objective of achieving 100% voluntary blood donation in the coming years.

We separate all collected units into components:-

- Packed Red Cells (PRBC)
- Random Donor Platelets (RDP)
- Fresh Frozen Plasma (FFP)
- Cryoprecipitate
- Cryo-poor plasma
- Single Donor Plasma (SDP)

Our special services include:-

- Aphaeresis unit
- Leucoreduced blood products.
- Washed blood products.
- Regular in-house blood collection camps.
- Advanced immunohematology work-up
- Rare blood group voluntary donor registry
- Every transfusion reaction work-up and root cause analysis
- Counseling of blood donors and sending high risk donors and test reactive donors to ICTC for further follow up and management.

Radiation in the Treatment of Benign Diseases

Dr. Debarshi Lahiri,
Senior Specialist, Department Of Radiation Oncology.

One of the most important hallmarks of cancer described in the seminal paper of Hanahan and Weinberg in the year 2000 was the acquired capability of tissue invasion and metastasis. This is the essential characteristic that separates malignant tumours from benign tumours and other diseases involved with cell proliferation, especially the potential to metastasize to regional and distant sites. Radiation therapy (RT) is one of the three major treatment modalities for malignant tumours with around 50 to 60% of all patients receiving it at some point during their overall management.

The use of radiation in the treatment of benign diseases or conditions began soon after the discovery of X-Rays. As early as 1898, Sokoloff reported positive results in RT for painful "rheumatoid diseases". Subsequently, the efficacy of this painless x-ray treatment led to the treatment of many benign conditions with radiation, and in some instances because of lack of effective alternative therapies.

Some benign diseases might have several features that may justify the use of RT, particularly, there may be an indication when benign diseases have a lasting effect on quality of life by causing pain or the other significantly serious symptoms, or if other treatment options are not available, or have failed, or may induce more side effects.

The precise radio biologic mechanisms of radiation effects on benign diseases are still not that well defined. The two basic mechanisms thought to influence the radiation effects in benign tumours are the anti-proliferative effects and the anti-inflammatory effects. Even with the lower doses commonly used in benign diseases, radiotherapy is clinically effective in inhibiting the cell proliferation and suppressing cell differentiation without inducing cell death as is typically seen with higher doses of radiation used for malignant tumours. Low-dose irradiation (total dose <12 Gy using 1.0 Gy or less per fraction) exerts anti-inflammatory effects on the endothelial cells of capillaries and mononuclear cells of the immune system.

In vascular disorders such as haemangiomas or arteriovenous malformations, high radiation doses may induce occlusion of pathologic vessels.

In addition to inhibition of cell proliferation, cell killing may play a part in the management of benign meningiomas, pituitary adenomas, or neuromas where higher, tumoricidal doses of radiation may be required.

Benign tumours of CNS and Head & Neck Region are commonly addressed by RT in residual/ recurrent settings or when surgery is not a feasible option or may cause functional compromise. These can lead to severe, life-threatening clinical situations resulting from local expansion causing pressure on neighbouring normal structures. Depending on the growth rate, the surrounding normal tissues can potentially adapt and delay symptoms and the subsequent clinical diagnosis.

Pituitary adenomas, meningiomas, vestibular schwannomas, craniopharyngiomas, and chordomasare important benign CNS tumours treated with irradiation.

Arteriovenous Malformations: Intracranial AVMs are congenital vessel abnormalities consisting of conglomerations of dilated arteries and veins with a resultant lack of a normal capillary bed. Clinical concern comes from the high risk of bleeding, estimated to be 2% to 4% per year. Approximately 50% of patients present with haemorrhage and 50% present with non-focal (headache, nausea) symptoms or incidentally found focal neurologic deficits. The risk of death per bleed is up to 10% and approximately 30% have serious morbidity associated with each bleed. Stereotactic Radio Surgery (SRS) is the radiation modality of choice for the treatment of AVMs. SRS is indicated mostly for lesions in deep or eloquent regions of the brain and is particularly safe and successful for lesions that are <3 cm.

