

This book celebrates the silver jubilee of the Rajiv Gandhi Cancer Institute and Research Centre - a hospital that has been lauded for its path-breaking cancer care, both in diagnostics and in therapy.

Eleven stories, written from the point of view of the patient, are compiled here as a representation of the ethos of the institute and the work of its various departments.

These narratives hope to bring to light the heart that animates the institute, and it is for the reader to judge whether its endeavours succeed in providing a silver lining to the cancer that clouds patients' lives.

Research, interviews and text: Bhavana Pankaj

Commissioned photography: Ajay Lal

Audio transcriptions: Vaidehi Phagre Design and production: Designations

Published by RGCIRC, a unit of Indraprastha Cancer Society and Research Centre D-18, Sector-V, Rohini, Delhi 110085 on the occasion of its silver jubilee February 2022

www.rgcirc.org



25 years committed to patient care at the Rajiv Gandhi Cancer Institute and Research Centre, Delhi





Contents

The eleven patient-doctor stories that form the bulk of this publication are meant as an illustrative and not as a comprehensive account of the treatment procedures or of the specialists at RGCIRC. They are a selection from many such that not only adorn this institute's history, but are part of its present, and pave the way for its future...

INTRODUCTION: With Strings Attached : 6

Chairman's Note: 8 CEO's Note : 10 MD's Note : 11

ELEVEN S T O R I E S

SURGICAL AND MEDICAL ONCOLOGY: The Phoenix Soars : 14

L Story of surgery, chemotherapy and prophylactic surgery following gene mutation in Ranjeeta Gujral; Dr AK Dewan, Dr Pankaj, Dr Rajan Arora

LABORATORY AND TRANSFUSION: **Testing Times : 24**

Therapeutic work of the molecular bio lab going beyond diagnostic: Raj Purohit and Dr Anurag Mehta

PAEDIATRIC ONCOLOGY: Gods of Small Things : 32 Limb-salvage surgery for bone cancer: Nikita Goel and Dr Gauri Kapoor

CLINICAL TRIALS: Tried and Attested : 40

T A new drug trial for metastatic breast cancer that is now standard of care: Chanchal Sachdeva and Dr DC Doval

URO-SURGICAL ONCOLOGY: Robot Corps : 46 Robotic Radical Prostectomy with Ileal Conduit: General Aditya Jung Bahadur Jaini and Dr Sudhir Rawal

INTERVENTIONAL ONCOLOGY: Cooking up Cancer : 56 Radio Frequency Ablation for liver cancer: Sikander Singh and Dr Arvind Chaturvedi

MEDICAL ONCOLOGY: Recipe of an Elixir : 62

NUCLEAR MEDICINE: A PET to Look Out For : 70 Noni Borgohain and Dr PS Choudhury

Marrow Minded : 78

RADIATION ONCOLOGY: Dr Manish Gairola

PAIN, PALLIATION AND HOME CARE: Homecoming: 94 Home care, pain and palliation: Kiran and Dr Savera

Immunotherapy: Anil Nandwani and Dr Vineet Talwar

Radionuclide Therapy for thyroid cancer:

HAEMATO-ONCOLOGY AND BONE MARROW TRANSPLANT: BMT during Covid: Ritu Kundnani and Dr Dinesh Bhurani

A Beam to Rest Under : 86 Radiation as primary therapy: Mrinal and

LOOKING AHEAD:

Past Forward : 102

Dr Mudit Agarwal (Head and Neck Robotic Surgeon); **Dr Ullas Batra** (Medical Oncologist, lung cancers); Dr Sumit Goel (Medical Oncologist, gastro and colorectal cancers)

Anaesthesia Services: 114

Research at RGCIRC: 116

TRIBUTES A Patient Voice : 120

Milestones Over 25 Years : 128

Hospital Statistics, Awards, Affiliations and Accreditations: 130

Scope of Services : 132

INTRODUCTION: With Strings Attached

I am a kite in a tornado. but I have a long string...

– KAREN MARIE MONING

Remember the famous words from the iconic film Anand in which the protagonist likens men to puppets, tied to an inexorable fate? That's what strings invariably remind us of bondage and resignation.

But strings also have kites inasmuch as kites have strings, attached to the notion of boundless freedom. A kite too falls back to the ground. But before that, it ascends into the sky in freedom. In flight, it is tugged and pulled, thrust and dragged – and it knows it is alive. A little headwind lifts it up, some tailwind essential for it to stay there. And it is only when the kite-flyer lets out all the line does the kite know its own heights.

A bit like us, human beings, isn't it? Contrary winds can send us soaring as we discover our wings of courage and resolve. There are strings around us that enable us to fly and keep

us going. Their malleability and multiplicity translate into giving us a more complex range of movements. When we stumble and suffer, they give us faith and keep us anchored. Serving as a link between us and the source of life, they assure us that our journey has been a worthy one.

The Rajiv Gandhi Cancer Institute and Research Centre is, perhaps, one of the many such strings – significant in its own way, borrowing from the metal from which 25th anniversaries draw their adjective. Silver.

In hindsight, RGCIRC has stayed the course in ways similar to silver – as a worthy conductor. Evolving over time, it has endeavoured to be flexible in its learning and robust in fusing its energies for the good of its patient. It has always remembered that there is another force that pulls the strings of human existence. But it has rarely

forgotten its own agency in making that existence less painful, even more joyful.

The patient is central at RGCIRC. The latter offers therapy and empathy against disease, but it is also through travails that the institute has learnt to make and remake itself. Walking with and working for the patient, it has understood fear better, and courage too. It is their reason to be.

This compendium, then, is a book about its inmates as much as of the institute. It belongs to everyone who has over these decades given meaning to, and is the voice of, its endeavour.

The stories that have been featured here only represent the ethos of this hospital. The readers will find narratives of the avant-garde work

in cancer modalities and research. But if they will look a little deeply, they shall find in each story a celebration of mind along with matter: an end becoming a beginning, teams winning the day, empathy riding an epidemic, care turn into lasting memory, patients inspired by each other, doctors finding their muse in their patient – and both renewing their trust in the bleakest hour.

Surgery, medicine, radiation, interventional radiology, molecular diagnostic lab, clinical research and nuclear medicine are the pillars of cancer care at RGCIRC, all standing strong under the same roof. Like the strings of a lute, there are spaces for each modality and speciality to excel but they quiver with the same music: the sweetest sound is the wellbeing of the patient. It is to know that everyone has given their best to add life to years, and not just years to life.

Chairman's Note

It began as an audacious idea. A dream of a few well-meaning, passionate individuals of modest means. A vision to set up a world-class facility for oncology treatment, providing affordable cancer care without compromising quality by putting the patient above all else. Two and a half decades later we can unequivocally say with immense pride and satisfaction, that we have been able to bring their mission to fruition.

Today, Rajiv Gandhi Cancer Hospital and Research Centre lays claim to world class facilities with best-inclass equipment and infrastructure at our 500-bedded hospital and daycare centre. Prudent management of resources and timely support of countless donors has enabled us to create and run this facility. Robots for precision surgery, state-of-theart radiation facilities, cathlabs, molecular labs are a few examples on the clinical front. A robust IT infrastructure that facilitates quality care and patient support, a unique 16-storeyed mechanised, soon-tobe-functional car parking facility to enable ease of movement, are some noteworthy features on the support side.

But if there is one singular feature that sets us apart from the crowd, I have no hesitation in saying that it is our medical fraternity – an enviable team of highly-trained medical professionals and support staff, who are passionately committed to patient care. They collectively hold an unparalleled depth of experience and expertise which is at par with the best centres in the world.

In spite of tough competition, we have been fortunate to have retained most of our founding team of key doctors, managerial staff and governing council members even after 25 years. This has ensured that the vision of our founding fathers continues to shine brightly. Values of service and empathy to patients, and treatment at reasonable rates, have not been sacrificed at the altar of commerce and we have maintained the highest standards of medical ethics.

While we pause at milestone 25 to applaud our success, we also look ahead into the future on the wings of a newer generation of people. We believe that involvement in research and academic study is what revitalises our faculty and keeps them fully abreast of advancements in medical and scientific practices. This also ensures low attrition. Teaching and mentorship are valued, encouraged and mandated. This gives confidence that our work ethic and culture will not get diluted.

We shall shortly be converting our OPD-cum-Day Care in South Delhi into a modern 150-bed state-of-the-art cancer hospital. And while we remain true to our vision of treating cancer, we know fully well that an ounce of prevention is worth a pound of cure. So, our focus will continue to be early detection of cancer, when it is easily treatable. To achieve this, we are initiating an ambitious Preventive Programme in the community.

The last 25 years has been a memorable journey. We have created a national treasure for the community. We have also created a robust governance structure that will ensure that this premier institute continues to grow and serve society and make the nation proud.

- Rakesh Chopra



CEO's Note



Quality, affordability and easy access – this troika was the impetus behind the birth of the Rajiv Gandhi Cancer Institute and Research Centre in 1996. The spirit of social responsibility and philanthropy brought forth the idea of offering a whole gamut of services – from prevention to palliation – under the same roof. Hard work and sheer determination raised the initial money to set up and run RGCIRC as a not-for-profit institution.

As we complete 25 years of our existence, we would like to celebrate the idea that has continued to inspire us: our patients. We believe they are our voice – one that admonishes us as much as appreciates us. And we listen to both with a keen ear. The former allows us to plug the holes in the quality of our care, the latter assuring us that we are on the right path. Continuous improvement in hospital processes – from admission to discharge, and later, follow-up, is our priority. Besides our feedback forms, members of the management visit the patients regularly, interacting with them and their caregivers, assuring them of ready access.

Most patients come to us in advanced stages when cancer claims not just more time, money and patience, but it does so without any definite guarantees of cure. Among the critical ways to win the battle against cancer is through prevention and early detection. A largescale free-of-cost screening programme in clusters of under-served areas of Delhi has helped us save 500-600 people for every 10,000 persons screened.

Currently the institute spends 25 crore rupees annually to underwrite the treatment of needy patients. It also runs free home care services for the terminally ill and offers psychosocial counselling.

Research is the unseen backend of the hospital even as it increasingly becomes a tour de force in cancer care. The management encourages doctors to formulate research projects and endeavours to provide the necessary financial support for their execution.

We are acutely aware of better strategic planning for improving processes and protocols. To that end, we strive to build capacities of our clinical and non-clinical staff through national and international trainings and running super-specialty diploma courses and fellowship programmes in affiliation with the Diplomate National Board and other reputed universities.

Neither are our collaborators only boards and corporates. Several of our patients are equally our partners in our philanthropic undertakings. Our aspirations need assets, especially now that we are dreaming of reaching out beyond Delhi. We are, therefore, attempting to build a corpus fund of 100 crore rupees that takes the vision of our founders to newer heights.

Neither the hospital nor the research centre would be able to work without its medical records. We are in the process digitising them and moving swiftly towards paper-less operations.

Most of us remember how this institute was built little by little, and how little became a lot. We now move into a new phase of consolidation and expansion to build an edifice that the next 25 years would be proud of.

– DS Negi

Medical Director's Note



As the Rajiv Gandhi Cancer Institute and Research Centre celebrates its silver jubilee, I look back to see what a great journey it has been for this institution and the people who have stayed here since its inception. It was with the noble idea of serving society that the late Mr. KK Mehta founded this hospital and brought in some wonderful people who worked honestly and relentlessly to make that idea a reality.

We started with 152 beds, two linear accelerators, MRI, and three operation rooms. There were financial hiccups in the first five years, expenses exceeding the income. But we picked up in May 2000, and haven't looked back since.

In 2007, C block was added and PET-CT scan was installed in 2008. As the

volume of surgeries began to increase, the number of operation theatres went up to eight. Departments evolved into system based subspecialties to give the best possible care to patients. In 2009, we had four radiotherapy machines and two years later, the DaVinci Robot was installed. Soon the number of robotic surgeries performed at RGCIRC surpassed any other cancer institute in Euro-Asia and RGCIRC became the first to complete 1000 robotic surgeries in this region. In 2019, yet another block was completed with six more operation rooms, state-of-the-art BMT unit, and two more bunkers for radiotherapy machines.

RGCIRC was the first hospital in North India to establish a world-class biorepository to meet the needs of the scientific community. The repository supports both academic researchers and the pharmaceutical industry by providing them bio-samples for basic research, not only in India but also in countries such as the USA and Canada.

Our molecular diagnostic laboratory is capable of conducting most cancerrelated genetic tests. The molecular lab menu has steadily grown in all applications, ranging from infectious diseases, genetic and oncology testing. It currently offers more than 100 tests.

In the year 2020 we established a basic research facility and a cell culture

laboratory to conduct hardcore basic research in the field of oncology.

The Department of Imaging has three state-of-the art Tesla MRIs, two CT scans, and multiple ultrasound machines. The department also has a dedicated Interventional Oncology facility for some of the most advanced treatment options for cancer patients.

The institute has two PET-CTs, SPECT and Dexascan. It has recently added Radixact System, next-generation TomoTherapy, and Cyberknife machine in the Department of Radiotherapy. The most advanced neuro-navigation facility (O-Arm) is being installed in the Department of Neuro-surgical Oncology.

I feel proud and privileged to be a part of this institute that has been silently and steadily serving the society and nation with utmost selflessness. I am certain we will continue to do more, and grow in the years to come.

– Dr Sudhir K Rawal, MD

Eleven Survivor stories



SURGICAL & MEDICAL ONCOLOGY, RECONSTRUCTIVE SURGERY

The Phoenix Soars



Add energy, inspire hope, and blow the coals into a useful flame. - Ralph Waldo Emerson



"My room in the new wing had these big glass windows. The sun came in through them every morning. I would see it rise, the light flooding the room. It was my window of hope...."

Listening to the eloquent Ranjeeta Gujral recall her two-year tryst with cancer, one can see how words as they travel through experience, may turn into living things a patient may hold on to. That 'hope' for a 40-yearold isn't just another word replaced casually with another.

It was in February 2021, a Friday when she had her double mastectomy, reconstruction and oophorectomy. The 13-hour procedure in which both the breasts and ovaries were removed was followed by her return to her room on Sunday. "I was happy to be there. I could feel the pain in the breasts although I knew that reconstructed breasts don't get their sensation back. But during my regular check-ups through the nine days of my stay, my surgeon Dr AK Dewan and reconstructive surgeon Dr Rajan Arora told me pain was a good sign. It meant sensation," recalls Ranjeeta.

The pain also had a purpose: it had come along with victory. After long

perseverance and patience, Ranjeeta had at last crossed the last milestone in her journey to wellness and freedom from an aggressive cancer.

"I was also experiencing a lot of anxiety and hot flashes. I had been told that the removal of ovaries may bring these on. But one day it all flared up. The air conditioner was working. But I was sweating profusely, and crying copiously. All my vitals were fine. A few nurses held me and calmed me down. I remember the first time when I was being ambulated... I just did not want to walk because the stitches in my stomach were painful. They got a w alker for me. When I came out of the room, they were all standing there waiting for me, and clapping for me. These are small gestures mattered so much at that time..."

"The OT where I was undergoing my first breast surgery in 2018 had a big, wall to wall glass window. I had seen these dark, dingy operation theatres in the movies. And here I was in one that was beautiful. I don't mind being here, I said to myself. *Ab jo ho so ho*."

February 2018 was a watershed in the life of the 38-year-old banker with Wells Fargo, passionate about films, friends and life. Ranjeeta Gujral, divorced not too long ago and dealing with multiple sclerosis, had been first diagnosed with a triple negative breast cancer.

The beginning, like always, was

Ranjeeta Gujral at RGCIRC for one of her recent follow-ups.

Propagating hi-touch with hi-tech: Dr AK Dewan, Director, Surgical Oncology and a leading cancer surgeon for over 30 years. the hardest. As she stumbled between tests and scans, and failed communication with doctors, life pointed a finger post to Ranjeeta on the road to possible success.

"My initial impression of RGCIRC was one of a public institute where everything from appointments to looking for the right doctors was like waiting for Godot. I wasn't sure if I even wanted to travel all the way from Gurgaon to Rohini, the other end of the city. But I decided to go through the motions now that I was there," she reminisces.

It started with the institute breaking a few myths. She had already, within two days of her calling, an online appointment with Dr AK Dewan, who was head of surgical oncology then, and one of the most experienced men at the institute. "When I met him, I knew it was the best decision I ever made," Ranjeeta begins to unspool her story.

" 'Please wait a moment. Let me speak to her,' Dr Dewan interrupted my brother who was asking all the questions. Turning to me, he said 'Tell me what your questions are. What are you feeling?' Here was a doctor who wanted to talk to the patient and not her family, I thought. I broke down and let my tears do the talking for a while. I told him about how the entire flowchart of the impending treatment given to me by this doctor was too much for me. I was afraid of chemotherapy. I was afraid. Period. 'But you may not even need to undergo it,'" he said quite simply.

" 'Let us do this one step at a time. It's a small surgery. Just tell me when you will be ready for it. There are longer, bigger surgeries. You don't have to worry.' Even though I knew it was a 4 cm lump in the breast which was by no means small, Dr Dewan's words and his manner lightened me up. It wasn't as big as I thought it to be, I felt.'"

Candid and cruel – the line between the two is fine. Treading it comes with experience, not a degree. Doctors who know communication to be an essential component of good medicine also "respect the fact that anxiety is morbidity," says GW Eklund in *The Art of Communicating with Patients*. Dr AK Dewan was one such, and he gave his young patient more than his time and attention: he offered her empathy and consideration.

"Not every patient has the capacity or may even want to listen to everything. I wouldn't if I were one," says Dr Dewan. "Put yourself in the patient's shoes – and see how you would like to be treated if you were one. Here we endeavour to follow some basic principles of humanness and ethics. I have seen doctors tell all – make a chart which reads like a horoscope... surgery, chemo, radiation, your life span will be six months or you have x percentage of chances etc. That is losing one's basic humanity. The doctor must tell the patient what is necessary at the time and communicate with hope."

Surgery was the only necessity then for Ranjeeta. The surgeon scheduled the surgery after a word with his patient. The lump resected, Ranjeeta was moved into a well-lit, clean room. "It was more than I had seen in any private hospital – and I had seen many given my many admissions owing to multiple sclerosis. And I was receiving all the support that I could have asked for."

She would need a lot more in the weeks to follow.

"Dr Dewan never once hid anything from me. But he also left me with hope each time that I may not need chemotherapy. His answers never overwhelmed me. I went through surgery better, and healed well in post-op. During that time, I think I was somewhere readying for the next step in case...."

The biopsy report was out. Chemotherapy would be necessary, the surgeon said, priming her for the next step. He introduced the therapy and the therapist, informed her of the side effects but also said her oncologist would tailor it to best suit her purpose. He who had lit the flame of hope in her heart was now to pass the torch on to the chemotherapist.

"I got lucky yet again with Dr Pankaj, my Medical Oncologist. He was upfront. "Except for your hair, ask



Ranjeeta during one of her chemotherapy sessions.

Dr Pankaj, Consultant, Medical Oncology, specialising in breast, lung and other solid tumours.

As a doctor when I feel connected to a patient, I will follow up with her for her wellbeing. I needn't stand on prestige. A case from Nepal taught me a lesson. A patient to whom I had explained the necessity of surgery did not take up the advice, and turned up after a year with metastatic ovarian cancer. I somehow felt responsible that I hadn't stressed the necessity of the follow-up. I did not want to repeat the experience with Ranjeeta after she left Delhi for Chennai.

As doctors, we feel sad to see a patient return in an advanced stage of disease. One feels that all past effort have gone down the drain, both financially and medically. So, thinking ahead is the doctor's responsibility towards both the patient and the family.

I have received my training at RGCIRC and had the privilege of working with wonderful seniors such as Dr Doval and Dr Dewan. When we are dealing with riskreducing surgeries – after a risk-benefit analysis based on international studies – we follow standard guidelines as to which surgeries are safe, feasible and most effective.

– Dr Pankaj



me all the questions,' he said. Hair loss was a temporary thing as I soon learnt. But he really 'saw' me, and my fear of losing my thick, long hair... and answered all questions my friends raised with him. Could I go to the movies? Travel? Occasionally drink? To the last question, he simply said 'we will cross the bridge when we come to it.' He held an open space for me in which I felt comfortable," smiles Ranjeeta.

"People are willing for surgery but are petrified of chemotherapy. As a doctor, one has to plumb the depths of what's going on in their mind," states Dr Pankaj, working with Dr DC Doval, Chair, Medical Oncology, and deeply interested in breast cancer and importance of good communication. "We aren't treating an upper respiratory tract infection here that you cure and you are out. Cancer is a chronic process of disease. The relationship with the patient an enduring one. Ranjeeta, with Triple Negative BC, was just the candidate for Dose Dense Therapy (the use of two sets of drugs for different cycles). She had side effects. But she knew about them beforehand. The warrior that she is, she took it on her chin. Patients will have side effects, there will be mental collapse. We have to tell them these are part and parcel of the treatment. The effects will be temporary but outcome will be permanent."

The good-looking 38-year-old went down in a few battles. She lost her

beautiful hair, appetite and often times, confidence. But the defeats of this first faceoff with cancer passed. The war, however, wasn't yet over. The doctor was not willing to retreat – yet. And the patient needed him to give her courage and tell her that failure wasn't fatal. It was the giving up that was.

Ranjeeta's Triple Negative Breast Cancer (TNBC), one of the most aggressive, was difficult to treat and had more than fair chances of recurrence, Dr Pankaj told her as he bid her adieu referring her to a radiation therapist closer home. More than that, it was very likely connected to a mutated breast cancer gene in her case. The rogue gene might not only have caused the TNBC, it would also increase the chance of relapse in the same or the other breast and/or result in ovarian cancer.

It couldn't have been left alone. She needed testing to confirm the mutation, whether at the Molecular Diagnostic Lab at RGCIRC or anywhere else.

"She wasn't keen on getting it done because she was afraid it would be positive. I wanted her to get it done for exactly the same reason. She had a family history of certain types of cancers and she may have inherited the harmful variant of the breast gene. I had to tell her that there was a risk of the disease coming back again within three to five years. In that event, she may have to return and go through therapy yet again. The next time round the treatment would not be as effective, perhaps only palliative. I admit I had to scare her a little lest she began to think it was over and all was well. Chances were it wasn't going to be," Dr Pankaj recalls.

True came the prophecy. Ranjeeta tested BRCA (Breast Cancer genes) positive when she sent the report to her medical oncologist in 2019. It meant that she had the mutated gene. It also meant that the sword was still hanging over her head. The problem was radical. The solution had to match.

Angelina Jolie, the Hollywood actor who carried the faulty BRCA gene that greatly increased her risk for a fatal breast and ovarian cancer. had made headlines a few years ago following a double mastectomy and oophorectomy. The reel-life heroine's preventive surgeries set the pace for BRCA testing and more such surgeries. Ranjeeta, however, hadn't heard of her till such time as one of her real-life heroes, her surgeon, mentioned the name. At RGCIRC, seven-eight instances of bilateral mastectomy (prophylactic) with reconstruction and 25-30 cases of oophorectomy (prophylactic) have been done until now. Patients are more receptive to mastectomy if reconstruction is offered along with it.

"Hospitals aren't places to be scared of -RGCIRC is a perfect example of that. Here, they take care of a child with the same love as they treat an adult. I was getting into surgery for the first time...and I was nervous. Just then, in the waiting area I saw a 7-year-old who was also going to be wheeled in for surgery. He was crying when a nurse and doctor came up to him. Was he in pain, they asked him. The doctor suddenly started asking the child about his exams and his score. Before he knew it, he had forgotten all his pain. That made me go through my four-hour surgery with ease... these were people who understood the mind of their patient. I also remember an old lady who I would see every week. She had just been through surgery and was still wrapped around tubes. It was so beautiful to see how everyone was so solicitous around her. This hope, they give to people of every age group. God forbid that cancer should happen to anyone. But if it does, I think this is the place to be at."

– Ranjeeta Gujral

Double Mastectomy and Oophorectomy was the answer. The mutant was partial to these two organs, and ominously so, to younger women.

"I knew it but I was in denial. Then, it was time for a transfer to Chennai. That's when I picked up courage to get the test done. Dr Dewan had already warned me of the high risk of recurrence. I knew clearly I wouldn't ever go through chemo again. But for Dr Pankaj's consistent and unusual persuasion in favour of the test and take it to its logical end, I would have given up," she says gratefully.

"Some patients become like family," says the doctor. "They put their entire faith in the doctor and follow instructions to the T that one feels responsible for them. Ranjeeta was like that. If something happened to her prospectively or retrospectively that could impact her wellbeing, it would be the responsibility of the entire hospital.

"In our discussions, all I insisted on was for her to follow up on her treatment. As doctors we are concerned about a patient with a BRCA positive report – who may come back with stage 4 cancer. In that event, I would blame myself for not insisting on further course of treatment.

"Treating such patients like Ranjeeta is rewarding. She was clear she had the disease and knew she had to fight it. I had suggested to her that the second breast removal could be kept in close follow up. She asked me what the best course was, which minimised the chances of recurrence. I said – follow Angelina Jolie. I did not expect Ranjeeta to do that (laughs). Now as we speak, the three years during which her cancer had the most chance to recur are over. Guided by the safe hands of Dr Dewan, she has already had her double mastectomy and oophorectomy done. I am proud she is a winner."

Prophylactic and extensive surgeries such as this had not found favour with Dr Dewan till recently. He had learnt from his teachers to know not only when to do a surgery, but more importantly, check when not to do one. Would it be judicious for a woman her age, at a wonderful place in her career, to remove the breasts and ovaries? He tried dissuading her. Her chances for another malignancy were 70 per cent. But she also stood a 30 per cent chance that she would not have it... She would do well to go to a genetic counsellor. Perhaps, she needed to reconsider.

But Ranjeeta's mind was made up. In the encounter between self-image and life, the latter won. Dr Pankaj had given her data for her to consider and come to a decision in consultation with the surgeon. Meanwhile, the good surgeon had also made a journey in his own head. His youthful patient wanted a chance. "Patients teach us many things. Ranjeeta had been through genetic counselling before coming to me. She knew what she wanted."

Like Dr Dewan, Ranjeeta's genetic counsellor told her she needn't rush into anything after her first phase of treatment: she was safe for a couple of years. But 2020 was drawing to a close. At the cusp of the third year, Ranjeeta's fears were creeping back. The Covid pandemic had already restricted her visits to the hospital apart from the fact that she was in Chennai. She came to Delhi in February 2021 for a followup with reports of the latest tests that Dr Dewan recommended over an online consult.

"Dr Dewan assigned me a person – his name was Ranjit I remember - who took me all over the hospital for tests and winding up all the admission formalities. I also met Dr Avinash Rao who I saw during another pre-op ultrasound who said, 'Even in this day and age taking a decision such as the one you have taken is difficult. But I am glad you are doing this.' Coming from a man from the medical field, I clung to these words for I was looking for someone other than my doctors to validate a decision I had made practically on my own."

That's when she was also introduced by Dr Dewan to her plastic surgeon Dr Rajan Arora for the first time. He explained to her in detail the process of reconstruction. A senior



doctor at the Adyar Cancer Institute, she remembered, had specifically mentioned going to either Bombay or Delhi for reconstructive surgery. "I preferred Delhi. And in Delhi, it had to be RGCIRC."

The countdown started on the 15th of February. By the 10th of March, it was curtains. Ranjeeta Gujral had learnt something not just about hope, but also about pain nourishing courage. Dr Rajan Arora, Senior Reconstructive and Micro-vascular surgeon; Surgical Oncology

"I saw many people suffering, and was in agony myself when I first visited the hospital. But at RGCIRC, I learnt to never say die. There was a time when I was asking myself – why me? But everyone there, including my doctors, taught me to never resign myself to those two words. I learnt to accept situations and to respond to them intelligently, in a way that I could look back and be happy. I couldn't have made this journey without Dr Dewan. I would go back to him to check on every small or big issue, including the one he may have had no direct concern with. The day I went to say bye to him, he looked at my final biopsy reports and said, 'You are free now.' "

The words were music to Ranjeeta's ears. Today, the music continues to sound in her heart even though the song has been long over. It is in honour of that music that her once unadorned house has a new designed look. Her warped look post chemotherapy, her short hair... her memories are all up there on the wall. The past assimilated well into her present, Ranjeeta looks to her future with faith. Many a dream has come back to life in those eyes that opened to hope and happiness in a room with a point of view.



THE DEPARTMENT OF SURGICAL ONCOLOGY

Surgical Oncology is a fast evolving specialty at RGCIRC. Starting at a modest 3 major OTs, 1 minor OT and 3 surgical oncology units in 1996, the numbers have gone up today to 14 major OTs, 3 minor OTs and 13 surgical oncology units. From 50 major surgeries and 100 procedures a month in the minor OT, today more than 500 major surgeries and 2000 plus procedures in the minor OT are performed.

The endeavour is to:

• Cure or palliate and improve quality of life emphasising on multimodal treatment

Practice evidence-ba

• Achieve minimal morbidity and near-zero mortality acceptable by any international standards

• Provide good preoperative preparation, careful preoperative monitoring and postoperative care

ased medicine

From six surgeons at inception, the department stands at 50 surgeons in various subspecialties. It also has a dedicated 45-bedded Post-op Ward and Extensive Intraoperative and Post-op monitoring facilities round the clock.

In 2012, the facility – High Intensity Focused Ultrasound (HIFU) – was added to RGCIRC for the very first time in India at a tertiary cancer centre. HIPEC procedures are being performed routinely for gynaecological and gastrointestinal cancers. A robotic surgical suite was been added in the armamentarium of surgical facilities in 2011. The Robotic Da Vinci system is being extensively used for urological and gynaecological cancers, thoracic and abdominal procedures, and head & neck cancers. More than 4000 robotic surgeries have been performed at the institute till date.

> Inside a modular OT with scenic murals on one of the walls: a therapeutic tool to de-stress patients.

LABORATORY, TRANSFUSION AND MOLECULAR BIOLOGY

Testing Times

"If we didn't have genetic mutations, we wouldn't have us. You need error to open the door to the adjacent possible." - Steven Johnson The year 2017. The climb up a hill – rather the inability to do so – during a pilgrimage signalled the descent.

It was unusual. Mr Raj Purohit (name changed) was perturbed. He returned to RGCIRC where he had been working for a quarter of a century, and sought advice from Dr Sumit Goyal, an affable and welcoming medical oncologist who ordered a battery of routine tests. Mr Raj Purohit's haemoglobin had fallen precipitously from 17 to 8g/dl. This led to a fecal blood test that showed up with traces of blood. The next logical step was a colonoscopy and a biopsy which returned a diagnosis of cancer of the large intestine. "I was devastated by the diagnosis of cancer in the prime of my life with so many responsibilities yet to be fulfilled," says Mr Purohit.

"Fortunately, my cancer was found to be still confined to the colon wall. Dr Shivendra Singh, our chief of GI onco-surgery performed the right hemicolectomy and the pathology report said it was stage one cancer of the colon. I was relieved when the multidisciplinary team collectively decided that I did not need any chemotherapy."

His brush with the cancer and accompanying emotional, familial and societal stress was greatly allayed by the excellent support from the RGCIRC staff and management. "The hospital pulled all stops to ensure that diagnosis, followed by therapy, took less than a week. From the CEO Mr DS Negi, then MD Dr Sudhir Rawal, all my doctors beginning with Dr Anurag Mehta in the lab were there by my side reassuring me, that they would bring me back from what I thought was the brink," the usually high-spirited Mr Purohit breaks down in his terse recollection of events.

The surgery was curative. However, the disease had roots in an irrevocable cause – the genome, or DNA.

"In the last few years, when a case of colorectal cancer comes to us, we require to test the patient for what is known as the Lynch Syndrome. It belongs to the category of inherited cancers and about 5 per cent of the colon cancers belong here," says Dr Mehta, Director, Department of Laboratory and Transfusion Services. A preliminary screening called "Microsatellite Instability" followed by a confirmatory Next Generation Sequencing (NGS) allows us to detect a patient with Lynch Syndrome. NGS proved Mr Purohit was carrying a bad gene of the Lynch Syndrome – the cause of his colon cancer."

A regular god-loving family man, Mr Purohit was carrying a genomic inheritance he hadn't known. It meant 50 per cent of his firstdegree relatives, including his children, would be harbouring the same mutation. "One may inherit a



deleterious genetic change but the chances of its manifesting as a disease is just 10-15 per cent. This is known as low penetrance. However, on the contrary, Lynch mutations have a high penetrance, which means that the likelihood of developing cancers over a lifetime is 50-70 per cent. It is rare to find someone carrying the genetic alterations of Lynch Syndrome and not develop a Lynch-associated cancer unless prophylactic measures have been taken," explains Dr Mehta, who is also Director of Lab, Molecular Diagnostics and Research at RGCIRC.

True to their name, the Lynch genes were like the unerring lance, piercing generation after generation. There was no escaping them. Nor was there a way to avert the disaster of disease. The ION GeneStudio system enables a broad range of targeted next-generation sequencing (NGS) applications with speed and scalability.



One of the most dynamic and transformative departments, molecular diagnostics at RGCIRC is NABL accredited and currently offers more than 100 tests. The lab menu includes testing for infectious disease, genetics and oncology. The portfolio is executed by diverse complex machinery facilitating tests for solid organ and haemtological malignancies.



Or was there?

"If we know what it is and look for it, a bud can be nipped before it becomes a tree. The sickle to the weed of inherited cancers is genomic testing. This is a significant, if small, part of NGS which is one of our many tools in the areas of both research and patient care. There is an age-old dictum – of an ounce of prevention being worth a pound of cure. I lay great emphasis on finding predispositions to cancer rather than getting into the roller coaster of the disease, given its double agony – of the mind and the money," explains Dr Mehta.

"But when we do have someone in whom the disease has manifested, he becomes our index case or a proband. We start with testing him, then go backward and forward for linkages in first-degree relatives that include his parents, siblings, and children. The testing is further extended to include the consenting adult first degree relatives of the proband to look for the same genetic alteration.



This is called Cascade Screening and has proven to be a powerful tool in identifying cancer predisposition and prevention. All carriers of the mutation or those predisposed are advised enhanced surveillance of sites that can be involved in the said inherited cancer syndrome. They are educated regarding the importance of risk-reducing measures. This is similar, for instance, to the BRCA gene which makes women susceptible to breast and ovarian cancer. Angelina Jolie underwent prophylactic surgery when she found she was at risk from BRCA," Dr Mehta clarifies.

Post-surgery, Mr Purohit would need to tread the risk-reducing path of screening with colonoscopy once a year so that any small irregularity seen in the colorectal lining could be removed before it flowed out of the intestines. "The Lynch Syndrome brings with it risks for several other cancers such as the skin. In that case, the surgeon may simply excise small lesions which may come up frequently and end it there," explains the senior pathologist, who also specialises in molecular diagnostics, colorectal, lymph node, and pulmonary pathology.

"Six months from my colon surgery, I got another boil-like protuberance on the forehead. Despite contrary opinions, I felt it in my gut," says Mr. Purohit. "The sample was sent to the lab. Dr Mehta confirmed it was cancer. But this time, I wasn't afraid because I was at a place where I had emotional, professional, and financial support – something that the average cancer patient may not always have." Plastic surgeon Dr Rajan Arora literally and quickly got under the patient's skin and removed the growth.



Next Generation Pathologist: Dr Anurag Mehta, Director at Department of Laboratory & Transfusion Services and Director, Research. Mr Purohit's recurrence was pummelled at an early stage, primarily because his surgeon knew the roots of the disease and had kept him in follow-up. Could the stock of other cancers – inherited or otherwise – be unearthed too?

"Screening for prevention helped someone like Jolie to have her breasts and ovaries removed. Consequently, her risk for cancer was reduced by 95 per cent – similar to the risk of the general population. Till recently, labs were confined to doing primarily diagnostic work – helping physicians clinch diagnosis for appropriate treatment. In the last about a decade, our scope has gone beyond the eyeballing and a diagnosis," Dr Mehta quips, speaking eloquently on the breath-taking expanse of molecular diagnostics.

"Labs now are accomplishing the four-fold objectives of molecular diagnostics: (a) look for predispositions; (b) selecting the right therapy for a patient through biomarkers so that he gains the most from a therapy; (c) prognosticate to know how aggressively cancer may behave if left to its own devices: and, (d) monitor the response to therapy. We at RGCIRC are the largest, perhaps the only, hospitalbased genomic lab which offers cutting-edge technology to realise all of the above. We can scrutinise for damaged genes, for instance in cancers of the lung, kidney, colon, ovaries, pancreas, gallbladder,

and blood, and inherited ones like Lynch, Li Fraumeni, Hereditary Breast and Ovarian Cancer, and so on. Apart from NGS, we test for Individual Gene alterations, Gene Expression Profiling by Nanostring, and liquid biopsy utilising plasma, urine, and CSF as samples of choice – something that is probably not available in any centre in the country. In terms of its sheer swathe, testing – from the simplest to the most complex – is enormous in this lab, unmatched in India."

Happily, Mr Purohit did not need any additional therapy. Surgery together with radiation redeemed him of his early-stage cancer. But cancers are capricious. They return without knocking and travel without passports. In the last decade or so, molecular profiling has been on patrol duty and revolutionised the role of precision medicine in advanced cancers.

"Mr Purohit did not need any additional therapy because we had the molecular report from our lab," says Dr Goyal, the medical oncologist who specialises in colorectal and gastrointestinal diseases. "At another place, I would have gone ahead with chemo because I wouldn't have known any better. Here, several patients have been spared chemotherapy because our lab predicted whether a certain therapy would work in a certain cancer setting or not, as well as prognosticated for outcomes. My faith has been further reinforced when I have seen patients, who

came to me six or seven years ago, doing well without chemotherapy. In fact, some tumours behave very poorly, irrespective of treatment. But we would still end up doing chemotherapy in the absence of molecular testing. A test like MSI or MMR (Mismatch Repair) looks at early colorectal cancers. In metastatic settings, we have tests such as KRAS, NRAS and BRAF. Our lab four or five years ago was doing all these tests that are today mandated by international protocol."

"If we identify the kind of tumour, we can make precise therapeutic recommendations too with targeted therapy instead of blindly taking the chemo route, where toxicity far outweighs the benefit. Sometimes the prognosis may not be very encouraging – the cancer may come back or spread. If we know that available treatments with us are not going to benefit the patient, he can be an excellent case for recruitment in a clinical trial. Finally, is our patient benefitting from therapy? He would normally be advised to get a CT or a PET after three months to find out. We get the same answer in a month with genome testing. All it needs is 10-12 ml of blood to check if the bad gene alterations are fading or becoming louder. An entire human genome can be now sequenced in a single day offering unprecedented accuracy and speed in diagnosis and prognosis. This is routine clinical practice at RGCIRC," Dr Mehta underscores the criticality

of turnaround time in cancer care, not just for the patient but for his entire family.

It's like alchemy. All the negatives are sequenced in the service of the greatest positive – patient care. That requires practice not just to get it right, but practice until one can't get it wrong. In the past five to seven years, the lab's work has increased by five times. The acceptance for its testing is high. Something like NGS brings rapidity to remedy. Getting tomorrow's answers today... sounds great. Does it?

In an inherited cancer setting, this highly sophisticated practice raises complex questions and moral dilemmas aside from answering them. Arthur Caplan aptly says, "No one wants someone snooping into his DNA." Testing positive for an inherited cancer may feel like the proverbial sword of Damocles hanging on one's head forever. The fear of suffering from it in the future is enormous. The anxiety of having passed on or passing on those genes to the next generation, crippling. "One has to be mature and capable of handling such knowledge. We do not test below 18 years. In pedigree charts we make here, we know families have been destroyed by cancers without their knowing why. So we counsel those above 18 and drive our point home. But there is no question of coercing or hustling into testing. We leave it to them to decide. That's the practice we scrupulously follow here," says the doctor, bringing sensitivity to good science in his work.

People facing challenges of genome health have no ready answers. They may opt out of testing or refuse to screen. The diagnosis may come too late as a result. But there are reasons – what if this knowledge goes out? A man might lose his job, a father would find it difficult to get his daughter married, a woman could be ostracised for destroying the gene pool....

"There is a cost-benefit analysis to be done," explains Dr Mehta. "All cancers occur because of mutations. But only about 5-10 per cent of cancers are inherited as in the case of Mr Purohit. Finding out the nature of this inheritance and testing for the same pattern in first-degree relatives can prevent cancer in them, or help reduce the risk of cancer, giving them an almost normal life span. I wouldn't leave it to the good offices of destiny. Nature is more consequential than nurture even if the latter is significant. Knowing one has a predisposing gene can also prepare a person to live with some caution, stay in follow up and continue to lead a productive life."

When the codes of life are altered. silenced, or made to work overtime, the body begins to make cancer cells, says the man who is at the helm of the most advanced molecular biology lab in the country. He feels fortunate that their lab is the torch to shine the light on damaged codes of life and their reparation. "The buck stops with us. We are right 99.9 per cent of the time. But this is a biological science, and the biggest failure is to be dogmatic. We encourage the patient to get the tissue examined elsewhere if that's what they want. I am proud we have been able to create and pass on this culture in our institute."

Mr. Purohit is all admiration for his pathologist and the team. "I am physically and mentally fine. I owe my life to this institute," he says with emotion. "I was immensely lucky that my disease was caught so early... it could have been otherwise. I stay in follow-up and have shared my reports with my family, including my children. In my professional capacity, I recommend genomic testing to other people too."

He should know. Waters are the least deep in the shallow end of pools. Gene pools included.

THE DEPARTMENT OF PATHOLOGY

The Department Of Pathology came into existence in July 1996 under the guidance of Dr RN Verma with five sections and six technicians. From five samples run on semi-automatic machines a day to more than 1000 samples a day analysed on state-of-the-art machines, the laboratory has steadily come to a level where it has at its disposal the latest medical technology, information, precision medicine. Going beyond, Artificial Intelligence has become an integral part of lab medicine. The growth and learning curve of lab services has been a complex one. Growing somewhat slowly in the initial phase to a phase of improved and honed skills, the lab has been on a high trajectory path of proficiency and efficiency over the last 10 years.



Adhering to the spirit of multimodal practice at RGCIRC, the laboratory offers complete diagnostic and theranostic (combining the terms diagnostics and therapeutics) services, including molecular testing. We work, so we err. But the motto of the lab has been accuracy, effectiveness, vigilance and precision and we aim to make the lab a 'Lean' Lab, and a beacon of hope, reliability and trust.

"Without pathology, the practice of medicine would be reduced to myth and folklore," goes the saying. That is, indeed, true. The lab intends to walk hand in hand with the other departments of the institute as it continues to fulfil its responsibility to the community.



Gods of Small Things

You've got to go out on a limb sometimes, because that's where the fruit is.

- WILL ROGERS, AMERICAN FILM ACTOR

The automation engineer is, to say the least, driven.

When she is not jettisoning defects and errors in software development sitting in Canada, she is a bungee jumping, skydiving, dancing and driving. Fifteen years ago, however, all she wanted to do was to become a doctor like her doctor.

"Dr Gauri Kapoor was my inspiration. She is the reason why I am here, doing all that I am," says 28 year old Nikita Goel, grateful, wistful and happy all at once.



Fifteen years ago, a biopsy at All India Institute of Medical Sciences confirmed a tumour in her knee that had been hurting for a while. It was unusual, the pain. She was in Class 9, just setting foot into her teens. The report put her on a detour; she and her parents found themselves in the Department of Paediatric Oncology at RGCIRC. Dr Gauri Kapoor, now Director of Paediatric Haematology, looked at Nikita's report and informed them that she had localised tumour of the Right Fibula, called Osteosarcoma.

Simply put, it was a tumour of the bone – the kind that is common in teenagers and young adults. The treatment, though, was not quite common. Not then.

"No one was curing this kind of cancer around 2005 when Nikita came to us. We were among the few centres at the time to offer comprehensive cancer treatment in which we were doing limb salvage surgeries. Adolescents, teens and young adults have sarcomas of the bone, a disease of growing years. It becomes very vital that we save the limb – one that is functional too," says Dr Kapoor.

"When I first heard about cancer, all I heard was a death-knell. We didn't know that it could be cured, or about stages of the disease. It was all so new to us. My first thought was – maybe that's the end of the road for me," recalls Nikita.

The road, however, was just beginning. It was one less travelled for the young patient, but oft-walked on by her doctors. RGCIRC was - is - well known for doing a lot of limb salvage work in orthopaedic surgery.

The disease had been diagnosed early. As part of the universal cancercare protocol, Nikita's case was first referred to the surgeon Dr AK Dewan who, upon examining the case, sent her to the Department of Paediatric Oncology. Surgery would yield the best results - but after three rounds of chemotherapy, he said.

Timing and sequence were of the essence.

Three rounds of chemotherapy would reduce the tumour to a resistant. mutant stump – albeit one that could grow and spread again. The surgeon's benign knife would excise the malignant portion and put her back on her feet - completely cured. It was critical, though, that the leg be operated during the most favourable window between chemotherapy and surgery so as to not lose out on the benefits of the former.

"I have seen some children who have come here after surgery and have had to undergo up to 25-30 sessions of chemotherapy. I was lucky. I had the best oncologist and the best surgeon under the same roof. I am sure they would have met several times to discuss my case, especially because they belonged to the same hospital and have

Facing page: Well equipped with toys and games for various ages of children, cheerful visual distractions animate the walls of the Paediatric OPD. As a policy, the department tries to do maximum possible work through OPD and day care rather than hospitalisation so that the child gets to spend the most time with her family.

Below: Nikita Goel gets ready for a run.



a Tumour Board to discuss cases like mine. They knew my life depended on them."

"Children like Nikita need more than a paediatric oncologist. They need multi-disciplinary care. At our centre, we have a dedicated team for musculo-skeletal tumours that includes paediatric oncologists, surgeons, orthopaedic surgeons and support services with physiotherapists. We talk to all of them – even dieticians and counsellors. Such is the nature of our work. As paediatric oncologists we are famous for talking and communicating with all members of our team a lot," smiled Dr Kapoor.

It is only right that they do, because the doctor here becomes the god of many small things – small things that make a big difference. Most childhood cancers are curable and she knows her patients have decades awaiting them. For that very reason, she must ensure that her patients get the best quality of life that is humanly possible. If that means talking to different stakeholders – the child, mother and father – all to be handled differently, she does that. She is empathetic without letting emotion cloud good judgement. "Empathy and clarity are very important. We understood the concerns of Nikita's parents but we told them that surgery was imperative for a curative outcome. Having said that, the most important part of the process is to hear them, to recognise their fears and reassure them. And

give them time to absorb and adapt. We cannot hurry them up," says Dr Kapoor.