Glomus Tumor / Chemodectoma / Paraganglioma: These occur particularly along the carotid artery near the bifurcation (carotid body tumour), the jugular bulb (glomus jugulare), or the middle ear (glomus tympanicum). The peak age is in the fifth decade of life. RT is indicated for patients with tumours in unsuitable locations (i.e., skull base), as adjuvant therapy after Subtotal Resection, or as salvage therapy at the time of relapse after surgery.

Juvenile Nasopharyngeal Angiofibroma (JNA): This is arare, benign, vascularized tumour, affecting mostly male adolescents. Surgery combined with embolization is the preferred treatment. With surgery, most JNAs without intracranial extension have local control rates of near 100%. In patients with intracranial extension, complete resection is often not possible. Tumours with intracranial extension or tumours in patients that are medically inoperable are generally treated with RT as the primary modality. Indications for postoperative RT include relapse after surgery.

Trigeminal Neuralgia (TN): The classic clinical feature of this condition is recurrent episodes of sudden, brief, severe, stabbing pain in the area of the trigeminal nerve sensory distribution. It is most commonly unilateral, but some cases are bilateral. Common triggers for attacks include talking, chewing, brushing teeth, and cold air. It is first treated with pharmacotherapy, with carbamazepine being the most common and extensively studied agent. In patients that have medically refractory disease, microvascular decompression is the treatment of choice for immediate relief of symptoms.

SRS has emerged as a successful and minimally invasive procedure to treat classical TN. Typical doses using a frame-based radiosurgery platform range from 70 to 90 Gy, prescribed to an isodose range varying from 50% to 100% prioritizing low doses to the brainstem for minimal toxicity.

RT has also been used for refractory Epilepsy and Parkinson's disease.

Some other Indications of RT in benign conditions:

Haemangiomas: RT is indicated only in patients that have exhausted all other treatment options. When used, responses are often quick and dramatic. With low-

dose RT (i.e., <10 Gy), scarring is minimal, but patients must be followed closely for secondary malignancies. In vertebral haemangiomas, vertebral expansion, tumour extension into the extradural space, haemorrhage, or compression fracture (rarely) may lead to cord compression. Surgical decompression may be difficult to perform because of the risk of haemorrhage. Usually, only limited removal of the tumour is possible; therefore, postoperative irradiation is typically recommended (30 to 40 Gy in 3 to 4 weeks) with excellent results.

RT also has been used to treat choroidal haemangioma (CH). It is indicated to treat lesions that did not respond to other therapeutic manoeuvres. RT techniques to treat CH include conventional 3DRT, proton beam therapy, and brachytherapy. Typical dose prescriptions for 3DCRT are 18 to 20 Gy for circumscribed CH and 30 Gy for diffuse CH given in 1.8- to 2-Gy daily fractions.

Keloids: Reaction to skin trauma with excessive production of fibrous tissue that extends beyond the wound, becomes hyalinized, and does not regress spontaneously is known as keloid, which frequently cause itching and pain. The preferred treatment is excision, followed by a procedure tailored to prevent fibroblast proliferation. Although good results have been reported with local injections of triamcinolone, postoperative irradiation is effective and more comfortable for patients. Typically, radiation is indicated for repeated recurrences postoperatively or high-risk situations such as an unfavourable location, marginal resection, and more extensive lesions. Total dose is 10 to 15 Gy in 2 to 5 fractions.

Thyroid Ophthalmopathy: Thyroid ophthalmopathy occurs in 25% to 50% of patients diagnosed with Graves' disease. The pathogenesis is believed to be an autoimmune reaction directed toward orbital fibroblasts in which activated T lymphocytes invade the orbit. Signs and symptoms of Graves' ophthalmopathy include bilateral exophthalmos, extraocular muscle dysfunction, diplopia, blurred vision, eyelid and periorbital oedema, chemosis, lid lag, and compressive optic neuropathy. Proptosis often persists and many patients relapse following tapering of corticosteroids, eventually requiring surgical intervention or orbital radiation therapy. As lymphocytes and fibroblasts are quite sensitive to radiation, retrobulbar irradiation is a logical method of treatment. Radiation is most effective for soft tissue symptoms such as redness, oedema, and chemosis. The most common late effect observed is the development of cataracts, which occurs more frequently in older patients and is reversible with extraction. Overall, if appropriately indicated and precisely administered, radiation therapy for advanced thyroid ophthalmopathy offers a favourable risk-benefit ratio.