"Dr Gauri kept nothing from me. I knew I would feel sick, lose hair and get fever as I went through chemotherapy. When my parents called her in an emergency, she would say 'bring her to me' and would tell us exactly what was going on with me just by looking at me. Sometimes, when I look back I think she may have even known my platelet count even before getting my blood reports," Nikita laughs. "She, I think, had this instinct... she knew what I wanted, more than my parents did. And yes, she could be tough... lovingly tough.

"We know that most childhood cancers are curable – that helps us to stay optimistic," says Dr Kapoor. "We tell our young patients it is like preparing for an exam. They may not sleep too well, or eat too well during the exam. They may not be able to party or watch television. Similarly, with chemotherapy. The side-effects are similar. They are temporary and they too shall pass."

What scared Nikita was surgery. It worried her parents too.

It wasn't easy to accept a limb that the surgeon would rid of the tumour but along with it also remove the involved nerve wrapped around it. It meant she would get a foot drop where she would end up involuntarily dragging the toes of the affected foot.



She listens to their heart: Dr Gauri Kapoor, Director of Paediatric Haemtology and Oncology, examining one of her young patients.

The Department of Paediatrics also runs the **Obesity Intervention Project** for paediatric cancer survivors, many of whom may be predisposed to obesity, cardiac and pulmonary complications, hypertension, diabetes and other metabolic disorders – all of which are preventable. The Project involves physiotherapy, counselling and dietary interventions for the children who are given exercise and diet charts, weekly messages and follow-ups to see if these are being followed.

The Department of Physiotherapy and Oncorehabilitation provides

restorative services to cancer patients during all stages of treatment. Surgery, chemo or radiation, each modality may have lasting effects on physical and cognitive functions resulting in impaired functional ability. *Clinically effective therapeutic* modules are implemented to take care of the special needs of cancer patients. They include physical therapy and exercises to restore strength, movement and function to enable speedy recovery. Patient education forms an integral part of delivering medical care, through individual sessions and teaching materials.

"But Dr Dewan explained to me that it was most important to get rid of the tumour to obviate the possibility of a relapse. I could get a corrective surgery later, which I did a decade after the tumour was removed. I had to take it one step at a time. This step had to be surgery so I could bid the cancer bye forever."

Dr Dewan and the orthopaedic surgeon jointly operated on Nikita's leg. But for the little limp because the tumour was right there, her limb was conserved and Nikita went through the remaining four sessions of chemotherapy post-op. "Unlike some other centres, RGCIRC doesn't see the tumour in isolation. a disease to be cured and be done. It is a small human being we have on hands, and she is more than her disease. She also has emotional, educational and nutritional needs. Our large team of paediatric cancer consultants, Fellows, nurses, play therapists and counsellors focus on giving her the necessary ambience and attention."

It took all of five months for her to be free of the disease. Not enough, said her doctor.

"The relationship between a childhood cancer survivor and her treating paediatric oncologist is a very special one: we cherish it and hold close to our heart. We understand that no survivor wants to come back to the hospital after therapy. There are acute issues to deal with when the child is with us on active treatment. But there are late side effects too of cancer that manifest any time between a few years and a few decades – a second malignancy, musculoskeletal issues, cardiac and pulmonary complications, sometimes hepatitis. Paediatric survivors, more than adults, must stay alert to their impact. In 2014, we founded the After Completion of Therapy Clinic – ACT. The aim, however, was not to have another OPD card in our box. It was to ensure our survivors remain engaged with us and we don't lose them to follow-up so as to give them good quality of life after cancer."

The best way was to enlist the support of Nikita and other young people like her as givers of hope and testimonials of triumph. Celebrating Life was the outcome of this thought. "I was asked





what I wanted to do after my second surgery. I didn't want to merely walk. I wanted to dance. And I did in 2017, along with others, on the stage of Celebrating Life, an event organised by RGCIRC. We danced especially for Gauri mam and she liked it very much," says Nikita. Celebrating Life has been, since the first time it started in 2014, a regular initiative of ACT where survivors come together and exchange notes. "As our youthful survivors walk the ramp or dance and sing, we also slip in, in a fun, cultural milieu, preventive healthcare tests for them – lipid, liver, thyroid etc. It is important that we make them responsible for their health," smiles the paediatric oncologist who, to a lot of her patients like Nikita, is synonymous with RGCIRC.

A few years ago, Nikita was asked by the counsellors at the department to speak to a boy with the disease. He was worried he wouldn't be able to join the army. "I knew how frightening the prospect of future physical disability could be. But I told him not to worry about the future, and that Dr Gauri Kapoor would do





her best for him." Like she and her team of committed men and women did for Nikita. It is 15 years plus since Nikita came to RGCIRC in September 2005 – 10 years more than what oncologists refer to as the five-year survival rate that helps in a more accurate determination of the outlook for cancer. She has bid adieu to the disease. But the hospital continues to be her mascot. Her mother has followed her to RGCIRC for her own treatment and is already on her way to recovery.

But that's another story – of trust by one, and of measuring up by the other.

Nikita, post-treatment: travelling, hiking and skydiving, and (below): with Dr Gauri Kapoor and other young cancer fighters at an ACT event.







Thank you so much for the difference you both make in the lives of your patients! Your kindness, sincere caring, & concern make everything better and are a great encouragement.""Thank you so very much for taking care of me and being so skilled at what you do. Every day of my life will be better because of you. You both gave me second life Nd thank you is just a small word. You both are More than my family Thank you so much for being extra careful about my health condition and general wellbeing. Throughout my treatment,I had no doubt I was in competent and caring hands. You both are truly the best!

-MOST NOTORIOUS PATIENT AAGAM JAIN 2K20

THE DEPARTMENT OF PAEDIATRIC HAEMATOLOGY AND ONCOLOGY

This department was established in 1998, in recognition of the special needs of children with cancer. A five inpatient bedded department to begin with, it now has a dedicated in-patient area with 20 beds, an exclusive paediatric OPD with seven day-care beds manned by a team of doctors and nurses with specialised training in Paediatric Haematology Oncology. The department offers comprehensive oncology care to all children and adolescents up to 18 years, and has treated more than 8000 patients with all types of haematological and solid organ malignancies. The team comprises experienced paediatric oncologists, haematologist, paediatric onco surgeon, and radiation oncologist, besides paediatric



oncology Fellows. Competent and well-trained nurses along with a child counsellor and playroom teacher ensure holistic care to each patient in a child-friendly environment. A survivorship clinic was established in 2016 exclusively for the care of childhood cancer survivors. The National Board of Examinations Accredited Fellowship Programme was established in 2007 and 15 post-doctorates have successfully completed their training. State-of-the-art-therapy, cutting-edge technology, advanced international protocols and presence of a dedicated team of experts have made this department one of the leading centres in the country for childhood cancers.

MEDICAL ONCOLOGY: CLINICAL TRIALS

Even the severed branch grows again, and the sunken moon returns: wise men who ponder this are not troubled in adversity.

- Bhartrihari, 5th century Hindu king, poet and philosopher

October 1, 2019. It was only a few days short of Diwali when people would celebrate the end of a divine ordeal and the vanquishing of darkness.

A human trial had also ended that day. Nor was it without its triumph. In spite of loss, however, life had won as it eternally does.

Mrs Chanchal Sachdeva, 49, a former Ms Delhi, bid adieu to her family of three and the larger extended one at RGCIRC. "If I die," she told her daughter Charu, "I will die in this hospital. I don't want to go home anymore. Have me speak to Dr Doval," recalls Dr Charu Sachdeva, now Deputy Manager Operations and Co-Convenor, Institutional Review Board, with the institute. "Are you sure you want this, Dr Doval asked us, and I nodded. We did not want to prolong her pain and requested for DND (do not defibrillate) and DNR (do not resuscitate) which would allow my mother to go smoothly. She thanked our doctor for all that he had done for her and for us... closed her eyes and slept. And we lost her."

Seven years ago in 2013, a mammogram revealed it to the family. Chanchal Sachdeva had cancer of the left breast which was localised to the breast and lymph nodes in



the left armpit. As they waited for a consultant in one of the country's most eminent cancer centres in Bombay to speak with, they decided they would return home to Delhi, and to RGCIRC, where Mrs Sachdeva underwent breast conservation surgery.

The pathology was suggestive of Grade III tumour. Twenty-four of the 27 lymph nodes were positive. That meant the disease had declared its intent to travel and transit rapidly from one point to another. "It was a Triple Positive (ER + PR + and HER2Neu 3+), a particularly aggressive type of breast cancer that tends to grow and spread relatively faster and requires additional therapy," Dr DC Doval, Chair, Medical Oncology, and one of the most trusted men at the institute, begins piecing together a story that was a trial in more ways than one.

He was a picture of simplicity and serenity, remembers Dr Charu. "I was young, in medical school when I first met him. We went to him with all our scans. He was very kind and knew how to treat his patients."

He also knew that clinical skill alone wasn't enough. Effective communication had to be in attendance as much as fostering of faith in his patient.

As she battled with her questions, Dr Doval started Mrs Sachdeva on TCH – therapy that combined two chemo drugs Taxotere and Carboplatin with Herceptin (a targetted monoclonal antibody towards HER2 Neu). TCH was adjuvant or add-on therapy given after the primary treatment for the micro metastatic disease, effective against tumours that result from overexpression of the HER2 Neu protein. This was May of 2013, and the first line of treatment for breast cancer as per guidelines of the National Comprehensive Cancer Network (NCCN).

Round one went to Mrs Sachdeva. A year later in October 2015, however, the disease came back knocking at her door – this time even more fiercely. She developed lymph nodes in the neck. The biopsy report retold the earlier story: ER +ve, PR +ve and HER2Neu 3+. The previous combination of chemotherapy and targetted therapy had won the day for her, but the win had been short-lived. The doctor and his team had to go back to the dart board and look for a new line to score over their unyielding opponent.

A clinical trial, helmed by Dr Doval at RGCIRC, was researching the effects of Pertuzumab (Perjeta) – yet another HER2 targetted antibody developed by Roche. The trial, using Pertuzumab in combination with Herceptin and chemotherapy, was recruiting patients. Mrs Sachdeva was an ideal candidate for the trial, Protocol 29282, a phase 4 study of the combination as first line of treatment for Indian patients with HER2 positive advanced



metastatic or locally recurrent breast cancer.

Perjeta would complement Herceptin in targeting different areas of cancer cells with overexpression of HER2Neu protein. These together with Taxotere (Docetaxel), the chemotherapy drug, would likely stop the growth of cancer.

It took the family some time to decide if they wanted to go into the trial. They were at a crossroads for reasons not difficult to understand. Dr Doval

helped them with the risk-benefit analysis. He told them Perjeta was a very potent drug and gave them the confidence that it was likely to stop further spread when given in combination with Herceptin. Eventually they let their clinician guide their hand and Mrs Sachdeva began her trial with the combination of chemotherapy and two targetted therapies. Her disease regressed after three cycles. She responded to the THP regimen for a year and a half, which has since become the gold standard for treating such patients. Her PET scans and other reports were without blemish. The trial, in which Dr Doval had enrolled seven more patients, felt like it was over in more ways than one.

PROTOCOL 2928

But cancer is one of those visitors – far from ideal, and refusing to stay home. It returned in 2017. When Mrs Sachdeva found out, her choices were limited. She had to return to the standard, approved chemotherapy drugs every week to three weeks.

The disease galloped and the treatment never stopped until it was

time to ring down the curtain. "Our satisfaction was that we had been able to buy two very good years for her, a smooth recovery and had received great support from our clinician. The research drug had proved its worth. But her trial ended in 2019," says the daughter, not without emotion.

"We did the best we could for Mrs Sachdeva, dual targeting the HER2Neu receptor with Herceptin and Perjeta. The therapy before and during the trial kept her disease-free till March 2017, gave her quality life and prolonged it by five to six years though her nodal disease was high (24/27 lymph nodes were positive) at the time of diagnosis, which signals bad prognosis and poor survival. As a clinician, one really enjoys seeing the patient benefitting from a trial. Unfortunately it isn't always 100 per cent. We wish we could cure each one. But it is humanly not possible," says the torchbearer of many drug trials at RGCIRC.

Quietly, then, the doctor and his team did what was humanly possible to make the journey less agonising, a

little softer for Mrs Sachdeva and her family... a journey that could, but for the oncologist's support, have been daunting for both. When the loved one is in pain, bedridden, may not be able to walk or is confused, and her road to decline is the lone path left, the doctor is the sun one turns to so that the shadows fall behind.

"We were very clear about the research methodology during the entire course of the trial. Dr Doval is very conscious of his methods and gives his best to his patient. We could place all our uncertainties and our fears before the clinical team. And they were always available to us. The entire team – Dr Pankaj, Dr Kumardeep Dutta, Dr Chaturbhuj Agarwal – functioned as one unit to take care of her. They even made an exception in sharing their personal phone numbers with me and were always just a call away in case of an emergency," recalls Dr Charu, with gratitude.

"As doctors, our aim is to give the patient the best treatment to relieve symptoms. If that happens, we endeavour to give them prolonged,

good quality of life. For instance, we are giving the same treatment to a patient from Varanasi, five years after the closure of the trial. She is being treated under the post-trial access programme and her disease is well in control," informs Dr Doval.

"A patient in a clinical trial, as was Mrs Sachdeva, gets additional care and attention," he continues. "We are far more involved because every such patient is our responsibility in many ways. The entire financial burden including the drugs and investigations is borne by the sponsor. All the effects of the trial therapy need to be taken care of and immediately reported. All such data in a trial, and related matter, are meticulously maintained at RGCIRC."

The final two years sent Mrs Sachdeva to the ICU multiple times. The disease had, by now, invaded the lungs and she found it difficult to breathe and eat. And each time, then in charge of the Medical ICU Dr Nitin Garg would see to it that she was well enough to walk out on her own feet and that she, who had once sashayed the ramp, could finally walk out with grace. "She passed away in the ICU. The staff is excellent there. The ICU Incharge was not our consultant. But he went out of his way for her. I know from some experience that doctors elsewhere do not take the kind of trouble that doctors here do. The fraternity in this hospital is special. They do what they can for their patients. But eventually time runs out," says Dr Charu.



Dr DC Doval. Chair Medical Oncology and Chief of Breast & Thoracic Services, pioneered the ìrst Phase 1 study in oncology in more than 60 international and national studies and taken up anti-cancer drug development.



Dear Ir. Drud, Thankyou & your trang always supporting helping ye during my Yer's indeed an angel in senses.

One of the several missives that Mrs Sachdeva wrote to Dr Doval on Doctor's Day to express her gratitude.

When it did, the family let her move on with more ease. She wanted to go with dignity, in freedom, and not at the mercy of cancer. She did. The story that had started on October 1, 2012 ended on October 1, 2019.

Or did it?

The Perjeta trial was conducted worldwide at multiple centres, RGCIRC being one of them. It also helped many patients with controlling the disease.

"Innovation comes, to a large extent, only from these trials for they bring new and potentially lifesaving treatments to more patients with several types of cancer," says Dr Doval."Today, THP and TCHP are the regimes using dual HER2 targeting. Mrs Sachdeva was given this treatment as palliative therapy because she had already undergone surgery and chemotherapy plus Herceptin. These – dual HER2 targetted combinations – are best used in neo-adjuvant settings since they destroy the tumour in up to 60-70 per cent cases and get the maximum clinical and pathological response" Dr Doval says. The treatment regimens can also be used for patients with metastatic disease.

That may not have been possible unless Mrs Sachdeva and many like her had the courage and scientific temperament to go into a trial. A trial turning into standard of care marks the success of that trial. RGCIRC is, today, one of the premier cancer institutes as far as clinical research and trials are concerned – and this is already expanding. Drug companies who sponsor the trials look for dedicated Principal Investigators, and accurate and timely data which the institute has no dearth of because of the vast array of cases it deals with. More doctors have joined Dr Doval, now focussed on breast cancer.

"It never stops here, Dr Doval said to me the day we lost her," recalls Dr Charu. "Here was a man I had fought with on several occasions, sought guarantees from in writing that my mother will live through it. I would go to him with a lot of science in my head. But he would show me the practical side. That day, he said I would come back to the institute, in a different capacity. Every end is a beginning, he said holding my hand. Those words empowered me to return to the very place I was petrified of ever visiting again."

The cancer wasn't genetic, but her courage and resolution were. A year later, Dr Charu Sachdeva joined the institute and is now part of the clinical trials team.

THE CLINICAL RESEARCH CENTRE

The Clinical Research Centre at RGCIRC was established in 1997 by Dr DC Doval. All treatment units, including medical, surgical, radiation, haemato and paediatric haemato-oncology now actively participate in clinical trials to provide affordable oncological care of international standards and help eliminate cancer from India. In year 2019, the Institute established a Central Clinical Trial Unit to further strengthen its commitment and focus on clinical research. From executing the first Phase 1 oncology study in India by Dr Doval, to participating in multiple clinical trials, RGCIRC has been the flag-bearer in testing and developing newer cancer treatments, be it in chemotherapy, target drugs or immunotherapy. It has also played a pivotal role in developing indigenous biosimilar molecules in India by participating in different efficacy and safety studies. RGCIRC is now recognised as an important and preferred clinical trial site by many leading cancer treatment development agencies in the world, both from the academic world and pharmaceutical sector. The Centre has participated in more than 250 national and international clinical trials for all kinds of cancer. High quality trials have been possible because of the collaborative intellectual and technical competence of its representatives, best in class infrastructure, work ethics and most diligent patient care.

Robot Corps

Before having a surgery, make sure everything is okay with your affairs on earth. You might survive. - Ambrose Bierce

He was no more a victim, but a victor. The battle against cancer had been won, and the aggressor had been pushed out. His scans were clean, his surgeon told him. Ninety-five per cent of the cancer was gone. The loquacious general, who with his easy manner had inspired the usually grave surgeon to be at ease, asked in turn: why 95 per cent then? Are you putting the 5 per cent in your pocket?

Medical Director and Chief of Uro-Gynae Surgical Oncology at RGCIRC Dr Sudhir Rawal, who brought the robot's flailing arms to life during a 10-hour surgery on his patient said: *General Sahib, kuch to bhagwan ke pocket mein chhod deejiye.*

Dr Amitabh Singh, Consultant, Dept. of Genito-Uro Oncology, is one of the emerging specialists practising only uro-oncology. Commissioned in his teens and an officer in 1965, Aditya Jung Bahadur Jaini's passion for frontline soldiering got him one of the finest regiments in the Indian Army - the Grenadiers, Infantry. In forty years of fighting at the border, in jungles and deserts, he led from the front hollering at his troops to 'Follow me' before hanging up his boots in 2003 as senior directing staff at the National Defence College on Tees January Marg, New Delhi.

Little had the veteran of many a war imagined that there was yet another battle waiting to be fought. And this time he would have to follow.

Over a decade after he retired, General Jaini found he had cancer of the bladder. The disease had been lurking in the corners for over a year but he had paid little heed.

"I saw thin streaks of blood going past the urine but I was not conscious of it. I don't drink much water – there are better things I believe in this world to be drunk. I thought that could be a reason," he laughs. Those streaks were non-specific but among the more common symptoms of bladder cancer. Put on ignore, small tumours became multi-grade tumours. "At the Army Research and Referral Hospital (R&R) the surgeon entered the bladder to do the TURBT - trans-urethral resection of bladder tumour – and found it pitted with many small lesions. The biopsy report sent my head hitting against the wall."

The TURBT, used both as biopsy and treatment in low-grade lesions performed endoscopically, is a bladder-sparing process of diagnosing, staging and removal of bladder tumours. But it is effective when the tumour hasn't invaded the deepseated bladder muscle from where it is likely to spread to other parts of the body.

The general's biopsy had, however, revealed otherwise.

He had muscle-invasive bladder cancer, albeit in an early stage and still confined to the bladder. Removing the tumours was possible. But the extent of the disease was high. It was likely to spread beyond if it infiltrated the organ muscle, or could re-occur. That made it highrisk. General Jaini needed more than An animated Gen Aditya Jung Bahadur Jaini who graciously dons his pride for a photo - the headgear with the golden brass badge worn only by the Grenadiers of the Indian Army.



Currently MD, and Chief of GenitoUro Oncology Services Dr (Prof) Sudhir Rawal performing a robot-assisted minimally invasive surgery.

Facing page : The robotic surgical suite in operation. The Robotic Da Vinci system is being extensively used for urological and gynaecological surgery, radical prostatectomy and radical cystectomy among others. TURBT. He needed radical cystectomy, or surgical removal of the bladder, R&R told him.

The general marched from pillar to post looking for treatment options. "I had been as fit as a fiddle. Suddenly, my life looked like it had been hit by a bomb. I was referred to a surgeon who seemed more interested in his lakhs than listening to me. As we searched on what to do next, my daughter came to the rescue. A senior scientist working in oncology at Cleveland, Ohio, she called to say 'if it is cystectomy, then it is Dr Sudhir Rawal.' Dr Rawal at RGCIRC had 2000odd uro-genital surgeries under his belt and was doing some outstanding work. That clinched it for us," General Jaini recounts.

Over the phone, he was told he would have to wait 15 days before he could

get an appointment with Dr Rawal, perhaps the busiest robotic surgeon in the country. A few hours later, the surgeon called back the pleasantly surprised general and asked to see him. Upon knowing that he and his wife would be coming from Ghaziabad, Dr Rawal offered to meet at an hour convenient to them."This was someone for whom people waited. And here was I who had been called by him. That one call from him gave me the much-needed comfort. I believe I was just very lucky to have gone to RGCIRC. Else, I wouldn't have been here recounting my story."

In what was a serious chat with the surgeon, the soldier for once had to stop in his tracks. Dr Rawal would have to do the TURBT again to confirm the next steps. In the absence of a recording of the earlier procedure which would have made the TURBT report less surgeon-dependent and more objective, a repeat would be necessary.

"The TURBT tells us if the cancer is muscle invasive or not. If it isn't, we have medicines that follow the procedure to prevent recurrence. But General Jaini came to us with R&R recommending cystectomy. Many centres offer TURBT but patients come to RGCIRC when they are advised this procedure," says the ace surgeon with over three decades of experience in his domain.

Dr Rawal discussed with his patient post-TURBT options such as BCG -







Far left: Dr Sudhir Rawal, the first Uro Gynae surgical oncologist in North India with more than three decades of experience in Genito Urinary Oncosurgery.

Left: General Jaini shows who's the boss when it comes to winning the battle against cancer.

bacillus Calmette-Guerin, in which the medicine is injected directly into the bladder to kill the cancer. However, BCG was accepted as more effective in younger patients with stage 1 disease but had unpleasant side effects. "It was a long-winded route too. Couldn't I get a quicker shot? Bladder removal, Dr Rawal said, would be that shot. Well, if I had to climb Kargil by the rocky side, I would take the cliff, I said," recalls the feisty 71-year-old.

The climb was going to be tough. But the view seemed to be worth it. Apprehension gave way to confidence in the first few days of interaction with the surgeon and his team. "Once into the battle, I fought it like a soldier. RGCIRC was not an ECHSempanelled hospital. But my family wouldn't hear of any such reason. Once there, all fear went away. I knew I was under the best umbrella over my head. Even when I was being wheeled in to the OT for afour to five hour surgery, I knew I was safe and that I'd be back soon."

A cliff indeed it was that the general had taken. Along with his bladder, some other uro-genital organs were also removed to preclude a relapse during the Robotic Radical Cystoprostectomy with Ileal Conduit. Admitted on 27th November 2015 and operated two days later, the general was out of the hospital on 6th December chiefly because of the robotic alternative.

"We did a robot-assisted minimally

invasive surgery to treat General Jaini's disease. Its unique advantage is that it aids minimal blood loss and eliminates the need for transfusions, apart from offering quicker recovery and shortened hospital stay.

"In such cases, we need to involve the patient as well in the process of decision making. The robotic arm removes the bladder etc and we construct an alternative means of expelling urine, a urinary diversion or stoma, through an opening on the abdomen. General Jaini was ready for it. Since he slept mostly on his left, we gave our patient a left-sided stoma for the first time which we normally make on the right given the way the intestines fall. This small pouch is given outside the body from where urine flowing from the kidneys is collected and emptied every four to five hours. It can be attached via a tube to another bag so that the patient doesn't have to get up at night to empty it," Dr Rawal makes a rather complex procedure sound simple.

"It is simple and safe... once you get used to it," the general corroborates. "I have help to change the urine bag once in five to six days depending on my level of activity. But I can also do it independently if I am travelling or in an emergency. I have to keep it away from bruises and infection because it is a living thing, a second heart as it were. However, I despaired to begin with. While there were no restrictions on food, there were some on travel for instance. I couldn't go out for more

than four days or to a place where I had no help to change the bag. I still carry a trunk-load when I visit my daughter in the USA. It has a recurring expense but RGCIRC facilitates me with my quarterly stocks."

Other than that, he misses his jogs. "I would run 5-10 km every day like a barasingha (swamp deer). Now I stroll like a lion. There is a cost one pays to live. I am living because of this stoma five years after the surgery. I have learnt to bend my life around it. Jaan hai to jahan hai, varna oopar to hamesha jagah rahti hai," he chuckles to himself.

"Several hospitals, including R&R offer cystectomy. But a procedure such as this isn't just about doing it: it is important how it is done," says Dr Amitabh Singh, Dr Rawal's associate on the surgery and the man who did the reconstruction post cystectomy. "Radical Cystectomy is a complex surgical procedure, best done at a high-volume hospital for better outcomes. For instance, one of the most important indices of its fineness and precision is the number of lymph nodes resected during the surgery. Scientific papers recommend removal of 12 to 14 lymph nodes. But we see several patients who have had only four to five lymph nodes isolated during resection, thereby leaving enough room for recurrence."

The jury may be out on whether all high volume centres guarantee quality in terms of outcomes. But the care of a centre where its surgeon deals with cancer every moment of the day cannot end at a quality procedure. It does not.

"A lot of things at the hospital touched me. I could fill an entire book with those events. I was barely out of the ICU when my anaesthesiologist came to congratulate me. A solemn young lady, her thoroughness during the pre-anaesthetic check (PAC) was remarkable. 'I have to keep you bubbling on the table for those long hours,' she said to me. I rejoined saying I wouldn't fail her. In post-op care, I felt the hospital was almost overstaffed," he jests. "Nurses, ward boys and what have you, would come every half an hour to check. The food was delicious. I had the best khichadi there. I remember once the dietician coming over saying my plate was returned untouched. It meant someone was watching."

As a comprehensive cancer care centre - it isn't just surgery, medicine and radiation that is done here, says Dr Rawal, also Medical Director of the institute. "Our job is as much to counsel, and to provide emotional support. I called back General Jaini, but most of our consultants do that. We give a lot of time to our patients. We are with them in post-op, in rehab, the stoma clinic... supporting them as best as we can during their cancer journey."

General Jaini vouches for it and for all those who closed ranks during his stiff climb to the top. Apart from the doctors and nurses, he remembers gratefully and by name everyone in accounts, billing and OPD dispensary."They are family. And there is Anju, Dr Rawal's assistant, who is my one-stop shop. I call her even now when I need my stock of bags etc. She organises it neatly for me and my 'jokers' in the dispensary have it sent to me the very next day."

Now a mascot for radical cystectomy, the general is something of a counsellor to a nervous patient who Dr Rawal recommends must take heart from the former. "He comes for regular follow-up and is disease free after five years. Fortunately, he came to us in the early stage of the disease. Many patients reject a surgery that involves a urinary diversion, and return to us with metastasis. But this procedure is not very commonly performed in India, partly because patients come to us very late and also because the idea of a stoma is unappealing to many. For them, we have other options such as the Pitcher's Pot Ileal Neo-bladder, which is another kind of urinary diversion."

"I tell people if you are going to die, you will die anyway. RGCIRC will not kill you. I can also say that the world may not have found a cure for cancer, but this disease is curable. And if it isn't, it is endurable. I was careless. That one should not be. The moment one knows about the disease, just put 95 per cent of the trust in a Dr Rawal, in an RGCIRC.

"Then put the remainder 5 per cent in god's pocket."

The Pitcher's Pot Ileal Neobladder was innovated in 2004 by Dr Rawal at RGCIRC. Another kind of reconstructed urinary diversion, it is being frequently used by surgeons in younger people who are physiologically more equipped to deal with short-term fallouts such as incontinence. Where most citations come from the USA or *Europe, it is the first urinary* diversion to be referenced from India. The users are split half way between neo-bladder and stoma, but Dr Rawal recommends the latter in patients above 70 or those with advanced disease.



The Prayer Room at RGCIRC.





GCIRC tops the list in doing the maximum number of cystectomies not only in India but in all of South-East Asia. However, the institute leads the world in Robotic RPNLD (Removal of Retroperitoneal Lymph Nodes) post chemotherapy to treat testicular cancer in young people and Robotic Video Endoscopic Inguinal Lymphadenectomy (VEIL) for penile cancer. Dr Rawal brought Robotics to RGCIRC in 2011. Currently, RGCIRC has been doing robotic surgeries of the bladder, prostate, kidney, VEIL and RPNLD. Pre-pandemic, the sub-specialty was doing 38-40 of around 50 robotic surgeries done every month. Envisaging both Gynae and GI to do more robotic surgery, he has facilitated surgeons to train abroad in Breast, Head and Neck and Thoracic sub-specialties as well. Robotic surgery is minimally invasive entailing a small incision, less blood loss and pain, and early recovery. "We are a step behind Memorial Sloan Kettering and MD Anderson which have organ-wise focus," says the ace surgeon, with special interest in robotics. Barring the Tata Memorial Hospital, Mumbai, not many hospitals in India are doing the kind of work RGCIRC is doing in surgical oncology. It has two surgical teams each for departments of head and neck cancers, gynaecology, reconstructive, neuro and breast surgeries. Compared to the 500-bedded Tata Memorial Hosital, RGCIRC with 250-300 beds is doing an equal number of surgeries every year. Adding more consultants in the domain of breast is on the anvil. As far as organ-wise focus in uro-surgical oncology goes, Dr Rawal hopes to catch up in the next five to ten years.

G ynae-oncology services have always been an important, dynamic division of Surgical Oncology at RGCIRC. Since the inception of the institute, it has evolved as a progressive branch. It started with two gynaecologists, and currently has a team of six. The department is a pioneer in treating a spectrum of disease, from pre-invasive lesions to invasive malignancies of the vulva, vagina, cervix, uterus, ovary, fallopian tubes and primary peritoneal cancers. From counselling to palliative care, it has grown into a holistic cancer care service well experienced in treating cancers in complex as well as recurrent settings.

The department holds a premier position in having organised colposcopy workshops for pre-invasive lesions for the first time in the private sector. Technology advances from the conventional Pap smear to liquid based cytology (LBC) have enabled increasing the sensitivity of the team for early pick up of pre-invasive and invasive lesions of the cervix.

The department took a giant leap in surgery with the inception of the Da Vinci Robotic System in 2011. Its surgeons were sent to the USA for training in robotic surgery. Since then the largest number of robotic surgeries for gynae cancers have been done at the institute, mainly for endometrial and early cervical cancers. The department also pioneered the Robotic Inguinal Node Dissection in Vulvar Cancer – VEIL. In 2016, it organised one of the largest ever conferences in gynae cancers with over 12 eminent gynae oncologists of international repute participating.

The advent of HIPEC (Heated Intra-Peritoneal Chemotherapy) for ovarian cancer was another first. Currently, the department has to its credit the largest number of HIPECs in North India and is a referral centre for it. Other than doing complex upper abdominal cytoreductive surgeries for ovarian cancer, its surgeons have trained in doing extensive peritoneal dissection widening to mesenteric peritonectomy. The department is the first, and perhaps the only one, in India to have published a paper comparing robotic surgery with open surgery for early cervical cancer, thereby leaving the debate open after LACC trial in 2018. Introducing PIPAC (Pressurised Intraperitoneal Aerosol Chemotherapy) for disseminated and recurrent ovarian cancer makes the centre the first and only in North India to have done so.

With several firsts to their name in the domain of gynae cancers, they are the only research and academic institute with DNB super-specialty course in gynae oncology in Delhi. These advances have comes with the increase in the number of treating gynae oncologist surgeons over time in the expert team. RADIOLOGY AND INTERVENTIONAL ONCOLOGY: TACE AND RFA

Cooking up Cancer



Mostly it is loss that teaches us the worth of things. - ARTHUR SCHOPENHAUER

Hepatocellular Carcinoma. And six months to live.

The Dayanand Medical College & Hospital, Ludhiana, had told him he had cancer of the liver, one of the vital organs in the human body. A CT and report in hand, he was in tears when he met the interventional oncologist at RGCIRC that morning of 2015. He was in his fifties, frightened incoherent and accompanied by a clutch of people from his village. Hepatitis C, a viral infection, had given him the Chronic Liver Disease predisposing him to liver cancer.

The oncologist ordered a few tests, including a repeat CT. There was a lesion on the right lobe of the liver.

"It was liver cancer alright: we did not need a biopsy to prove that kind of cancer," says Dr Arvind Chaturvedi, Chair of the Department of Radiology and Interventional Oncology. "We knew we could do Radio Frequency Ablation – RFA – to treat him. We would do our best. I told him. Many patients with this treatment stood a fair chance. He too did."

Sikander Singh, from Sekhopura of Ludhiana district, had begun to lose weight a few months before he found out he had a 2.5cm lesion on his liver. That winter day would have felt less cold to the simple farmer than the news of impending doom. His doctor told him treatment wouldn't be possible locally. But the corridors of the best government medical institute in Delhi were packed with its teeming thousands and endless waiting queues - and the burden of the disease was too much to carry for Sikander Singh. A reference of another patient of Dr Chaturvedi at PGI, Chandigarh, came to the rescue. "We reached RGCIRC. *Ham bahut stress mein the...* I was crying when I met Dr Chaturvedi. But then he told me I could be treated with RFA."

It was time to melt the winter.

RFA, Radio Frequency Ablation, was part of interventional oncology (IO), a treatment modality being rapidly recognised as the fourth pillar in

cancer care: surgery, radiotherapy and chemotherapy being the three conventional options. Pioneered in India by Dr Arvind Chaturvedi at RGCIRC, the institute had been the first to use this ground-breaking technology, treating 1000 patients thus far.

"RFA is a minimally invasive, nonsurgical liver-targetted therapy that kills the tumour using thermal energy. A relatively new approach, RFA uses an electrode – connected to the RFA machine – which we insert into the cancerous area. Earthing pads are applied on the thighs of the patient which makes him part of an electrical circuit. Electricity flows both ways between the needle and the pads, creating oscillation and friction at the tip of the needle. The resultant heat effects in temperatures soaring up to over 60 degree Celsius, way beyond normal body temperature. This heat kills the cancer cells in that area – be it in the lung, bone, kidney, soft tissue and in this particular case, the liver.

Put simply, we cook the tumour to death without causing any collateral damage to the non-targetted organs," explains Dr Chaturvedi,



who a few years ago developed the path-breaking technique of hydro dissection to optimise RFA to the liver.

Sikander Singh's tumour met with the same fate. Months of agony were burnt up in a few minutes. Done under local anaesthesia, RFA spared him equally of prolonged hospitalisation and blood loss, intrinsic to a conventional surgery, as much as of

the financial: the costs of RFA were four to five times less. The farmer was back home the same day. He put the disease behind him and went back to life as he had lived it. He also forgot that he had to stay in follow-up.

Over a year later in April 2016, Sikander Singh returned with another lesion measuring 4.8cm on a different site. A diseased liver

> Sikander Singh on one of his elf-chosen' follow-ups to the hospital.

Dr AK Chaturvedi, former Medical Director and Chair, Department of Radiology and Interventional Oncology pioneered IO in India. A keen educator, he also directs an international fellowship programme in Oncological Radiology at the institute.

Cancer is no longer a death warrant. Most types of cancers have become a chronic disease, like hypertension and diabetes because of the advances in oncology. For that same reason, it is also no longer a one-time treatment. This has given Interventional Oncology (IO) a huge opportunity to do its bit in containing the disease and prolonging life. was prone to developing cancers at multiple locations, often making them inoperable. With him, as in most such cases, Dr Chaturvedi consulted the liver surgeon as to the best treatment for the patient. The surgeon advised against surgery which was very likely to have its share of complications. A liver-directed therapy would be his best bet, once again.

"We repeated the RFA, this time preceding it with TACE, or transarterial chemo-embolisation," says the oncologist whose expertise in treating liver cancers with RFA and its variant. Microwave Ablation (MWA) is recognised internationally. "TACE delivers chemotherapy right at the doorstep of the tumour into the liver via a catheter. That makes it minimally invasive. Like RFA and MWA, TACE is also an image-guided procedure that treats cancer with the least difficulty and discomfort to the patient. The process blocks off blood supply to the tumour and the chemo confined within the organ kills the cancer, minus the systemic side effects such hair loss, nausea and vomiting."

TACE was a somewhat more aggressive procedure than RFA, but necessary to shrink the tumour to about 3 cm before RFA could be repeated. The latter was most efficacious, even curative, in smallersized tumours. "When Dr Chaturvedi saw my CT scan he asked us to meet Dr Shivendra Singh, the liver surgeon. But I wasn't keen on a surgery. Thankfully, Dr Chaturvedi had other treatments that could be as effective. TACE gave me fever for two days but it had also killed the cancer cells, I was told. After the RFA I returned to my village," says a much and quickly reformed Sikander Singh, who vowed to always heed to his follow-up plan.

TACE was also a more expensive procedure than RFA and MWA because it is done in a state-of-theart oncology cath lab under CT or ultrasound guidance. "Unlike other tertiary care hospitals, we treat cancer, and cancer alone. As the first centre in Asia to harness IO as a treatment modality, RGCIRC has a dedicated cath lab which is not shared by a cardiologist or a gastroenterologist. That allows us to go into the deep-end of the disease, its current status, origins and its prognosis... giving us a 3-D view so to say. This gives us an edge. But we are not in it for profit. That makes some of the difficult procedures more affordable for our patient without us having to compromising on quality," says the former Medical Director who has been with the institute since its inception and a key partner in driving excellence here.

"If we suspect that at least some of the cancer cells are still active, we may also do RF Ablation along with TACE as we did for Sikander Singh so we can clean up the margins of the tumour area. We may do it sequentially: TACE first and then RFA, or vice versa. These are called combination therapies which are sometimes used for better results in somewhat larger lesions."

Subsequently, Sikander Singh's CT scans were clear with no fresh tumours. "He was a disciplined patient, coming for reviews as per schedule. There were however occasions when there was a new cancer at a different site which we treated with RFA, a curative modality for smaller lesions. He underwent the procedure five times. We would like to emphasise that should the patient not follow the advice, it is likely one of those tumours may go undetected until it becomes untreatable. That did not happen in this case is because he meticulously followed instructions."

Back in his farm sowing paddy, junior engineer Sikander Singh has been declared disease-free, and is leading a normal life. In his recent visit in early 2021, he was told he did not need to come back before a year, but...

"Doodh ka jala chhachh bhi phoonkphoonk kar peeta hai (one burnt by hot milk imbibes buttermilk too with great caution). I will come back in December. In the past years, doctors have gradually increased the gap between two follow-ups. They have advised me to come after four months instead of three, but I show up sometimes without even waiting for 100 days. I now know a lot about this cancer because Dr Abhishek Bansal, who is an associate of Dr Chaturvedi, would always show me my scans on



Under the broad umbrella of Interventional Oncology, ablative therapies like RFA and MWA are the interventional equivalent of surgical oncology. Similarly, TACE and TARE (trans-arterial radio embolisation) run parallel to chemotherapy and radiation therapy respectively. MWA works in a way very similar to RFA, on the same principle as the domestic oven. While the latter works by inserting a needle inside the tumour, the former delivers microwave heat through a microwave antenna. RFA needs 15-20 minutes to destroy 2-3 cm of the tumour while RWA kills it in just about half the time. It can also burn a little more volume of the tumour, without needing TACE. MWA and TARE (in which radioactive particles are inserted and contained within the cancerous area is akin to TACE but far less toxic) are some of the most recent treatment modalities for treating liver and other cancers offered by the institute.



IO as a Life-saving Procedure

"Recollect a scene in the movies of a person who dies instantaneously upon his throat being slit? It happens because of what's called the Carotid Blowout Syndrome, CBS. The syndrome is a rare, but rapidly fatal, complication of head and neck malignancies in the absence of a quick diagnosis and intervention. The carotid artery is a blood vessel that carries blood to the brain. If it ruptures in the wake of a major surgery, nearly every such patient may die due to massive blood loss. Taking the patient to the OT, going through a big procedure to spot the bleed and tie up the blood vessel - that's been the convention. But many patients can't even sustain such an aggressive procedure. Now, advances in *IO allow us to play an important role in treating* such emergencies. We find out where the bleed is by passing a catheter and blocking it, or placing a covered stent across the rupture. We have done a few dozen such cases, late in the evening, or early morning when a patient has been brought to us, bleeding and blood pressure plummeting. We have successfully saved at least three such patients in the last six month at our institute."

– Dr Abhishek Bansal

his laptop and patiently answer all my questions. I have been given priority each time since I come from outside Delhi. The unit here is now like family. As for Dr Chaturvedi... what can I say about him! *Unke jaisa aur koi nahin*. *Woh bahut pyar karte hain hamse,*" says the man for whom the most abiding memory of the institute was that he hadn't witnessed a death there.

Strange? Not for someone who was perhaps inching towards the finish line. And in cancer, there are many. So, when a place that one could associate with dying holds out a visual of hope and of life, it communicates with a patient at a different radio frequency.



DEPARTMENT OF RADIOLOGY

Recognised as a centre of excellence for cancer imaging and intervention on the global map, the Department of Radiology at RGCIRC was commissioned in 1996. It began with contemporary state-of-the-art imaging equipment such as the CT scan, MRI and the mammography machine with a unique stereotactic biopsy facility. Over the years, it has excelled in the field of interventional radiology and been cited at prestigious international meetings. As a pioneer in radio-frequency ablation, RGCIRC is recognised as a leading centre for imageguided ablative therapies in cancer since 2001. It has made outstanding contribution in this field in ECR, Vienna (2016), China (2017) and MD Anderson Cancer Centre, Houston (2018). The institute was the first in North India to install a Full Field Digital Mammography machine with tomosynthesis and vacuum-assisted



biopsies. It has trained several international candidates sponsored by the International Atomic Energy Agency, Vienna, after the IAEA recognised it as a training centre for radiologists and radiology technicians. A dedicated Cath Lab to address unique life-saving procedures in oncology care and Arterially Directed Therapies, and its partnership with the Society of Oncologic Imaging have been highlights in its journey, the latter establishing its presence on the global centre stage. In January 2021, the institute launched a dedicated service of Interventional Oncology, supported by the Society of Interventional Oncology, USA and the Indian Society of Vascular & Interventional Radiology. The department boasts of a 3Tesla MRI, which is optimised for oncology imaging and has some of the latest features for cancer imaging and follow up.

MEDICAL ONCOLOGY: IMMUNOTHERAPY

Recipe of an Elixir

In our Pauranic literature, we hear about beings who imbibed amrita, the elixir of life, and became immortal. For cancer patients like me, *immunotherapy is amrita.*

– Anil Nandwani

When the gods lost their famed powers following a curse, they joined hands with their counterparts, the asuras, to churn the cosmic ocean to attain the nectar of life. But we know that this nectar was the last of the 14 treasures to have come up, the first being a terrible, lethal poison.

That is, perhaps, true for almost all agitation – human or divine. Anil Nandwani too went through his 'churn' and stood up to some pernicious years before he could partake of sweeter life.

Four years ago in 2018, a routine ultrasound caught a huge mass in Nandwani's right kidney. Tests confirmed it was Renal Cell Carcinoma (RCC), a kind of kidney cancer. His son Akshaya consulted many a surgeon before they met theirs at RGCIRC. "All

doctors were good in their own right, but I would know later that they were somewhat laidback. Dr Sudhir Rawal did not raise a storm. But he was candid. The disease – at Stage 3 plus - was progressing and I needed the surgery right away. It could be cured, he said. His forthrightness inspired confidence, not fear."

The open surgery by chief of Genito-Uro Oncology Services Dr Rawal afforded Anil Nandwani a quick recovery. But the churning of his life had only just begun. The surgeon referred Nandwani to Dr Vineet Talwar, Director of Medical Oncology, who started him on Sunitinib. a target drug and a step in advance of chemotherapy.



"Sunitinib 50mg once daily – we started him on the standard dose, says Dr Talwar. "In due course, we found the disease had spread further from a couple of spots on the kidney. We dug our heels in and explored world literature to know if we could take care of it with minimum intervention and a hiked up dose of Sunitinib 60mg. Luckily, we did."

"We were then consulting some other doctors as well," recalls Nandwani."But Dr Talwar guided us in unusual ways. You know, a cancer patient's most important need is encouragement. I got that in ample measure. I was put in direct touch with Pfizer, the pharmaceutical

company that makes Sunitinib. After a certain number of doses at a discount, I began to get the medicine free under



the patient assistance programme. Over two years, it was a big relief since it cost a lakh of rupees a month. The disease was arrested, but still there. That's when Dr Talwar decided in the Tumour Board meeting to give me the higher potency. It was unheard of then, but it proved efficacious. Three months later, the disease had receded."

This was a watershed in treatment protocols in India. But the augmented dose of the target drug was tough to handle with its compounded side effects. But the patient would also receive composite guidance.

"We were the first to take this step in our country," says Dr Talwar, who completed his DM from the prestigious Adyar Cancer Institute, Chennai, and has over 40 publications to his credit in several journals. "It took several rounds of counselling on the necessity of the stronger dose and management of side effects. An oncologist has to make his patient sturdier than and resilient to these side effects, lest he buckle in and give up treatment. Ulceration in the mouth, lips, hands and feet, dehydration... there are many consequences. It takes an integrated approach to counter them and arrive at a positive outcome. My patient

was receptive and we reaped rich dividends from this partnership. Another place, perhaps, would have switched to a new drug to the detriment of the patient," warns Dr Talwar. "The dictum is to draw the maximum benefit from the drug before switching to a new one because there are no guarantees the latter will work. At the end of the day, it is really the accountability of the treating physician that decides whether the patient will gain or lose."

"If you know the neighbouring country is going to bomb you, your soldiers are ready," Nandwani smiles. His trusty band of clinicians knew the invader well. Aided by Nandwani's



It takes two to churn the nectar... Dr Vineet Talwar with his patient, Anil Nandwani.

-



own encouraging health status, they managed the side effects of the therapy so well that he was ready for the next round of combat.

"A general hospital would prescribe salt or betadine gargles. Our research told us that Sunitinib could cause severe inflammation leading to a sore throat or gums and rendering the patient unable to eat. We advised the patient Magic Mouthwash that would greatly help reduce ulcers and enable him to eat. This would build his confidence, and in turn, he would be more willing for further treatment. Continuing to push for more complex therapy, without taking care of the simple needs first, thwarts the process – a patient would just give up the whole thing as pointless," reflects the oncologist.