A total dose of 20 Gy to the midplane given in 10 fractions over a 2-week period is recommended; doses greater than 20 Gy do not improve the outcome.

Prevention of Vascular Re-stenosis: Percutaneous transluminal coronary angioplasty is a common technique used to treat coronary stenotic lesions in many patients with atherosclerotic coronary artery disease. The most important long-term limitation of balloon angioplasty is re-stenosis. It is defined as a greater than 50% decrease in vessel diameter at follow-up angiography. The incidence of re-stenosis is 30% to 50%, with most re-stenosis occurring during the first 4 months after balloon angioplasty. Vascular brachytherapy (VBT) for in-stent re-stenosis has been thoroughly investigated, and its efficacy has been shown in several multi-institutional randomized trials. All the trials were positive with a decrease of in-stent re-stenosis from about 40% to 10%.

Aneurysmal Bone Cyst: Treatment is primarily surgical curettage or resection, but the recurrence rate after curettage is 30% to 60%. RT is reserved for those lesions that are inoperable, repeatedly recur, or are difficult to curette properly because of size and location. A radiation dose of approximately 40 to 45 Gy in 4 to 5 weeks generally produces excellent results.

Heterotopic Bone Formation: Heterotopic bone formation (heterotopic ossification) occurs in about 30% of patients undergoing hip arthroplasty. The incidence is greater than 80% in patients who have a history of ipsilateral or contralateral heterotopic ossification, and more than 60% in patients with other high-risk factors such as hypertrophic osteoarthritis, ankylosing spondylitis, and diffuse idiopathic skeletal hyperostosis. Treatment traditionally is given in the immediate postoperative period, with radiation doses ranging from 7 or 8 Gy in a single fraction to 10 Gy in 4 to 5 fractions.

Covid pneumonia: Anti-inflammatory effect of low dose RT has been utilized in the treatment of Covid pneumonia. Doses from 0.7 to 1 Gy have been used.

There are various other indications of RT for benign diseases not mentioned in this small list of benign conditions, that have been used worldwide.

The use of RT for benign conditions beyond CNS has gradually declined in countries like US and UK, and is extremely rare in India. Despite lack of an international consensus, the German Working Group on Radiotherapy of Benign Diseases published their consensus guidelines for radiation therapy of non-malignant diseases. The guidelines were to serve as a starting point for quality assessment, prospective clinical trials, and outcomes research.

Practice guidelines should be systematically developed to standardize the practice considering the risk-benefit ratio to guide the radiation oncologists. In India at present there are no recommended guidelines for use of RT in benign diseases and radiation oncologists seldom use it for sites outside CNS.

Acknowledgement: Information from the available resources and reference texts in the field like Principles and Practice of Radiation Oncology: Perez and Brady, Clinical Radiation Oncology (Gunderson and Tepper), and Radiation Oncology Management Decisions (Chao, Perez, Wang) has been liberally used to write this article.

ক্যান্সার রুখতে শরীর কি সক্ষম, জানাল কলকাতা

ইমিউনোথেরাপি

স্তন ক্যান্সার নির্ণয়ে ঘুরবে বাস

উদ্যোগী সিএনসিআই

ক্যানসার আক্রান্তের অন্তিম পর্যায়ের কষ্ট কমায় প্যালিয়েটিভ কেয়ার

অভিনব ২ অস্ত্রোপচারে নবজীবন ২ কর্কট রোগীর

Immunotherapy may not work for all cancer patients: Study

Sumati.Yengkhom@timesgroup.com

Kolkata:Immunotherapy – an expensive line of cancer treatment – may not work on a section of patients, according to a study by a group of doctors at Kolkata's Chittaranjan National Cancer Institute (CNCI). The researchers, who have identified possible reasons why the therapy does not work on some patients, have proposed an 'immunodiagnostic method' to improve its success rate.