Administering therapy was easy. It took insight to not only know of the side effects but also pre-empt them long before they began to interfere with the quality of the patient's life. "If I can tell a patient that she is likely to experience hair fall in a couple of weeks of chemotherapy, I am also sharing with her tools that will help cope in the future. We know psychological stability can decrease the perception of suffering. Anyone can follow the disease. It is in staying ahead and

blunting the severity of it lies the edge of an institute like RGCIRC," says Dr Talwar.

Nandwani's cancer, however, was very much in the race. Two years later, appeared a small lymph node on the left hilar – between the upper and lower lobe of his bronchus. Two consecutive rounds of Fine Needle Aspiration Cytology (FNAC - a sensitive detector of some kinds of cancers from fluid specimens), were negative. Dr Talwar, however, was positive that the node was malignant. But he needed explicit proof before changing the line of treatment. Nandwani had to once again to walk the razor's edge – surgical removal of the node was his best chance.

"Inserting a needle in the wind pipe area is a tricky job because of possible damage to adjoining blood vessels and nerves. But removal of the node was necessary to take the next radical step. I couldn't have told my patient to come for a follow up after three months believing it wasn't serious enough. He would have returned with a florid disease. We discussed the possibility of it being metastatic in our tumour board and the patient also took a lateral opinion. The results were in concordance with our line of thinking." A good biopsy was done since a total removal wasn't possible.

The report would change the course of things. The restorative potion was preparing to manifest in the form of immunotherapy.

Three Therapies: Chemo, Targetted, Immune

The three therapies – chemo, targetted and immune – may be understood by the simple analogy of a mango hanging on a tree. Chemo is like throwing stones at the fruit, that would damage the branches and leaves without guaranteeing that the fruit will fall. Snipping the fruit with precision, akin to targetted therapy, yields the fruit causing minimum damage to the branches and leaves. Immunotherapy is similar to sending enough nutrition up the tree so that it causes the fruit to ripen and fall naturally.



In 2019 at a Tumour Board meeting, Dr Talwar decided to put Nandwani on Nivolumab, an immunotherapy drug that helps the body's immune system to slow or stop the growth of cancer altogether. While immunotherapy is still in the process of proving itself, it was, proverbially, the best shot Nandwani could have received in the arm. His was a Stage Four disease – the last. Going back 10-15 years, lifespans of such patients would meet with rude interruptions. Immunotherapy not only held out more promise, it was being guided by hands that were both cutting edge as well as kind.

Starting August that year, Nandwani completed 16 cycles by March 2020.

A few months later, the lymph nodes began to disappear. His PET scans around mid-2021 were more or less clear. He now has no side effects, says he, and is able to live a good, productive life. Nandwani credits Dr Talwar and Dr Rawal for his remarkable recovery.

"These past few years have been tough. But the doctors and their teams in this hospital have not let me even once feel that I was in deep waters even though I knew I was. The smallest, the silliest of my questions was answered with empathy. My son would carry a whole lot of research and other opinions to Dr Talwar. He not only listened with attention but encouraged the process too, even taking it to the tumour board, one of its kind that I know of. The excellent relationship between doctor and patient defines this hospital. For me, my doctors are family."

"We are a niche institute. I see 10 kidney cancer patients a day. I work with the best clinical practices as laid down by the National Comprehensive Cancer Network (NCCN). We have a DNB Oncology programme here that requires the consultant to be on top, both clinically and academically. But there are no individual islands of excellence at RGCI," Dr Talwar smiles. "We work as a team towards doing the best for our patient. But each of us also has human limitations and frailties. The chances of lacunae in treatment are enormously minimised when 20 people thrash it out at an organ-based tumour board. Our tumour board, sub stratified into organ-based multi-specialty clinics, does exactly that," explains Dr Talwar.

"In this case, we concurred that systemic therapy, not local treatment which is what the target drug is, was the answer. The decision on immunotherapy was taken at the multi-specialty clinic for genitourinary diseases. An 'also cancer' hospital with a non-specific tumour board would have possibly overlooked this. Nandwani has not only responded to immunotherapy post receiving targetted therapy, he is also hale and hearty and is leading a fruitful life. What can be better than that?"

For a patient, many things. The ease of taking a second opinion, to know that his hospital is comparable to the best anywhere, and to know that his clinicians – former and current – are always in touch regarding his wellbeing.

"I wouldn't have known the difference had I not gone to other hospitals," says Nandwani gratefully. "There is a team of three doctors for each patient. Even if one's own clinician is perchance, not there, the other takes over, and with equal ease and skill. He can access my entire case history at the click of a button. I understand history is all-important in cancer. Each of my reports over the last four years has been scanned, and I don't need to carry anything except my latest blood reports. I am confident if I were to ask for a comparison between my first PET and the last, they would be able to do it."

"I don't trust easily," says Akshay, Nandwani's son. "I would have consulted at least two dozen doctors in UK and USA, apart from Tata Memorial, for my father. They were unanimous that RGCIRC was giving us the best treatment. Now when I meet someone in need, my suggestion is that they see the doctor they are most comfortable with, but keep RGCIRC in the loop. There are skilful doctors with fancy degrees but a good person is like a needle in a haystack. I have developed a level of comfort with Dr Talwar. He never undermines the family or the questions they ask and, more than anything else, he is very mindful of the patient's well-being. Most doctors get so caught up in curing the disease that they forget the person who has it. Dr Talwar has always held our hand so we could tread that delicate line where both my father's life and its quality could be preserved."

Half the battle is won, says Dr Talwar, if the patient feels confident of the doctor curing him. A positive frame of mind enables generating positive feelings that augment all treatment. "I have to reassure my patient that cancer isn't the end of the world. I encourage him and the family to ask questions – and no question is silly. It is just a different



Nutrition plays a crucial role at a cancer institute. At RGCIRC. different types of diets are planned and prepared bearing in mind: gender, body weight, personal choices, diagnosis, current symptoms and blood parameters. They are not only different for different modalities like chemo, surgery, radiation and bone marrow transplant, but specific also to current co-morbidities. Extra hygiene and sanitation is maintained for patients with weakened *immune systems and special* packaging is done for patients undergoing BMT. This apart, written instructions are handed to the kitchen for each individual patient. Ranging from khichadi to Maggi, the kitchen sometimes indulges its hosts, especially children, while also meeting their nutritional needs.



Cancer treatment lasts from anything between a few months and few years, including follow-up, before a patient may be declared diseasefree. Past therapies may also decide the future ones. Medical records play a vital role for both the doctor and patient. The institute has a dedicated Department of Medical Records since its inception in 1996. Each patient registered here is given a unique Case Record number and a file maintained with this number on it. The file is a ready reckoner of the complete record of a patient in one single place since the time of registration. Used to document a patient's medical history, illnesses and treatment procedures, the file obviates the need for him to carry old records. The treating physician can pull down from one unique ID reports, imaging results, past treatment, family history etc. The records also facilitate team work and seamless transference of a patient to a new oncologist who might be replacing the earlier one. The patient is spared of being asked the same questions and doesn't have to carry the burden of files and papers. The institute is in the process of going green and moving to electronic records so that everything is available at the click of a button.

priority. I know a well hydrated system would be far less troubled by the side effects of medication 50 per cent of the times. That may not sound spectacular to the patient. Similarly, a well-balanced diet is better than exotic foods and impositions like disallowing the patient from moving out of the house for months on end are unnecessary. It makes life bitterer for the patient than the pill he is on," says the doctor, driving common sense into oncology.

Life is sweeter for Anil Nandwani today but he is still on therapy. Is the end of his churn anywhere in sight?

"The prognosis for our patient is good. His quality of life is as good as it can be even at Stage 4, and in spite of some residual disease. As of now, 10 to 15 per cent of those who were on immunotherapy have given a complete response. Studies are now on to monitor if these patients continue to stay clean in follow up for two years. If they do, they may discontinue in certain situations as per NCCN guidelines. Or, they continue taking it until there is an unfortunate progression. The day Mr Nandwani's scans are clear and he can stay that way for a couple of years, he may stop therapy."

Even though it is still some time away from being definitive, immunotherapy is emerging as the new life-giver for those with cancer. Humans might do better and get their 'nectar' sooner than the gods did.



THE DEPARTMENT OF MEDICAL ONCOLOGY

The Department of Medical Oncology began in 1996 in two rooms with a two-unit OPD. Over 25 years, it has fortified itself with five units, 12 consultants and 12 DNB resident PG doctors. Subsequently, late president Dr APJ Abdul Kalam opened the bone marrow unit, the first in private sector in North India. The first private institute to start phase 1 clinical trials in 1997, RGCIRC has over time become the preferred centre for international clinical trials owing to its state-of-the-art patient care and systemic management. Academically, the institute is proud to have put out a robust post-MD DNB training programme for new generation oncologists and published more than 160 papers in reputed national and international journals. The world class facilities at the institute have attracted doctors from abroad for training and fellowship programmes. As part of its social responsibility, the department organises screening camps, awareness programmes and OPDs besides providing domiciliary care to patients gratis through its home care teams.

NUCLEAR MEDICINE A PET to Watch Out For



Nuclear medicine always sets a glowing example - ANONYMOUS

"To be told that your 59-year-old mother is terminal and will not live for more than a few months can be heart-breaking. Our hopes were dashed to the ground when a doctor at a premier institute of Delhi told us to take her back home to Assam. Yet, a part of us – my brother and I – longed for a miracle. A couple of years later, when our wheelchair-bound mother walked on her own feet, we knew our miracle had happened," Rinku Datta's voice falters somewhat going down the cobbled lane of memories where she found out her mother had cancer of the thyroid.

When the world said 'give up', hope whispered 'try one more time'. Hope by the name of RGCIRC.

"When Mrs Noni Borgohain first came to us in 2007, she had pain in the lower back and was unable to walk. The disease had involved the bones and also the spinal canal at places. Initially, we thought she had cancer of the bone. But her biopsy found that

the pain in the back had its roots in the neck," says Dr Partha Choudhury, Director, Department of Nuclear Medicine at RGCIRC.

Mrs Borgohain's primary disease was in the thyroid gland that had been the site of a partial goitre surgery back in 1997. That was all the doctors at the institute gleaned from her medical history. Half of the gland was out, the other half still there. She needed a total excision before they could start her on radioactive iodine therapy (RAI). For the uninitiated, iodine therapy is the therapeutic arm of nuclear medicine which is associated primarily with SPECT gamma camera scans, a specialised service in imaging that uses nuclear medicine.

"Twenty-five years ago, when the specialty was still in its infancy in India, our governing council had the foresight to start the facilities for radionuclide therapy, or what was known as the Thyroid Ward. Even today, most hospitals do not have this

facility because it requires many regulatory clearances by the Atomic Energy Commission. For instance, we have special wards located away from the general public and a special sewage system that treats the entire radioactive waste before it enters the main lines," Dr Choudhury underscores the pioneering spirit of the institute that gave impetus to nuclear medicine at RGCIRC.

"Admittedly iodine therapy, specific to thyroid cancers, hasn't changed radically in all these years. But we now have differentiated doses of iodine depending on where the cancer is or has spread, for minimising its side effects in a fair number of patients. We have also added biopsy parameters to prognosticate whether or not the disease will recur. But surgery remains *de riqueur* as a precursor to RAI, implying that a surgeon is also one of the important prognostic indicators in thyroid cancer," he puts it modestly.

The upside of thyroid cancers is that most of them are always operable. A capable surgeon at a high-volume centre like RGCIRC will do a total or near-total thyroidectomy that involves removal of 90-99 per cent of the gland, leaving the normal tissue and contiguous areas intact.

Without such a surgery, the radioactive iodine would be devoured by the thyroid gland irrespective of whether the disease is confined or has spread. That greatly enables the patient to receive low-dose iodine therapy with minimal side effects. Mrs Borgohain, however, would go on to receive six to eight cycles of very high-dose radioactive iodine, once every six months. She improved gradually, her pain exiting before she took leave of the wheelchair. "Over all those months. I had never heard her speak a word – perhaps because of the constraint of language. When she returned here walking on her feet, the joy on her face said it all," smiles the nuclear medicine specialist.

Above: Dr Partha Choudhury, Director, Department of Nuclear Medicine, one of India's leading nuclear medicine physicians with a special interest in Radionuclide Therapy for various types of cancer.

Below: RAI was able to wheel this chair out of Noni Borgohain's life.



"We had visited a couple of hospitals and met a few doctors before going to RGCIRC. But we couldn't have hoped for better management and guidance than we got from Dr Choudhury. The hospital was prompt in counselling us on the costs, which allowed us to manage the funds given that my mother did not have an insurance cover," says the appreciative daughter. "And our doctor was always very supportive and responsive."

Support and empathy have remained constant in and through the evolution of the institute, nuclear medicine included. Be it acquiring the first, then rare, dual-headed gamma camera in the country to procuring two frontline PET-CTs, an enthusiastic bunch of men and women at the department have been trained equally to look through their patients with cutting-edge equipment and also to scrutinise their scans with the fine eye of an explorer.

Unlike its predecessor, the standalone PET scanner which took more than an hour to image and yielded suboptimal quality, a PET-CT takes half the time and displays both the functional and anatomical aspects of the body, its accuracy going far beyond detection. In a cancer setting, the nuclear medicine specialist can see glucose hungry tumours devour the radioactive tracer and glow on the scan. He can tell where the tumour has originated, the sites it has spread in, patient outcomes during and after treatment and also prognosticate for recurrence.

"PET-CTs have revolutionised cancer treatment, allowing us to look at full-body images and find disease activity going on at the cellular level. It stages the disease to begin with and differentiates between malignant and benign tumours," clarifies Dr Choudhury. "A pathologist further characterises it with biopsy. A patient may be bleeding in the urine or stools. The oncologist can ask for a PET scan and if something turns up on the scan, get a biopsy. But it is not possible to poke all the lesions for the purpose. We guide the oncologist as to the best area for biopsy. Or someone may just be losing weight for reasons not known. A PET can explain why, by seeing if there is any underlying disease. As for multiple lesions, we assume they belong to the same malignancy. But that assumption too is a product of experience. Only when one has seen thousands of PET scans can one differentiate cancer from non-cancer, decide if the lesion is a new one or a secondary, and which one has a low probability of being cancerous," he elucidates.

Thousands of scans, multiple memories crystallised as experience in the mind of an unassuming man who has made the department a centre of excellence in the country.

A lady was operated for breast cancer in 2008. She was doing well and did not need a PET as per guidelines then. But the patient insisted on getting one. Unexpectedly, the nuclear medicine team found a tiny lymph In use since 2015, the second Molecular PET-CT (mCT) scanner with a highly sensitive PET detector which allows faster imaging with lesser radiation dose.

SIEMENS



SIEMENS

Dr Choudhury has several original publications on cancers of the thyroid, prostate, breast and neuroendocrine system in peer-reviewed journals.



node in the internal mammary chain, closer to the breastbone. This area had never been dealt with earlier because it was visible only on PET-CT, not on CTs and ultrasounds. They rang the alarm but the clinician was unmoved. Biopsy was ruled out. Surgery was the only option. "Let's wait," said the surgeon. "We had our misgivings. Waiting could worsen things if it was malignant. Morbidity it would be if it wasn't. Fortunately, the patient agreed to undergo another surgery. We were called up by the surgeon from the OT, off-lining and on-lining with us, asking for specific directions on where to go. He dug where we directed him to and he found a sinister-looking lymph node. The histopathology report was positive for cancer."

Doubt and faith, then, are not antagonistic, as someone says. They work side by side to take us around the unknown bend.

"This has happened often with Dr Dinesh Bhurani's cases of lymphoma. It is gratifying to treat lymphomas. A couple of chemo cycles, and we see a clear scan. But sometimes a lymph node or two will glow on the post-therapy scan in areas that weren't involved pretreatment. We call them hot spots, mostly confused with recurrence. But we know a PET may be positive for more than one reason. Cancer utilises glucose, so do bacteria and infections. All that is hot isn't always cancer," smiles the nuclear medicine specialist.

And not always are reports and impressions unequivocal. Reviews may sometimes be conflicted, timeconsuming and lead to a delay in initiating treatment. "But it isn't that the lateral findings are wrong. The catch is in the way it is reported. We also cannot always empathically say that a lesion is malignant. But we arrive at our interpretation by exclusion and use words that enables clarity for the clinician. Our 'impressions' are summed up in four lines. For instance, we have devised a simple line: related to primary disease process or unrelated to primary disease process. This clear distinction never comes from an external source. the clarity buried in wordy fourpagers. One writes long when one is short on confidence. Why throw shade when you can shed light?"

However, such progress is never without its perils. The team at the nuclear medicine department has burnt their fingers, nay even their hands, to come out crispier, fortunately without the fire ever reaching the patient. Perfection comes with experience and experience, as Edison so eloquently said, is not failing to make a light bulb, it is to find 99 ways of not making it. "It was January 18, 2008, when we did our first PET CT for oesophageal cancer in a Sikh gentleman. We saw two dots in the neck area. Still green with our scanning, we reported jointly with the radiologist. The latter said those dots were inconsequential. Anything less than 1 cm on a CT is. The report

that the patient only had oesophageal lesions was verbally communicated to the clinician so he could go ahead with planning the treatment. When we sat down to report, we looked at the scan again. Those twin dots, of just a few millimetres only on one side of the collar bone – they had no business being in that area. Ours was more than a niggling discomfort. We insisted on a cytology. It was positive.

"That day we learnt two things. One, tumours don't read books. And, two, size does not matter in PET scanning. This patient had a metastatic disease. The course of his treatment, naturally, changed," recalls the man who was honoured as the best researcher in 2015 by the institute.

"Nuclear medicine has a primary role in oncology – as a diagnostic as well as therapeutic tool," Dr Choudhury clarifies. "At RGCIRC, we began at a time when radio-isotopic imaging was the norm in the West, but not in India. Over the years, we have standardised many new indications not performed anywhere else in the country. These specifically included breast imaging, imaging of lymphomas and brain tumours to name a few. Growing steadily, we began doing PET scans specifically for prostate cancer and neuroendocrine tumours and subsequently began to treat them too with radionuclide therapy. The numbers grew steadily, giving rise to the phrases 'we treat what we see' (pre-treatment imaging) and 'see what we treat' (post-therapy imaging)."



"A patient may go for a PET-CT to our nuclear medicine department or somewhere outside. My colleague, who has seen cancer patients for donkey's years, will be able to differentiate between malignant and benign – something his counterpart at a general hospital may fail to see. My specialist may see glucose uptake in the hand, a spot unexplained by the parent disease. He can call me to check and know that the patient had an injury from a fall. The external nuclear medicine physician has neither the context nor access to me, the treating physician. He only has the film in his hands. Similarly, my pathologist looking at a brain biopsy will not put indiscriminate markers. She knows from the treating physician or the file that there was a primary disease in the breast or the lung. So, she will put markers for only these two to conclude that the brain tumour is in fact a metastatic disease.

These are the nuances a nuclear physician reading a PET scan or pathologist in an all-cancer institute will be able to spot. No one can be fully correct, but one can reduce the negatives by hitting on the positives in the law of averages."

- Dr Vineet Talwar



Back home in Assam, Noni Borgohain takes time out from preparing countless cups of tea for her election-bound son.

Eleven years later, Mrs Borgohain, now 71, returned with yet another bony swelling in her back. She had already been through pre-treatment imaging. The FNAC (Fine Needle Aspiration Cytology), a simple and inexpensive test done in Assam, pronounced it as a primary bone tumour. "But our pathologists – who I have long maintained do a wonderful job – said it was a secondary, having spread from the earlier thyroid disease. Our own scans confirmed it.

"However, her iodine scans revealed that the tumour had lost its iodinecarrying capacity by then. The lesion was large and showed uptake of glucose on the scan. Genetic mutations may cause that to happen in late recurrences. Luckily the target drug worked and her lesion has now shrunk by almost 50-60 per cent. She is doing better even with reduced dosage and fewer side effects."

"When mummy had a recurrence in December 2020, Dr Choudhury referred us to Dr Sumit Goyal. She thought it was all but over for her. But her faith returned when we reminded her that her new doctor had been referred by Dr Choudhury. As I speak to you, she is actively participating in my brother's by-election activities, cooking for 20 visitors in the day with some help," smiles Datta, who first heard of nuclear medicine 15 years ago when her mother was started on treatment at RGCIRC.

"Today, it is an intrinsic part of my life. I have grown up seeing Dr Choudhury's intervention in our life. He isn't given to talking a lot himself. But I would like him to know that he is god to us. Both he and Dr Goyal have given us their personal mobile numbers and we can call them when needed. Even today, when my mother gets to know of someone diagnosed with the disease, she insists they go to RGCIRC. All will be well there, she says. When a friend's doctor moved to another place, she wondered aloud to me what might happen to her if Dr Choudhary were to move too!"

A greater compliment couldn't be. "She now goes to medical oncology for treatment. But it hasn't ever been that she leaves without seeing us. For the first time in all these years, she also got me a packet of Assam tea," and a quiet smile lights up the face of Dr Partha Choudhury.

It's the light that shows the way.

DEPARTMENT OF NUCLEAR MEDICINE



The Department of Nuclear Medicine was conceptualised along with the other departments of the hospital and is functioning since its commissioning in 1996. The management set up radionuclide therapy ward for high dose radioisotope treatment from the very beginning, one of its kind at the time. The institute was amongst the first to acquire the rare, state-of-the-art dualheaded gamma camera in the country. An intelligent and enthusiastic technical team made the journey easier.

Over the years, the department standardised many new indications for imaging, including breast, lymphomas and brain tumour, which wasn't being done elsewhere in the country and also published its work. Simultaneously, the thyroid cancer treatment with radioiodine was also



standardised. PET-CTs came at the beginning of the 21st century and revolutionised cancer treatment. The department started PET scans in 2008, standardised the institutional protocols, few of which were emulated by other institutions later. This was followed by PET scans specifically for prostate cancer and neuroendocrine tumours, arrival of another PET machine and start of radionuclide therapy for these two tumour types. This work has been recognised globally – as publications, acceptance of scientific data in worldwide science forums and through invited lectures.

Future plans include bringing from 'bench to bedside' new radionuclide imaging protocols and treatment in cancer and to make these routine. Our mantra has always been that we do not need 'latest technology' but 'optimum technology', and invest in our greatest asset - the person behind the machine.

HAEMATOLOGY ONCOLOGY AND BONE MARROW TRANSPLANT Marrow Minded

I will continue to keep fighting, sucking the marrow out of life as life sucks the marrow out of me. - CRAIG SAGER, AMERICAN REPORTER WHO BATTLED ACUTE MYELOID LEUKEMIA

Be positive – two well-intended words, used so much as to be almost devalued. But what else do you say to or do with a 39 year old woman who is diagnosed with Acute Myeloid Leukemia (AML), has two young children and a husband who is also struggling with cancer of the bladder?

You do what the Bone Marrow Transplant (BMT) team at RGCIRC did for Ritu Kundnani. You listen to her. You give her heart.

"AML is a kind of blood cancer wherein some genetic changes to cells makes them cancerous. Some



of these changes give the patient 70 per cent chance of cure. When Ritu first came to us, she was in this good risk group," says Dr Dinesh Bhurani, one of the country's leading haemo-oncologists and Director, Department of Haemato-Oncology and Bone Marrow Transplant. It meant that she was among those seven of the 10 people who could be cured with chemotherapy, the first line of treatment in AML. The doctor and his team believed they would be able to secure her with four cycles of chemotherapy.

"My husband was being treated at RGCIRC for a few years," remembers Ritu, 40, and mother of two, "Our experience with the hospital was very good. Dr Bhurani, we knew, was a leading haemo-oncologist. When I was told I had AML, his was the name that came to mind. And I began my treatment with him."

The treatment was intense. Ritu would have to be in the hospital for about three or more weeks every month in case of fever or any other severe fallout before she could return home for a paltry seven days. The drugs would destroy most of the normal bone marrow cells along with the leukemia cells, leaving her with dangerously low blood counts and susceptible to infections.

And so it went on till it was time for her fourth and last session.

"It was February of 2019. I was in



Ritu Kundnani, now preparing to tell others like herself to B+ about AML.

the hospital undergoing therapy when news came. My husband was no more. I wasn't told right away but was allowed to go home for a just a couple of hours given the chemo regulations. All rituals done, I had to, as per protocol, return to the hospital to finish what I had started."

The blow and the bruise had come together for Ritu. But her clinician's empathy touched her over the sound waves from Australia where he was then. "My sister Vandana and brother-in-law Dinesh were my rocks at the time. But it is Dr Bhurani's gesture at that juncture that I will never forget. I was devastated. He called me when he was on holiday with his family and counselled me to take care of my health and what I now had. I don't know if anyone else would have cared to do that. There was

Dr Rayaz Ahmed, one of his team, who had also lost a dear one. He shared his story with me. I was hurting; his sharing was a balm," says the woman whose trials had just begun.

Four sessions of chemotherapy were over. Ritu went into remission, and was back home to pick up the threads of her frayed life. She had to be on monthly follow up. Needless to say, her doctors were on tenterhooks. In less than 10 months, her blood counts started dropping. It was as if all at once, the disease had sneaked back into her body.

She was now one of the three people out of 10 who have to contend with an AML reversion.

"There is always a risk of relapse in leukemia," explains Dr Bhurani."And



it is not easy to control the disease the second time. We have to put the patient under a heavy dose of chemotherapy. That too is some risk to life. We did that with Ritu and, fortunately, we were able to control the cancer. Now she needed a BMT to sustain the advantage."

BMT, however, is the proverbial razor's edge: a life-saver in which there is a 10 per cent chance she will lose her life. "And we were telling her it is necessary she does that, so we have a chance to save her. That was also our only chance. So, we had to do both: give her information which was encouraging and also tell her the complications and risks involved. It was a bit like fragile glass – to be handled with care," says he. So, Ritu's sole armour had a chink. But her only choice was to wear it and go into battle trusting she would come back safe. "It was a toss up... I had a high-risk disease, my children were young and my family was very supportive. So, giving up was not an option. Although I had been told very clearly there were no guarantees I would survive this, I consented. But getting a donor wasn't easy. Then came the lockdown," Ritu's says, her stoicism never leaving her.

Before the consent came the allimportant counselling."It isn't a mere formality here," says Dr Bhurani. We tell all to the patient – the terribly high costs, the minuses along with the plusses. It's a walk through the fire and we have to hold our patient's hand in this journey." Apart from the team of doctors, Niharika Bhatia, bone marrow transplant manager and coordinator for patient-donor transplant procedures firmly held Ritu's hand through this walk.

It was a fire fuelled by daunting costs and minuscule chances of finding a fully matched donor within the family. "These chances are between 30-40 per cent only. Rest of the patients have to find an unrelated donor," says Niharika. Ritu could not find a single fully matched donor within the family. A few weeks later, an unrelated match was found in the National Marrow Donor Programme (NMDP) of the USA, only one from among the millions checked for a positive response. The cost of the



stem cells was a whopping 35 lakh rupees.

As is the case with unrelated donor searches, finding a donor and finally receiving the stem cells for Ritu at RGCIRC involved swift coordination and presence of mind when dealing with the national and international registries and donor selection. The process included several emails back and forth, donor report verification,

> "Transplant costs, even in government establishments, are very high – about 80-90 per cent of those in private sector. But they escalate rapidly if the patient runs into complications. So financial counselling is must. But apart from that, we help our patients to get relief funds from the government and through our tie-ups with NGOs. Some non-malignant transplants such as in thalassemia have been funded by Coal India. *RGCI also supports its patients* with free beds and discounts through its philanthropic work, allows cheaper drugs to be bought from outside, enables access for free drugs from pharmaceutical companies and helps with crowd funding."

customs clearance, documentation *et al.* Since the international registries are in the USA, Germany and Turkey, Niharika worked beyond her office hours owing to different time zones of other partners. "The commitment these registries have towards saving a patient's life is inspiring. If they can work day and night for someone they don't even know, I have to be available for our patients so we can attempt to save every life. Nothing in this world is more important than becoming instrumental in doing that," says the committed coordinator.

But as someone said, compelling characters are not just cogs in a machine... they are human beings to whom the story happens. On Ritu's request, the hospital applied to the US registry for scaling down their charges. "Dr Bhurani was well aware of my husband's cancer and our financial background. On his instructions, Niharika wrote a mail to NMDP to explore for concessions," says Ritu gratefully. A month later, the registry granted a waiver of 10 lakh rupees to Ritu, who was the only earning hand after her husband's passing away.

By March, just when BMT team got news that the donor was fit to donate, came also the first wave of the pandemic. While RGCIRC was taking care of its Covid patients, it had an obligation towards its cancer patients, especially those like Ritu. Her relapse rate was high. She was put on oral chemotherapy to control the disease and keep her afloat till such time as the stem cells arrived in India. But flights and couriers were grounded. Life, a slice of which Dr Bhurani and team were so frantically trying to obtain for her, seemed beyond their grasp. Stopping the procedure at that stage not a choice.

Harvesting of the stem cells, their transportation... Covid had derailed all plans. Dr Bhurani's team was waiting for things to get better. They got worse.

The second round of chemotherapy was extracting its pound of flesh from Ritu's body, and the need for transplant was gaining urgency lest the disease came back. "We are the average middle class family without too many connections. Somehow my brother-in-law made possible the impossible. He managed to contact the Consulate General in New York who agreed to help with coordinating the delivery on priority. But the transportation was a massive task. Dr Bhurani did all he could to have the stem cells come to India. Right from contacting and coordinating with the courier agency to ensuring that the stem cells were kept at a certain temperature for them to stay usable - the hospital did everything to help in those very difficult times," recalls Ritu.

"We had to cut through all the different layers of communication and expedite the process since it was critical to our patient's life. The Facing page, top: Dr Dinesh Bhurani, Director, Department of Haemato-Oncology and Bone Marrow Transplant.



documentation, normally done by the registry and its volunteer carrier of stem cells, was our charge this time because of the pandemic. Finally, all the stars aligned – donor, courier, our Indian registry DATRI and interface with its US counterpart, and the Consulate General – and we were told we would get the product by May 21, 2020. That was our hurrah moment and the Indian Consulate was our hero. It was important that we got the stem cells before May

31 because 10 days was the optimal period in which they would have stayed viable in the ice container. With a prayer in our hearts, we waited only to be told that the product had missed the flight and would arrive via Europe on the Delhi airport on the 27th of May. We would get it at RGCIRC only two days later because it needs that time to go through the customs. It was a close shave."

"It can be very disheartening for someone who knows there is treatment but has to contend with sudden impediments. We were supporting Ritu through the relapse knowing her life was hanging by a thread. We were not sure we would be able to use the stem cells even if they came, or if they would

be adequately maintained at the right temperatures. The risk of transplanting dead cells was real too. So, till we got the cells, counted them and ensured their viability, we were simply not sure if this BMT would happen at all," Dr Bhurani says, reliving the cliffhanger.

Once the team had the cells, they were like the skilful gardener. "The transplant is like taking a small seed and making it grow into a tree, protecting it from all the monsters," explains Dr Bhurani, an authority on BMT. "There are risks of infection, complications of medicine, the lifethreatening graft versus host disease in which the donor cells attack the recipient's body and even relapse. Five years of intensive training before doing a BMT, infrastructure, support of trained physicians and nurses and a transplant unit to keep the patient safe – you need them all. We have five to seven doctors with DM, Haematology, trained at AIIMS or CMC Vellore, working with us for several years. They are all passionate about their work. Over the years, we have a training programme for nurses, a dedicated floor in the new building and the most competent physicians. BMT is about team work, and I can proudly say we have the most competent team in India," he says with obvious pride.



Ritu was transfused on the 5th of June. A few weeks after the graft, she was good to go home, to her family. She had also left behind one at RGCIRC. "Dr Bhurani and the attending consultant, Dr Vishwadeep have become family to me. I remember Dr Bhurani would always make it a point to come to my room on my insistence. He would do that for all his 'difficult' patients. His positivity, his sense of humour would leave me lighter. I would even get away with fighting with him if he missed seeing me on a particular day," Ritu smiles. "Dr Vishwadeep took over my case after the transplant. I would cry to him and he knew I was in severe depression. He referred me to a psychiatrist and also gave me a lot of his time and attention. Not once did I feel I was talking to a doctor. Dr Narendra Agrawal, along with Dr Rayaz, took care of me when Dr Bhurani was away to Australia. Everyone on the floor knew me and I had the privilege to ask for the nurses who gave me the most painless shots. I remember Sister Raji and Brother Gauray..." Ritu trails off.

"As doctors we did for Ritu what we would do for each of our patients. But it takes exceptional courage to go through several rounds of intensive chemo, blood transfusions and then the transplant, at a time when one has lost a partner," offers Dr Rayaz. "I can hardly overstate the importance of faith when life is rough," says Dr Agrawal. "Ritu kept the faith. To see her family rallying around her was a rare sight."

"High touch must complement high tech – that's how we work here. Minus the empathy, a patient can be reduced to just another number for the doctor. We could work for Ritu because we felt for her," Dr Bhurani concludes.

It is over a year now since Ritu had the transplant. She has discontinued most of her medicines. She may not have come out of it unscathed nor has the risk gone away. But she has emerged from a fire that threatened to snuff out her life, thanks to some people who proved to be a complete match.

Ritu's new blood group, B+, suits them both, positively.

Above: (left to right) Dr Narendra Agrawal, Niharika Bhatia and Dr Rayaz, the trio that moved heaven and earth to bring life to their patient's bones.

> Facing page: Ritu with Dr Bhurani – a bond shared.





THE DEPARTMENT OF HAEMATO-ONCOLOGY

The Department of Haemato-oncology was founded in 2007. The bone marrow transplant (BMT) facility was, however, available since 2001 and utilised mostly for autologous stem cell transplants. Allogeneic transplants began in 2007 when the department was formally established. The department grew rapidly with new faculty coming in to clinical haematology as well as haemato-pathology. About five years down, the transplant programme expanded to include matched unrelated donor as well as haplo-identical transplantation. Averaging 125 transplants annually, and having performed more than 1000 stem cell transplantations until now, the centre stands tall amongst leading stem cell transplant centres of India.

The team comprises experienced faculty along with a nursing team experienced in handling patients with haematological disorders, including those receiving chemotherapies and bone marrow/stem cell transplants. The department has a post-graduate training programme in clinical haematology with National Board of Examination (NBE) and fellowship programmes for BMT.



At a glance:

- 2007 Start of allogeneic stem cell transplantation
- 2011 First haplo-identical stem cell transplantation for aplastic anaemia
- 2013 First matched unrelated stem cell transplantation
- Affiliation/ accreditation with NMDP (National Marrow Donor Program), USA
- Contribution of BMT data to CIBMTR (Centre for International Bone marrow Transplant Registry), USA
- 2017 Post-graduate training in clinical haematology (DNB clinical haematology)
- Multiple publications in peer reviewed national and international scientific journals
- 2020 International conference (RGCON 2020) on haemato-oncology updates
- Acquired ultrasound guided PICCs placement technique and established a training programme in PICC insertion, care and maintenance for nurses and doctors from across India and overseas since 2013
- The department is one of the very few in India to have a government-sponsored programme of stem cell transplantation for children suffering from Thalassemia Major. Coal India, in collaboration with MOHFW, provides funding for matched sibling donor allogeneic stem cell

transplantation for children below 12 years.

The department has conducted several survivor meets for patients with lymphoma, myeloma and chronic myeloid leukemia as well as for patients who have received stem cell transplantation.

RADIATION ONCOLOGY A Beam to Rest Under

The chaotic dark is where I find light's beam.... - Subrata Sinha Roy

She was 31. An NCC certificate holder, player of every possible game, an education professional, full of life, young mother in a strong marriage with dreams of scoring many more goals in the playfield of life.

Then came 2015, threatening to oust the volley-baller from her field for a foul she hadn't committed. Mrinal (name changed) began to experience seizures, and severe headaches as though someone was clutching at her veins. She would wake up feeling weird, not recognising where she was, her trembling hands wanting to hold on to her shifting reality. These feelings were soon followed by bouts of throwing up, indigestion, long sleeping hours and

finally, double vision. She consulted a physiotherapist believing her experiences to be manifestations of vertigo or cervical spondylosis. The physiotherapist shook his head and said she needed to get herself tested properly.

The pre-treatment MRI revealed a serious problem, at least, that's what the doctor told her. Unknowing of the whirlwind of hardships she was about to land into, she was given a diagnosis of Astrocytoma, a locally invasive brain tumour.

"I had never heard this name, and did not want to hear it either," says Mrinal. "I knew I had a midline, slowgrowing disease. All I wanted was to

fight it, preferably without surgery, come out of it and resume my work about which I am very passionate, and return to my baby and my life. The word in my head was tumour, and never cancer. And that's the way it stayed. I let my husband do all the talking – to doctors and everyone else – right till the end, praying all the while that the disease be cured with medicines or any other therapy. Fortunately, my tumour was so deeply rooted that a surgery would, in any case, have been very risky. I could have lost my faculty to see or speak. It could have led to paralysis."

Even though surgery was the first recourse for Mrinal, as it is in head and neck cancers, its after-effects

could dissuade the most courageous. It was understandable that Mrinal would want to avoid it. Equally true was that it gave the patient greater chance along with postoperative radiation rather than standalone adjuvant therapy, which is what radiation was. Compromises in cancer had a cost. A residual disease or recurrence could severely limit an oncologist's options.

"All cancers are frightening. But cancers of the brain and lung are the most difficult," says Director, Department of Radiation Oncology Dr Munish Gairola. "The analogy of a crab fits brain tumours well. Like the crab with its many tentacles, Astrocytomas, forming the fourth largest cancerous brain tumour, infiltrate deep into



tissue. Therefore, they are rightly called locally invasive or infiltrative. Unlike head and neck cancers or cancers presenting anywhere else, which can be completely resected along with a safety margin of normal tissue encompassing the tumour, brain tumours do not give us that leeway, especially if they lie close to critical organs. If we dig deep to remove the tumour surgically, the patient may lose her sight or speech, the ability to move the arm or leg, or even her memory. Mostly, the surgeon would do what is called a maximum safe resection: remove all that can be removed safely. But the neurosurgeon, in principle, is forced to leave behind residual disease for which the patient requires radiotherapy to supplement the effects of surgery. It was against this backdrop that Mrinal came to us with a low to intermediate grade tumour."

Before Mrinal came to RGCIRC in 2015, a renowned doctor at a well-known government institute broke it to her: Mrinal's tumour was infiltrative and radiation was her only option. She knew she was getting the second, and not the first, line of treatment.

"Neuro-surgery has witnessed great advances. But so has radiation, which

acts as the sole treatment for certain brain tumours. A surgical intervention may not be possible for certain brain pathologies either because of inaccessibility, or because the tumour involves sensitive areas such as the brain stem which is responsible for minute to minute breathing and maintenance of the body or other eloquent areas. You touch these and land with a complication. Such areas are best treated by upfront radiation," Dr Gairola argues persuasively for radiation as primary therapy in some malignancies.

The MRI had confirmed that Mrinal's tumour was malignant and inoperable. The biopsy found it was Astrocytoma (WHO Grade II). Mrinal was to walk the razor's edge, not knowing if her disadvantage would prove to be an advantage for her.

That's when Dr PK Sachdeva, the neurosurgeon who did her biopsy at the institute, held for Mrinal a beam of light and put her on the road to radiation. "I met Dr Rawat, then unit head in the radiation department," recalls Mrinal. "My family wanted multiple opinions on the line of treatment, even take me to the US for the best possible treatment. But we knew of RGCIRC, and its well-known expertise in treating cancers. The decision was further bolstered by our experience of my father-in-law, who had undergone treatment for colon cancer at the institute, and is now doing well. So, I simply put my foot down on all the shilly-shallying and

said I wanted to start treatment here, and that I would be fine. I am happy I did."

When her doctor cracked jokes with her and laughed with her, she knew she had done the right thing. "I remember Dr Rawat telling me I would lose some hair during the treatment. I was adamant. 'No, I won't,' I said. He looked at me as though I was a little loony," chuckles Mrinal. "He was always cheerful, and told me I was becoming smarter by the day... these words of encouragement and a sense of lightness from my doctor did a lot for me. I would dress up well because I had to go to work post radiation. Everyone in the department also got into the flow: instead of being all serious and treating me as a patient, they would tease me for being such a fashionista."

On April 1, 2015, Mrinal's doctors started her on radiation therapy lasting 45 days, five days a week. Six years later, the figures are somewhat faint in her mind. But the name of the therapy – Intensity-modulated Radiation Therapy, IMRT – that cured her, is sharp in her recall, the essential experience as intense as her therapy and unmodulated by lapsing time. She remembers wearing a mask that would hold her head and neck still and in the right position, her telling the technologist who was setting her up for the treatment to be careful. She remembers that it was a standing joke between her and her husband that it would be a good idea to stay on the







Nearly 70 per cent patients need to undergo radiation through the course of treatment, either as radical, or primary treatment, additional therapy postsurgery or chemo, or as palliative therapy. Tumour bleeding continues to be a challenge in oncology. Radiation is used to plug the bleed, gaining the moniker Haemostatic Radiotherapy. That makes this modality one of the most important in cancer care. Post 1990, rapid technological advancement in radiation oncology led to increased cure rates and decreased treatment-related morbidities. Earlier. radiation stood to cure a patient with cancer of the tongue, for instance, but his salivary glands paid the price for it. His salivation impaired, he was unable to eat. Or he would have problems swallowing and/or speaking, or ended up with fragile teeth. This impacted his psychological wellbeing and isolated him from society. Now, the latest technologies minimise such after-effects enabling the oncologists to rehabilitate the patient into the mainstream in a matter of months. Unlike the earlier Cobalt machines, RGCIRC now has conformal radiotherapy such as IMRT which delivers precision radiation right into the tumour without hurting the healthy tissue. Similarly, IGRT (Image-quided Radiation Therapy) is used to define, locate and monitor the position, shape and size of the tumour during or between treatments through high quality imaging. It identifies movement especially in tumours like in the prostate which may shift because of a full bladder or gaseous rectum, and enables targetting the tumour more precisely and delivering perfect treatment. Stereotactic radiation, SBRT, is as good as a surgery without knife that tracks and treats by burning early lesions in the lung or the brain, without touching any other areas.



radiation table longer than required given that he was spending a packet on the treatment!

But success, someone rightly said, is the sum of small efforts repeated day in and day out. Intensive planning, the most critical piece of the process running into a few days, had crystallised into two minutes for Mrinal, and for so many before and after. The process constituted broadly of three steps: assessing carefully the needs of the patient and recruiting her into therapy; simulation or fixing the position of the patient by immobilising her, using special devices such as the Orfit[™] thermoplastic mask; and lastly, the painstaking contouring of her disease, her critical structures and beam orientation, finally leading up to treatment delivery. The radiation oncologist would be required to sit with her MRI and simulation films, and decide the areas to be radiated as well as the 'off-limit zones' for her critical structures. The entire exercise made for an adequate, deliverable plan leading to the completion of as impeccable a treatment as possible.

"Mrinal was given IMRT, one of the most advanced therapies that conforms to the shape of the tumour," says Dr Gairola, adding that RGCIRC was the first cancer centre to have put IMRT into clinical practice. "The brain is a highly sensitive organ and radiation itself can lead to neurocognitive disorders in the long term, such as loss of speech and memory. IMRT is unique with its capability of delivering higher doses of radiation for destroying the tumour, regardless of its size, shape or location, and simultaneously protecting the surrounding healthy tissue. Consequently the cell death happens in a confined area, minimising the side effects of the therapy, benefitting a range of cancer patients, including those with deepseated tumours or ones located close to vital organs."

While the tumour was dying, Mrinal was coming alive. She could see it on her MRI that her doctor was using to monitor her regularly.

"I trusted my doctors – both Dr S Rawat, and now Dr Gairola – completely. The tumour was shrinking and I knew my treatment was working. Even today, Dr Rawat is available on phone to me. In fact, I came back to RGCIRC even after he left because he encouraged me to continue with the institute. I am as comfortable with Dr Gairola as I was with Dr Rawat. He knows my case very well and has continued to take care of me in my follow-ups."

"The institute was my comfort zone... a place that took care of the disease and left me to take care of everything else that was important to me. I went to work every single day, even changed jobs then. Chemotherapy followed radiation and there were days I felt drained and unable to do anything. Even while my five-day



radiation regime was on, I remember I was getting ready to go for a wedding. As I put the comb to my hair, an entire bunch just came off and revealed a patch of plain skin. I can't say I wasn't shocked. But I tied my hair in a way that it was well camouflaged (smiles). I danced a lot there and went back the next day to my doctor. He reassured me, saying it would all come back. In a couple of months or so, it did – with some help from home remedies," says Mrinal, the smile never leaving her face.

"Radiation to the scalp leads to hair loss, but nowhere else because it is confined to a specific area. The reason why Mrinal is as good today as she was before the tumour is IMRT. She is as intelligent and continues to work as before because of this advanced technique," says Dr Gairola, hailing the dawn of the conformal and intensity regulated irradiation.

Irrespective of the progress in technology and lines of therapy, both the patient and her doctor agree that the man behind the machine is – and will always be – frontline. "Cancer demands intensive team work,



radiotherapy even more. It is an enormously complex treatment for patients of Astrocytomas or as people generally call them 'brain cancers'. Radiation oncology is witnessing new light every day. We have the best technology here, and artificial intelligence machines are in the pipeline too. But the radiation oncologist, medical physicist and the radiotherapy technologist must be in sync, which we at RGCIRC are fortunate to be. My team includes oncologists, 9 physicists and 20 technologists. We all understand that even the best plan without fool-proof execution will only be detrimental instead of serving the patient," Dr Gairola says with satisfaction.



RGCIRC encourages its oncologists to train abroad, not only to enhance their own capabilities but also bring back valuable experiences in patient care. One of these is to make spaces in the hospital, often associated with anxiety and gloom, calming and cheerful by using visual art on walls and roofs. In the radiation room, for instance, a patient undergoing therapy can gaze into a blue sky or see flourishing natural life on the wall in front instead of a restricting white wall. This brings credence to the belief that art contributes positively to the delivery of good health in a strictly scientific space.

"I would look at my old photos and wonder if I will ever be able to get back to my life and its laughter. Along the line, I realised that the instinct to live must come from within. One shouldn't stop living until the day one isn't. Then I affirmed that the medicine was for my good and was making me better. Even today when I go for my follow-ups with Dr Gairola, the doctors, nurses and everyone else who supported me then, smile at me asking after my wellbeing. Shouldn't the patient, then, equally try and support her caregivers," Mrinal's question holds close its own answer.