The study, titled 'A new diagnostic approach to identify anti-PD1 therapy responder cancer patients', has been published in the journal 'Cancer Research', a publica-

সুস্বাস্থ্য

পলিসাইথেমিয়া : রক্তে হিমোগ্লোবিনের মাত্রাতিরিক্ত উপস্থিতি, সতর্কতা

চিকিৎসক বললেই টাইপ হয়ে যাবে প্রেসক্রিপশন

চিত্তরঞ্জন ক্যান্সার হাসপাতাল

নিজস্ব প্রতিনিধি, কলকাতা: চিত্তরঞ্জন ন্যাশনাল ক্যান্সার ইনস্টিটিউটের (সিএনসিআই) রাজারহাট ক্যাম্পাসে চালু হল 'স্পিচ টু টেক্সট সফটওয়্যার'। এই প্রযুক্তির সাহায্যে 'ইএমআর' অর্থাৎ 'ইলেকট্রনিক মেডিক্যাল রেকর্ড' পরিষেবা শুরু হল এখানে। হাসপাতাল সূত্রে জানা গিয়েছে, এই সফটওয়্যার ব্যবহার করার ফলে চিকিৎসক ও রোগী উভয়েরই সময় সাশ্রয় হবে। রোগীর সঙ্গে কথা বলার সময় চিকিৎসককে অসুখের হিস্ট্রি ও পরামর্শ টাইপ করতে হবে না। তিনি ছোট্ট একটি মাইক্রোফোনে কথা বলবেন। সেটি টাইপ হয়ে বেরিয়ে আসবে। এছাড়াও রোগীর প্রয়োজনীয় রক্ত পরীক্ষার তালিকা ল্যাবরেটরি সফটওয়্যার মারফত ল্যাবে চলে যাবে। দরকারি ওষুধের তালিকা চলে যাবে ফার্মাসিতে। ফলে রোগীদের হয়রানি কমবে। প্রেসক্রিপশন নিয়ে আসার ঝামেলাও থাকবে না। শুধু নিজের 'ইউএইচআইডি' অর্থাৎ 'ইউনিভার্সাল হসপিটাল আইডেনটিটি নম্বর' জানলেই হবে। তা দেওয়া মাত্র মিলবে যাবতীয় তথ্য। শুক্রবার এ কথা জানিয়েছেন সিএনসিআই-এর অধিকর্তা ডাঃ জয়ন্তপ চক্রবর্তী। এক বিবৃতিতে এ খবর জানানো হয়েছে। সূত্রের খবর, নতুন বছরের প্রথমার্ধে সিএনসিআই হাজরার ক্যাম্পাসেও এই পরিষেবা চালু হতে পারে। • *নিজস্ব চিত্র*

THE TIMES OF INDIA

Immunotherapy may not work for all cancer patients: Study

'Screening must before therapy'

West Bengal hospital conducts rare surgery on cancer patient

CITY / SUMATI YENGKHOM / TNN / Updated: Feb 25, 2023, 05:55 IST

The SRS surgery was conducted at CNCI Rajarhat campus a couple of days ago

KOLKATA: A team of doctors at Chittaranjan National Cancer Institute (CNCI) has conducted stereotactic radiosurgery (SRS) on a septuagenarian to remove a tumour from the patient's br

7 Sukhabar, 3 February, 2023, Friday

নীরোগ

ক্যানসারের বিরুদ্ধে যুদ্ধ জয়ে মিরাকল সিএনসিআই'য়ের

CHITTARANJAN NATIONAL CANCER INSTITUTE (KOLKATA)

(An Autonomous Body under Government of India, Ministry of Health & Family Welfare)

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