"Mrinal is an extraordinary girl, plucky, and has an immensely positive mind-set", says Dr Gairola. "I have seen her reach out to help everyone around her, including me, in both her professional and personal capacity. Six years down, she is cured in every way possible. There is no evidence of disease but we keep our vigil. She continues to come for her yearly MRIs, which we now intend to do only at a duration of 18 to 24 months. She and her husband are now looking to have their second baby, she called to inform me. I remember all my patients but she will always be special," he says, gently closing the journey of a ray that was busy lighting up other lives before she found her own.



THE DEPARTMENT OF RADIATION ONCOLOGY

The Department of Radiation Oncology was established in 1996 along with inception of the hospital. Beginning extraordinarily with three machines, a cobalt and two linear accelerators, something that even AIIMS followed with only later, the department has charted a phenomenal growth. It is today the second largest radiation oncology service, next only to its counterpart in AIIMS, and the largest amongst corporate hospitals in Delhi-NCR providing treatment at par with premier international centres. The department began delivering Image-guided Radiotherapy (IGRT) in 2009. Three years later with the initialisation of the very advanced system for treating complex cancers – TrueBeam – it became one of the first in Delhi-NCR to offer stereotactic radiotherapy (SRS, SBRT). In its quest to provide better, quicker and precision treatment, the department has constantly upgraded its technological armamentarium. The latest addition of the next-generation Radixact TomoTherapy, capable of IGRT along with specialised cases of large field radiotherapy and total body irradiation testifies to our intent. Its seven machine bunkers for radiation shielding that house high energy linear accelerators capable of handling advanced and complicated cases with exclusive X-ray and CT simulator along with a dedicated brachytherapy suit. The department looks to acquire in a few months the highest form of conformal and stereotactic treatment, the robotic-based Cyber Knife. An acclaimed teaching programme enables the department to churn out future oncologists with excellent research portfolios and projects they have been a part of during their training.

PAIN, PALLIATION AND HOME CARE

A doctor may say: 'we can continue treatment or we can just do supportive care.' We have to take the word 'just' out of that sentence. - A NURSE PRACTITIONER



We are saddened to hear of the demise of Shri Jaiprakash Sharma. Although expected, we would like to say that it has been a privilege to have had the opportunity to serve him and support you. We admire your untiring devotion to him throughout his illness. On behalf of the management of the Rajiv Gandhi Cancer Institute and Research Centre, we convey our sincere condolences to your family.

Signed

Dr Savera Ahmed, Home Care; and Dr Swaroopa Mitra, Radiation Oncologist



It cannot be easy for a physician, who has done her best to treat and add a few good years to the life of her patient, to say she cannot help anymore. That which was a home at one time is likely to turn hospice, she knows that too. It is hard for the patient to know he has an illness that will claim him sooner or later. Harder still to see the end every day in the eyes of his loved ones. When the hour strikes, it is the next of kin that are hit the most. But there is another family that has forged a bond with him over a period of time – one at the hospital. There is a sentiment there too. It needs to say that it remembers, that there is someone who won't stop at trying to cure. It will care till the very end. "Dr Swaroopa Mitra said to us that it would be better if we could take care of my husband at home. While he was undergoing radiation with her, she would counsel us very kindly and come up with a solution to the problems we shared with her. In fact, she referred us to the patient welfare scheme at RGCIRC that took care of a lot of our expenses. This time, once again, when we did not know what to do next, she reassured us. That's when Dr Savera and her Home Care team started visiting us," Kiran Sharma says, her sorrow finding an easy route out of her eyes.

Kiran lost her husband Jaiprakash, a cab driver, in July 2021 to cancer of the brain after three years of treatment at RGCIRC.

Jaiprakash Sharma was in his midforties when he underwent surgery at a Delhi hospital for Glioblastoma Multiforme, a kind of brain tumour. For reasons of proximity, he registered with RGCIRC in May 2018 for radiotherapy and chemotherapy. In less than two years he returned to the institute with seizures, inability to speak and general weakness. His MRI revealed tumour deposits. It meant another tumour decompression surgery and yet another round of radiation. The decline, however, had begun. Jaiprakash would be tethered to his bed, unable to walk, speak or comprehend much. It was January 2021, when Dr Swaroopa Mitra referred her patient to the Palliative and Home Care Team. It was time for him to go home.

It was time also for his wife and children to deal with the crushing weight of knowing that their loved one was not going to make it. How would they take care of him? Who would give the necessary medicines to keep him comfortable? Who would she call when she needed to know something or just wanted a good cry? The cloud of questions made Kiran's heart heavy. They had to go home – fortunately, not alone.

Hospice – probably the only one in Delhi at RGCIRC which takes free endof-life care to the patient when he is too fragile to journey to the hospital – accompanied him.

"Our patient is 'ours' till the very last, not just till the time he is spending on active treatment. When Dr Mitra referred Jaiprakash to us, he was on symptomatic treatment. He had

> The 'our' glass: people in Home Care team up with the patient's family to take care till it is time.

the herpes zoster virus, his speech was slurred and, clearly, he felt powerless against his family's inability to understand him. At the outset we gave him a prescription from a skin specialist and started him on medicine. On closer examination, we found he had developed a bed sore. It is important to do a thorough physical check because bed sores tend to develop, especially in the back, from prolonged lying down. We explained to his wife, the primary caregiver, ways of sponging and cleaning him. Often, we spot a change in the colour of the skin which ends in a bed sore. That's when we must guide the attendant on how to prevent it," the gentle home care consultant Dr Savera goes on to detail the kind of care the department provides.

Living in a body ravaged by cancer, the patient has to deal with multiple symptoms. He may be throwing up one day and get diarrhoea another time. Lying in bed for extended periods may cause severe constipation. He may not be able to pass water, may feel acidic or come down with fever. Fungal infections are very common among such patients. The home care service provides them with doctors' prescriptions at home to prevent or control the distressing symptoms. The team also dispenses free medicines if the family is strapped for funds – as in the case of Jaiprakash Sharma.

Humans are, however, more than physical beings or financial entities.



Beyond the purview of medicine, they

are also a bundle of aching feelings

and raw emotions that need healing. "My sister returned to Agra having

spent a long time with us during his

treatment and then, we were all by

Unke baare mein jitna kahun, kam hai...

unhone aur Sister Hema ne bahut madad

ki hamari. Bahut achchi thi woh. Medicine

batana, dressing badalna... unhone hamen

diaper bhi diye. Har ek cheez dekhti thi,

kahin bed sore to nahin hua, koi infection

hota tha to uski dava wahin likh kar deti...

mere husband unke aane ki intezaar karte

the. Unke aane se jaise unmen nayi jaan,

nayi ummeed aa jaati thi," says Kiran,

A new hope that came as much

from concern, a kind gesture or an encouraging word as from pumps,

pipes and catheters... "We speak to

the patient if that is possible and

haltingly.

ourselves. Phir Dr Savera aane lagi.

(Left to right): Sister Hema and Dr Savera Ahmed, Home Care Services, get ready for a home visit.

the attendants to understand their needs. Checking the vitals, monitoring sugar and saturation levels, changing dressings and taking care of the feeding and tracheostomy tubes if applicable is part of the home care process. We also train the attendants in medical and dietary care of the patient," says Sister Hema, one of the oldest hands in Home Care. "We may do this on several occasions and feel satisfied when the attendants report they have benefitted from our instructions. I am happy when our patient is better, sad when we see he has deteriorated... that sadness sometimes goes home with us," she



continues quietly, testifying to the gravity of her work with the dying.

Many of the symptoms, however, pale before one of the most horrifying of them all – pain. Cancer, irrespective of the type, may debilitate the patient with pain long before the inevitable comes. The home care team deals with pain management in tandem with the pain management consultant and the treating oncologist.

"Pain management is part of palliative care, which aims to relieve the symptoms and stresses of cancer irrespective of the prognosis. It includes medical therapy, procedures such as radio-frequency ablation and nerve blocks for which the patient has to visit the hospital. The focus of Home Care at our institute is, however, end-of-life care since inception and our work is to take the hospital to the patient when he can no longer come to us," explains Dr Savera. "Patients are people first. They have medical, emotional and spiritual needs. They need to take some practical decisions. Adding days to their life isn't in our hands, but we try and do the next best – help add life to their days.

"For instance, the primary physician may start the patient on morphine once he is referred to us. I can titrate the dose, but the patient has to come to our pain clinic for assessment by the pain management consultant. In normal course, the patient receives a month-long supply of prescription drug like morphine. But sometimes, he may not able to visit the hospital for a week or so. In that event, we also dispense morphine as part of home care."

Jaiprakash, who would complain of severe headaches, was given tramadol, another prescription drug, and paracetamol following his inability to visit the hospital. *"Ham majboor the. Unki condition aisi nahin thi ki ham unhen hospital le jaa sakte. Bachche bhi*



unhen utha nahin paate the... Home Care se hamare kharche bhi bache – taxi ka, ambulance ka. Lekin sabse achchi baat thi ki woh hamen har baat ka javab dete the... main jab bhi phone karti thi, Dr Savera hamesha phone uthati thi aur mujhe detail mein sab kuch samjhati thi. Hamen laga hamare liye koi hai aur mere husband ko koi dekh raha hai," Kiran voices a universal sentiment of a caregiver.

People choose home care for several reasons, says Dr Savera. Discontinuing curative treatment as recommended by the physician is only one. In dread of chemotherapy, the patient may not want to come to the hospital, or may opt out of active treatment, especially in the later stages when the outcome is likely to be uncertain. Patients also opt out of medical imperatives because of intimidating treatment costs. "But sometimes, the patient may refuse to undergo the agony of more treatment even when we offer financial support through our philanthropic work. It's never one reason," Dr Savera says. "One of our patients, 75 and well to do, refused further treatment. She chose to spend the remainder of her life on her own terms, surrounded by her loved ones. She had co-morbidities. We would visit her, check her vitals and talk to her. She was happy that the hospital was taking care of her till such time as she passed away."

To care for the dying cannot, however, exclude caring for the caregiver, one who will live after. The home care team has to execute the delicate task

Thank you for giving us an		Kindly rate your openess on our			v	4
opportunity to care for you.	Name NULTINGER, BRILLON	Exercised services		2	3 4	4
Your comments/ suggestions/	CR Rumber 278543	VINTING DOCTOR		1		-
will help an continuously improve the efficiency of our systems, process & services. We truly appreciate the time spent in filling up this feedback form.	Bute of Visit 20.03.21	Professional	-	0	-	0
	Vieting dector BR. SAUCEA ANNEL Address Z = 24 , FIRST PLOOK,	Response to your queries Explanation about Clinical condition	8	8	8	00
	HAUZ KHAS , N. GELHI	Explanation about drugs and docages	0	0	0	2
	Phone number + 41 scop 414042	Pain robot		0		0
	that solution to Tari	Information about scheduled time	0	0	0	0
	Form Filed by	EXPERIENCE WITH THE				
	Patient/Attendant	Ger & conorm			0	2
	Any comments/Suggestions	Response to your need				0
	Patroni//Attronuturet 9 Any communicati,/Suggestions	Carr & concorn Resement to your used	00	00	00	38
	tone / Service "	Carr & concern Response to your used	00	00	00	88
	topologicalist a ty consider the opposite by consider the opposite at the opposite of all + coplete the pointed there you !	Care & concore Response to your need	00 0	00 0	00 00	6 88
	hannel/standard 0 hannenter Faggersteins gry Garrenge, Really appreciate all the order hand of the application provided theme you ? 	Care & concern Response to your need	00 00	00 00	00 00	00 88
Jan 23, 2021 Dr. Savera a have been very helpful for vodicines, dut and morale	haven/ Alexander 3 ty comments Magnetisms my Conserved. Really appreciate all the upper alexand Part + cipheration printed that you ! May comments / Suggestions ad here been united we to chan Jhe parties (D's Eakay. The of the pretriest, Thouse you	Carr & concern Response to your need Carr & concern Response is your need y for the second fri y have been helpful a Secture Resetor		00 00	. 00 00	00 00
Jan 23, 2021 Dr. Savera a have been very helpful for reducines, diet and morale	Any comments, Taggertions Any comments, Reality appreciate all the upper-share of and + ciphention principal thank you ! Any comments, Taggertions all here beers united we to chan Jhe period (D's Eakay). The of the pretond, Theore you	Care & concern Response to your need Care & concern Response is your need J Joy thus Second Ant Nerve becan helpful a Secture Results Response to your need	- N: 00	00 00 38 1		1 01 88

Feedback forms for Home Care Services.

Apart from a dedicated Home Care team, RGCIRC has a robust Pain and Palliative Care Department of which the former is a part. The department is managed by three consultants Dr Bablesh Mahawar, Dr Sunny Malik, Dr Kinshuki Jain and pain nurse Peter. The department offers a sustainable continuum of care with empathy, bearing in mind the uniqueness and dignity of each patient. The services include (a) Symptom management such as fatique, nausea, vomiting, loss of appetite, constipation and diarrhoea; (b) Management of pain from cancer or cancer treatment; (c) Multimodal approach by practitioners from different disciplines such as physiotherapy and psychotherapy; (d) Psychological and bereavement support; and (e) Education and training of caregivers.

of holding the tenuous link between the two. It is tough to be an attendant, especially when the patient needs to be assisted with the most basic activities. The former is perhaps more prepared for the eventuality. But the caregiver is so wrapped up in nursing the patient that she may not even have the time or space to address her own challenges.

"Our attempt is to provide timely assistance and emotional care so that the attendant can also carry out her role better," says Dr Savera. "Sometimes when a patient is referred to us, he may be at a point when he can barely speak like Jaiprakash was. But the caregiver is overwhelmed: with the pain of a loved one she witnesses all day, a child's education or marriage, financial concerns. She may be seized by fear, loneliness, sadness, hopelessness and anger. So a large part of our work is to listendeeply. It enables us to understand and help the caregiver share her most important concerns. Many caregivers cry a lot in front of us, we let them, and that, perhaps, is as therapeutic for them as for us.

"We have to gently prepare the patient and the family for the eventuality. Sometimes the attendants know their loved one is in terminal stages. But it is human tendency

Building a compassionate community: Dr Bablesh Mahawar, interventional pain and palliative care expert, with Viditya Saini, one of her patients. to wait for a miracle. Kiran would sometimes tell me that she felt her husband would get better and be able to move on his own the next time we visited them. She was religiously inclined. So I would let her keep her faith, but also encourage her to see why we must be ready for what's to come. To balance optimism with realism, and denial with acceptance is, to my mind, the true purpose of endof-life care."

Currently, over 100 patients are registered with Home Care from all over Delhi. The team loses about eight to 10 every month. But some of the attendants still call and share the joys and sorrows of their life with her, smiles Dr Savera. "A condolence letter which we write to the family of the deceased on behalf of the management of the hospital and our own is part of our bereavement services. But it is more than a good palliative practice. It is a small gesture to our patient's family to let them know this wasn't a one-off relationship which should necessarily end with death; that our support will continue well after should they need it."



PAIN, PALLIATION AND HOMECARE DEPARTMENT

Since its inception, RGCIRC has had a pain, palliation and homecare department with the express purpose of taking the hospital to its patients when the latter can no longer benefit from cure, but still need a lot of care. The homecare service, in particular, comprises a team of physician, counsellor and nurse that visits patients at regular intervals for providing supportive care at home. Their work includes symptomatic relief and nursing care to patients, education and training to caregivers regarding the patient's diet and general hygiene, apart from management of predictable symptoms efficiently, without panic. The team extends counselling and emotional support to both patients and their families to help reconcile psychosocial and spiritual issues. The doctor and nurse play confidante and clinician, friend and counsellor, all at once to the patient as well as caregivers. The purpose of these visits is to impart holistic care and add life to the days of the patients.

The team also reaches out to provide bereavement counselling and support to the family. The service, including medicines and nutritional supplements, is free for patients registered with the institute.

LOOKING AHEAD Past Forward

Mutations aren't only about mutinies of cancer. And DNA isn't confined to molecular labs alone. These secret codes of life are propellers of growth - also in positive, healthy directions. In the setting of a hospital like the RGCIRC that prides itself on its DNA of high tech with high touch, growth is extrapolated through everyone who is a part of it, especially doctors who are the very seed of renewal and progression. We spoke to three youthful and passionate doctors who represent the new crop at the institute to get a glimpse into its future and its role in cancer care. Two of them – Dr Ullas Batra and Dr Sumit Goyal are medical oncologists – one specialising in lung cancers and the other in gastro-intestinal (GI) cancers; and Dr Mudit Agarwal, is a practitioner of head and neck surgical oncology. All three are doing avant-garde work in their chosen fields, ready to drive their institute into the next 25 years. How do they perceive their chosen inheritance, the DNA of RGCIRC, a not-for-profit, driven not by targets

but by human values of compassion, cooperation and collaboration? In a refreshing dialogue, marked by candour and mutual respect, they speak their mind on why they chose RGCIRC to fulfil their aspirations, what makes them love working as teams and what the institute must do to stay the leader that it is. Some excerpts:

Q. Why did you choose RGCIRC over any other cancer institute?

Dr Mudit Agarwal: I chose to specialise in the Head and Neck branch of surgical oncology. Given the number of people who have these cancers in our country, we certainly need this specialty. Starting 2003, I have worked with government, trust-run and private sector cancer hospitals or dedicated cancer centres in tertiary hospitals all over India. But I wanted to do a lot of robotic work that I wasn't able to do anywhere else. One of the major reasons that pulled me to RGCIRC was it had two robots. Then, there was Dr Sudhir Rawal who is already known for his work in robotic surgery. Here, I am a senior consultant and feel privileged that I have all the freedom to do what I choose in this field as long as it best benefits the patient.

That was the other important reason the well-being of the patient. Surgery in early oral cancers is curative. I had for long felt uneasy that I was not able to help patients because of the prohibitive costs of cancer treatment, especially in early cancers. This place allows me to do my bit for the community without anyone asking me any questions. I am glad to be part of an institute which doesn't rest only at offering relatively lower treatment costs. It goes beyond with its philanthropic work – free beds, discounts etc. No other centre, except for a Tata Memorial or some other government institutes I know, do such work.

Dr Ullas Batra: Like attracts like (smiles). I think only like-minded



Introspective, Interested, Innovative: (left to right) Dr Mudit Agarwal, Dr Ullas Batra and Dr Sumit Goyal.



A glimpse of the RGCIRC reception area, where the number of footfalls increases day by day.

groups of doctors join and then, stay here. I come from a family of nondoctors. Growing up, I remember anyone who had cancer in the family would speak only good things about RGCIRC. This was the name we heard. Let me say, then, that I speak from the patient's perspective. What attracted me to this centre was that this was a niche cancer hospital. All treatment modalities available under one roof, a fantastic reputation and patient volumes, the institute had it all. A counterpart in Delhi began alongside RGCIRC. One faded away, sort of. The other thrived... because of great patient care. RGCIRC isn't a fancy five-star hospital but it has a trusty band of doctors and their opinions are valuable – I have heard my own family say that.

This institute offers you the best of both the worlds – high patient load which is where a public sector hospital scores and cutting-edge technology, the signature of a corporate hospital. It is a win-win situation for both a patient as well as for an oncologist who is interested only in cancer.

Dr Sumit Goyal: Starting my career, the only thing that I was interested in was cancer. My ambition took me all the way to Silchar, Assam, where I worked with an NGO. But I returned to Delhi wondering what next. Ullas, my batch-mate, told me about RGCIRC and that this was the place to be in. I joined in 2009 and shortly went back to Silchar to keep my commitment.

By the time I returned here in 2016, I had worked at many charitable, commercial and small centres in Chandigarh and other parts of the country besides other corporate hospitals – and I knew how the latter worked. There was also the legacy of Adyar, my alma mater for DM, where everything was free for the patient. It had to be a mix of good patient care and sustainability. I was very happy - also ready - when Dr DC Doval and colleagues like Ullas asked me to return. I knew it was here that I could have a fulfilling life as a doctor. The centre was doing wonderful work in pathology, which was lacking in the other centres I had been to, and radiology. The ancillary and backup support were excellent here.

The other important factor that gave me a sense of freedom was that I was not expected to meet targets. No one in my department or in the hospital has in the last five years asked me why I have made a free prescription, given a free bed or refunded a patient's money. Why was I seeing fewer patients, how much revenue was I generating – questions that are routinely asked elsewhere are not part of the culture here.

Dr Mudit Agarwal: I would second Dr Goyal. Unlike any other exclusive cancer care centre, this institute has the best ancillary staff like cardiologists, gastroenterologists and nephrologists. It has the best team in pathology where all the difficult diagnoses are taking place. We have a very good anaesthesia team so that we can run our OTs from 8am to 9pm.

Dr Ullas Batra: Sumit was referring to numbers. I dare say numbers have the potential to translate into good patient care in the right hands. They generate experience, and experience generates excellence. For instance, a patient with a rare tumour and a creatinine score of 3.2 needs chemotherapy. As a dedicated cancer institute, RGCIRC gives me the opportunity of seeing five other patients with the same tumour. So, if a sixth patient comes to me, I am prepared to give him much better care.

On a serious note, we eat, drink, live and breathe cancer treatment here. We are used to seeing practically every complication here. We may have given a particular drug 100 times. That enables me to say that a certain set of complications may occur in more than 20 per cent people or in less than 5 per cent. I have probably seen all possible complications of this drug. This allows me to think about them. Then, I can predict them, work to prevent them and treat them too. Huge numbers, in a niche centre like ours, ultimately lead to good patient care.

Q. Are you saying that all here is flawless, no mistakes ever?

Dr Sumit Goyal: You know what makes this centre special is that it is very difficult to go wrong here. The



patient is first seen by a doctor in the team, then by a senior consultant. There are the tumour boards and then cross-specialty references. There are so many checks and balances at each level that chances of a mistake going unnoticed are negligible. For instance, a patient of rectal cancer comes to me. I know he needs radiation first. But I start him on chemotherapy instead, I cannot continue for too long because he has to eventually go for radiation after the initial few cycles of chemo. That's where it would come to light that he needed radiation first. So, one, I wouldn't wilfully subvert the system because there are no extraneous pressures. Two, the system itself has enough inbuilt safeguards.



Dr Ullas Batra: Cancer is a grey area. One may start with chemo, surgery or radiation and follow it with the other two. Often, doctors have targets to meet and their approach is 'specialty first'. People come here asking for a surgery. I have seen Dr Rawal or Dr Mudit sending them back or to another modality because they don't need one at that time. Our approach here is 'patient first'. Just the other day, a patient came to me requesting immunotherapy, which is a very expensive treatment. When I refused, he told me five other corporate hospitals had agreed. He eventually sought multiple opinions overseas to be told they agreed with the management plan at RGCIRC.

Sumit, you said chances for making a mistake are few and of getting caught, better. That's also because most units have teams. It's not *ekla chalo* here (laughs again). We have a group practice among medical oncologists too. My unit comprises a senior consultant, two junior consultants and three DNB residents. Incidentally, even our junior-most doctor is highly trained in oncology. Sometimes a patient may come to us late in the night. He will be seen by a DNB specialist, who is actually a post MD and is training with a cancer hospital. RGCIRC often reminds me of a joint family where one steps in for the other - it makes me feel at home. Working with a team gives me time for myself. I can get into research, read, take leave or attend a conference. My quality of life is good without my compromising on patient care.

Dr Sumit Goyal: That's true. There is freedom to discuss each case and for everyone to put their perspective on the table. I can with frankness ask my senior why he or she did whatever they did. And my junior-most DNB student can question me. It is a public forum and we have to substantiate whatever we say.

Q: Cancer is galloping away like an unbridled horse. Ten million new cases globally in 2015 to 15 million in 2020. Critical illness cover in India fails to meet the specific insurance needs of a cancer patient. Most insurance agencies pull back from giving even a normal health cover to a cancer patient. Shouldn't care also include financial counselling for everyone given that this is a disease that makes paupers of even princes? In a day and age where most corporate hospitals are willing to spear the patient's pocket with the not so explicit purpose of meeting targets, how does this institute function?

Dr Mudit Agarwal: A financial officer gives the patient a budget in the average corporate hospital. Here, we – the treating physicians – do everything. I tell my patient the cost of treatment, cost of adjuvant therapy... I advise him in favour of financial prudence for the treatment can be long and unpredictable. From the day we begin preparing for surgery, I ask the patient to apply for CM and PM Relief Fund which takes a couple of months to come. We send them to our philanthropy department. By the time he is ready for chemo or radiation, he has the money to complete the treatment. There is an optimal time period within which the next round of therapies must start after surgery, or else my work is a waste.

On the other hand, a young, wellto-do patient for surgery may want to be in a private or deluxe room. I tell him "Don't spend your money here. Choose the general ward – the treatment and doctors will be the same." If he has insurance, I ask him to keep it in reserve. And if we feel a young patient needs a surgery anyhow, we simply forfeit our fees. We feel it is our professional responsibility to do so.

Dr Ullas Batra: And this is routine here. Here is a CEO who at a management committee meet apprises the doctors of the various welfare schemes of the hospital apart from the CM and PM Relief Funds, and encourages them to use these schemes. There are no hidden or apparent gains to the hospital here. Many of my friends elsewhere tell me their management instils a sense of insecurity in them. Here, they do the opposite. They want to make you comfortable so you can focus on your job.

If you have seen your boss do things, like a boy sees his father at home, you do the same. The culture percolates down. Dr Dewan refunds at least 10 per cent of his daily OPD cards every day. I have learnt it from him, and from Dr Doval. I personally waive 10 per cent of my patient's fees once in a couple of days. Everyone does it here. We have a non-general OPD and a general OPD – the fees of one being 1100 rupees, and the other 5 rupees. Depending on the financial condition of my patient, I will simply tell her to come on Tuesday or Friday when we hold our general OPD. The mission of this hospital is not to earn money but give the best possible care to the

patient irrespective of financial strata. The mandate of a Tata Memorial is research, of an AIIMS, catering to the lower segment. Our motto here is to take care of the common man as though he were in a corporate hospital. We knew this when we joined the institute. That is neither a big deal here nor is it even counted as philanthropy.

Q. This is music to the ears. But often, in spite of financial counselling, estimates shoot up. A figure of 5 lakh will double at billing time.

Dr Mudit Agarwal: First, 5 lakh never becomes 10 lakh here. I may give a 5 lakh estimate to a patient. It may go up by a couple of lakhs. That is why we harp on keeping money in the reserve. There may be a complication or bleeding. A flap during the reconstruction of the tongue may need another surgery. In that case, he goes back to the OT. That said, I take responsibility for the estimate I have given. If necessary, I will cut down on my fees, give him a discount or not charge him at all. How is he expected to arrange for those funds?

Our patients here are typically from the lower middle and middle class. We know they don't have much in reserve. If we feel a patient would be hard put to bear the expenses in case of complications, the management

gives him a free bed for four to five days. The doctors' fees are waived and the patient spends for only investigations and medicines. Of course, a committee approves the waivers. But all it needs is our signatures on the prescription and it is quickly done.

Dr Sumit Goyal: We had a patient in the ICU. We had already given them the estimate and also told them her chances of survival were bleak. But with good care, she survived. She was removed to the room, and the costs escalated. She needed an injection that wasn't generic or mentioned to her earlier. She came and complained to us. We waived that extra amount without any ado. In another case, we found that there were some inaccuracies in the reports of a certain patient, who was admitted with us. But by then, the medicines had been mixed. Somebody had to pay for the loss. We spoke to the pharmacy and they took care of the matter. We try to keep our word, or we lose face.

Dr Ullas Batra: As Dr Mudit says, yahan 5 ka 10 nahin hoga. And even if it happens in 1 per cent of the cases, it would have been communicated to the patient a few times by the treating unit. So, lots of transparency. I tell my patients we cannot guarantee you the result. But I can guarantee my sincerity, honesty, integrity and transparency because I have no ulterior motive. This is part of the DNA of this hospital.

Q. How do you see this DNA drive the future of cancer care at RGCIRC in times of increasing competition? What is the future of cancer care the world over?

Dr Ullas Batra: Let me say that the management is inclined on research, latest IT and anything which enables excellence and patient care. Radiology, pathology, AI, research, robotics, new radiotherapy equipment - they say yes to anything for which a doctor has a scientific explanation. No one is asked about ROI.

As for the future of oncology – it is precision medicine. With so much research happening in the field, it would be impractical for one person to treat everything from head and neck and lung to breast and GI. Our institute has already taken that leap – we are practicing site-specific medicine in all the three modalities, on similar lines as those of the West. Mudit, for instance, specialises only in head and neck cancers...

Dr Mudit Agarwal: ... and I want to narrow it down further to oralmaxillary, skull-based and parotidthyroid cancers because the more one specialises, better the results relative to others. Robotics is the answer to most surgeries, especially early cancers. Today, I do a robotdriven surgery for tonsils, base of the tongue or post pharyngeal cancers. My robot allows me to go deep inside, giving me good instrumentation and magnification. But it has been



specifically made to do uro-gynae work, not head and neck cancers. Again, given the harsh side effects of treatment, my patient might come with a complaint of not being able to eat or speak a year later. So, we have cured the cancer, but the side effects are incapacitating. I want my patient to be better physically and socially, certainly not disfigured or worse off after the treatment. That is why people choose chemo and radiation, which have their own consequences.

Now specialty-driven robots are being made for site-specific cancers that allow the surgeon to see the finest parts of anatomy and know precisely where the cancer is – like in that film *Honey I Shrunk the Kid* ! (Everyone laughs). With such technology, I can practically remove 100 per cent of the tumour, shrink the margins and operate even at a ripe old 70 because even though my hands might tremble, those of the robot wouldn't.

Dr Ullas Batra: In the seventies, lung cancer was one disease. A man who smoked 100 cigarettes, a woman who didn't even touch one and yet another who was a passive smoker, everyone got the same chemo for lung cancer. People survived three to four months without therapy, eight to nine months with it. No point treating if treatment is going to be worse than the disease. So, many refused treatment. Again, no one knew why someone who also smoked liked a chimney escaped the disease.

Today, we know these cancers are not the same disease, they are different. So, now a drug which targets a specific kind of mutation in the tumour cells is administered so that the patient doesn't experience hair loss, nausea and all the other banes of chemotherapy. The survival from eight months has gone up to four or five years even in stage 4 lung cancer.

Dr Sumit Goyal: It seems every 25 years brings significant changes in the way we understand and treat this disease. Going from macro to micro to nano, I see a radically new science evolving 25 years hence making treatment protocols entirely different. Today's therapies, I feel, may be obsolete tomorrow. We are headed into times when two people of the same age and same cancer will need different treatments and have different outcomes.

Dr Ullas Batra: Sumit spoke of nano science, in which applied research is the most in cancer. So, let's say you are cleaning your house for Diwali. You may use your hands, brooms or a vacuum cleaner. The last mode is like a robot. Its movement, unlike my hand,

is 360 degrees. My chemo doesn't reach all the places it needs to. The carrier particle is very toxic and has side effects. If I increase the dose, the side effects will also increase substantially. Nano medicine gives me greater manoeuvrability. The carrier particle, the size of which is 10 to the power minus nine, will be able to take the chemo to each and every corner of the body which houses a cancer cell, wage the battle without the neighbouring cell even knowing about it. The patient will get the maximum benefit through a minimum dose with far less side effects. This is nano technology. The practice is under way but we are still not sure of the results.

There was a time when medicine in the US was ahead of us by half a century. Now, it has shrunk to a mere six months. We are now able to give a medicine that is approved in the US six months later in this institute. That is one of our USPs.

Dr Sumit Goyal: To forge into the future, we need tools like genetic testing, working with RNA and DNA – tools that tell us about the signature of the tumour. RGCIRC has already started to do this. It is likely that people will have a medical astrological chart which can predict cancer predispositions and how we may prevent them...

Q. But how wise is it to make these astrological charts? Knowing you may have a cancer at some point can actually be a dreadful thing for many of us.



Dr Mudit Agarwal: Well, early breast screening has proved it mortality rates have gone down. I think diagnostics and pathology will have a big role in the times to come. Everything will be more personalised and therefore, a lot less invasive. The treatment costs will go up in the short term. But if we want to evolve, we must have homegrown data. TMH is working on metronomic chemotherapy – which is equally spaced low-dose chemo instead of maximum tolerated dose with rest cycles that may involve recurrence and resistance to therapy – for the Indian poor patient.

Q. That brings us to the necessity of research and back to the issue of costs...



Dr Mudit Agarwal: Most scientific data is western. China with the maximum number of naso-pharyngeal cancers leads in research here. Research in the USA is focussed on the breast and colon and they gave the world the Da Vinci robotic surgical system. Oral cancers top the list in male cancers in this country - and the mortality rate is also very high. But India isn't a leader in this space. A liquid biopsy feeds a blood sample along with other diagnostic parameters into Artificial Intelligence (AI) which can tell us that a certain patient will have a bad prognosis in spite of aggressive treatment etc. Such a patient can actually be spared of radical treatment. Alternatively, we might think the prognosis for a patient with advanced cancer is bad. But AI might tell us otherwise.

Our hospital is part of the process of gathering clinical data. We treat, get the biopsy, follow the patient on how he is doing, his survival etc. We feed that into a computer. This form



Hematoxylin and Eosin (H&E) stained slides, prepared from specimens and used for microscopy to diagnose cancer.

of personalised medicine along with artificial intelligence is the key. If we put our heads together, we can have the same prognosis for a larger representative sample.

Dr Ullas Batra: Research is a critical part of any good academic institute. With a foot in the past and an eye on the future, we have incorporated liquid biopsies, research and AI in our institute. We are already doing basic and clinical research. We have the largest institution-based tissue bank in the country that houses thousands of bio samples from various cancer types for the purpose of research. Our analysing, presenting and learning from this data in-house has enabled us to incorporate both AI and liquid biopsies, something that even Tata Memorial outsources. That this facility is in-house reduces transit and turnaround time. The lines of communication between doctors are always open. This symbiotic relationship between the management, doctors and patients is a win for all.

Dr Sumit Goyal: I agree we are a premier centre, and will always be. Why? Because of a very supportive leadership without which even the best institutions cannot grow. As I see it, there are caterers and there are innovators. We can continue to be caterers and serve our community well. But innovation is must if we want to excel. Innovation needs funding. Finances, for big corporate hospitals or government-funded institutes, are not a matter concern. They have enough resources, for instance, to invest in an expensive technology like Proton therapy which costs hundreds of crores. But for an institute like ours, financial viability becomes a challenge, and a hurdle. Two, what is theoretical today is very likely to be tomorrow's reality. Is there a way to escape it? I think not. So, there is a cost to pay. And costs can come down when research becomes collaborative and generics start coming in.

Dr Mudit Agarwal: Ours is the only centre in the private sector which has site-specific pathologists. We have a head and neck pathologist, another to look at lymphomas and yet another set of people poring over colorectal cancers. I know only of Tata Memorial with that kind of specialisation. That kind of research is very critical because the treatment changes drastically.

Our tissue bank is a facility I would say is like going back to the future. We have over 10,000 tissue samples across cancer types that are up for research – we don't have to wait another 20 years to start work. We could be sitting on a huge data base if we collaborate and share how our patients and those in other Delhi hospitals have done post treatment. But egos are big here.

Q. So, will high-touch take the backseat as high-tech becomes the high priest of oncology?



Dr Ullas Batra: This debate is unending. Science can be a bane or boon but the context is important. You can't just get a genetic test done on whim. Like morphine, it isn't an over-the-counter drug. An experienced doctor or a genetic counsellor alone can order these tests. But they are available. How we use AI depends on the hands it is in, for too much or too little of everything is bad. That is why an only cancer place like ours is important which can judiciously use these tools.

And that is why man is never going to be replaced by artificial intelligence. You cannot take the human, the emotional element out of any treatment.

The conversation isn't complete yet. And perhaps never will be. For as Leonardo Da Vinci said, "Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return."

Formalin Fixed Paraffin Embedded (FFPE) Block. Tumor tissue is embedded in wax for long term preservation, and useful for conducting future researches.

Anaesthesia Services

I need to wake up so I can put you to sleep - Anonymous

> Established in 1996, the Department of Anaesthesia began with two consultants and four resident anaesthesiologists running three major OTs. It now has a team of 10 consultants and 20 resident anaesthesiologists, providing roundthe-clock anaesthesia services to 14 major OTs, Cath Lab, CT-scan and MRI suites.

Following a cardiac arrest anywhere in the hospital, a difficult venous access or any other crisis situation, the anaesthesiologist is the first to be called.

Anaesthesia for cancer surgery is challenging. Patients are anxious, have comorbidities, or other issues likely in the wake of chemo and radiation treatments of prolonged durations. It requires specialised skills which only a qualified doctor can provide. These include continuous monitoring, quick decision-making and appropriate interventions to safeguard a patient's interests.

Anaesthesiologists at RGCIRC are deeply cognisant of the fact that patients under anaesthesia are unable to take care of themselves. They take the responsibility of maintaining vitals through continuous, vigilant presence in the OTs. A patient waking up after surgery, as if from sleep, pain free, and not recalling anything, is an index of how successful an anaesthesia spell is. Our endeavour is to provide service of this quality.

The anaesthesia department boasts of state-of-the-art Perseus Workstations with Artificial Intelligence incorporated. Procedures such as, Video-laryngoscopy, Bronchoscopic intubations, Double Lumen Tube Insertion for one lung anaesthesia (bronchial blockers for difficult airway), Trans-Oesophageal Echocardiography (TEE), manual jet-ventilation, diagnostic and therapeutic perioperative ultrasound, regional blocks, invasive cardiac output and stroke volume variation (SVV) monitoring are being used



in anaesthesia techniques at the institute.

A full-fledged pain clinic incorporates image-guided regional blocks besides opioids (oral, skin patches, intravenous/epidural infusion pumps) conforming to the WHO pain stepladder for cancer pain management and palliative care. Two surgical ICUs with 20 ventilators and dialysis services provide skilled postoperative care completing the cycle of integrated perioperative care.

Research at RGCIRC



Research is crucial to healthcare. In this ever-challenging field of treating cancer, research helps us to navigate through the biological complexities of disease, diagnosis, effective treatments and prevention strategies. It was to facilitate this navigation that the founder members of the hospital founded a Research Centre in 2006. Their vision was to improve prevention, detection and treatment of a range of cancers by supporting clinicians at the institute through conducting various types of research, both prospectively and retrospectively.

Today, both basic and clinical research is being conducted at RGCIRC. As a not-for-profit organisation, RGCIRC ploughs back all the gains into its work, including research activities. The institute provides seed funding for an activity which is capital intensive the world over. Fortunately, funds have never been a limitation as the institute continues to more than encourage its enthusiastic researchers to carry on with their work. In line with the vision of the founding fathers, the Research Centre seeks to fulfil its purpose by identifying and pursuing innovative clinical studies to discover promising and progressive new treatment methods that use cutting-edge technologies and practices. The institute is also recognised as a Scientific and Industrial Research Organisation by the Department of Scientific and Industrial Research, Government of India since 1996.

In its founding year of 2006 itself, the institute undertook to partner with the National Cancer Registry Programme (NCRP) of the Indian Council of Medical Research (ICMR). The programme necessitated reporting online on NCRP, pattern of care and survival studies on cancers of the Breast, Head & Neck and Cervix related to a patient's demographic profile, basis and date of diagnosis. The details included those on staging, prior treatment, treatment given at the institute (surgery, histopathological data, regimen and cycles of chemotherapy, details of radiotherapy), complications and follow-up.

A year later in 2007, the Centre signed a Memorandum of Understanding (MoU) with the Institute of Cytology and Preventive Oncology (ICPO), now known as National Institute of Cancer Prevention and Research (NICPR) Noida, the only cancer Institute

The largest institution-based bio-bank in India, at RGCIRC, follows best practices by the International Society for Biological and Environmental Repositories, Canadian Tumour Repository Network and the National Cancer Institute for tissue procurement and *Cryo preservation protocols.*

in the ambit of Indian Council of Medical Research (ICMR) which has good infrastructure and a superspecialty diagnostic centre in the area of proteomics, genomics, tissue culture etc. The Centre leveraged their infrastructure, facilities and equipment to carry out sophisticated basic molecular biology tests required for projects formulated at RGCIRC. Three important sites in which collaborative studies were taken up included colorectum, prostate and head and neck which ultimately led to well accepted publications in international journals of repute.

That said, the actual process of research – a three-tier system – begins with submitting a research proposal to the institute, post which it undergoes various levels of scrutiny. A Research Support Activity Group has been created under the aegis of Director, Research. This support group screens projects before they are sent to the Scientific Committee. Once

approved by the latter, the project goes to the Institutional Review Board (IRB) of RGCIRC for ethical clearances. The IRB approval renders the study fit to be undertaken. The research work at RGCIRC has also been accepted by international and national funding agencies. In fact, funding for research projects has been received from international organisations such as Pfizer, Thermo Fisher and Roche. National agencies include the Indian Council for Medical Research and Department of Science and Technology, Government of India. Our research projects have been formulated at different sites and the results have been shared with the funding institutions. Apart from extramural funding, the institute has also earmarked funds to be given as seed grants to researchers interested in initiating studies at the institute.

The institute has also participated in landmark multicentric clinical trials, especially in metastatic breast

treatment benefits to patients. The drugs consequent to the trials have become the standard of care in clinical practice. Seven years after the Research Centre was founded, the institute set up the largest institution-based biorepository

cancer, gall bladder and lung cancers.

reduced toxicities, thereby maximising

The goal was to identify newer drug

therapies in these conditions with

in 2013. This was followed by the Basic Research Laboratory and Cell Culture facility in 2020 to enable researchers find novel targets for cancer therapy and for developing better diagnostic tools and new drug therapies. Housing over 10,000 samples across various cancers, the biorepository is an unparalleled resource for both academic researchers and pharmaceutical industry in that it is a ready source for fit-for-purpose bio-samples for high actionable research. The samples are being used by the researchers in the Institute for initiating sample-based studies. Our academic collaborators include the prestigious Institute of Genomics and Integrative Biology (IGIB), Indraprastha Institute of Information and Technology (IIIT-D), AIIMS-Delhi, IIT Ropar and Roorkee, Guru Nanak Dev University, Amritsar, and Motilal Nehru University of Information and Technology (MNIT), Allahabad where research work is being undertaken in various cancer sites, including breast, prostate, cervix, etc. Till date, 8000 frozen samples have been shared with national and international researchers based in the USA and UK, Canada, and Armenia.

The institute took bio-banking to the next level with housing a contemporary facility in the national capital which is today an able member of the global International Society for Biological and Environmental Repository (ISBER). The genomics research facility and a cell culture laboratory came up in 2020 to meet the challenges of precision medicine and translational research. This well-equipped facility not only acts as a bio-incubator for start-ups but also provides a platform to develop pre-clinical tools that aid cancer diagnosis and research. This legacy initiative is currently catering to growing research demands and hopes to be an excellent resource for future generations of researchers and oncologists.

The RGCIRC received a US patent for its invention: Method for Computing Pharmacokinetic Parameters in MRI bearing US Patent No. US9013182B2 granted on 21st April, 2015. The present invention relates to a method of dynamic contrast magnetic resonance imaging aimed at improving characterisation of tissue image by enhancing accuracy of computed pharmacokinetic parameters to distinguish between malignant, benign and normal tissues.

The Journal of Current Oncology, first published in 2018, is an open access, peer reviewed biannual journal that

aims to highlight the advances in cancer biology and management through an optimal mix of original research, review articles, case reports, letters to editor, resident pages and vignettes from frontline research. The department is constantly striving to improve the quality of articles through sending requests to eminent researchers, medical scientists and clinicians for contribution.

OncoCollectTM software was installed in 2015 and integrated with the Hospital Management System of the institute. It is a comprehensive data collection software for research in oncology, which is installed on the local server to collect data from all oncology divisions to eventually help in planning future research studies.

Along with the compiling of the publications of the institute, an increasing number of original research articles are being published every year. Two awards were introduced to encourage the oncologists: Award for the Best Publication in 2006 and Award for the Best Researcher in 2011. The total number of publications in the past 25 years has been more than 1034.

Landmark Publications

during chemotherapy.

2. Efficacy, Tolerability and Biomarker Analyses of Once-Every-2-Weeks Cetuximab Plus First-Line FOLFOX of FOLFIRI in Patients with KRAS or All RAS Wild-Type Metastatic Colorectal Cancer.

3. Efficacy and safety of Lapatinib as first-line therapy for ErbB2amplified locally advanced or metastatic breast cancer.

4. A Phase II study of Gemcitabine and Cisplatin in chemotherapynaive, unresectable gall bladder cancer.

5. Can Dose Reduction to One Parotid Gland Prevent Xerostomia - a feasibility study for Locally Advanced Head and Neck Cancer Patients Treated with Intensity Modulated Radiotherapy.

6. Minilaparotomy Radical Cystoprostactomy (Minilap RCP) in surgical management of urinary bladder carcinoma: early experience.



1. Efficacy of Erlotinib as first-line maintenance therapy in patients with locally advanced or metastatic non-small cell lung cancer who have not experienced disease progression on unacceptable toxicity

7. Clinicopathological characteristics of triple negative breast cancer at a tertiary care hospital in India.

8. Transoral robotic surgery in management of oropharyngeal cancers: a preliminary experience at a tertiary cancer centre in India.

9. KRAS gene mutation and RASSF1A, FHIT and MGMT gene promoter hypermethylation: indicators of tumour staging and metastasis in adenocarcinomatous sporadic colorectal cancer in Indian population.

10. Genetic variations of IL-10: Identification of novel variations and evaluation of the impact of the SNPs/haplotype in the promoter region with the progression of Oral Squamous Cell *Carcinoma in Indian population.*

There is not jus Error anywhere The hospital

are do	ng bet	12 you
better	Juit	you all
cloing	good .]
Thank	s tol -t	akina
cale)	1 pati	kuits !
a4 0	you's a	ion family
membe	u.	0
Not nu	uch do	improve
in au	y area	. /
	" du	wich you
	Ju	Roden
	100	puract 0
	-00	19/21
		110
		+++*
	-	KKC

m and the second
- DOCTORS HAMPLE THE
PATIENTS WITH UTMOST
CARE.
- AL PRIMARY CARE GIVERS
AT RECIPE THEY
DRE KETTEMERY
CANCETRAL OD NINT SUST
HIE RECENCIÓN PORC
THE TREATMENT JAN
BUT ALSO THE EMUTIONING
ASPECT & MCOMME
STRESS OF THE PATIENTS
AS WELL AS THE
RELATIVES / ATTENDED)
/
- THE DOLTOPS ARE VERY
CLEAR ATTO FORTHRIGHT
WITH THESE DIAGNONS
LINE OF GREATMENT
- THE BEHANOUR OF ALL
DOCTOP AS WELL AS THE
GIPPERES STAFF / THE
PARA MEDIES WEED)
TO RE APPLADED
- po microso
(

A Patient Voice

TRIBUTES AND TESTIMONIALS

I first came to RGCI for a surgery in 2017. The surgery was successful but the tumour came back in 2021, this time near my abdomen. Next thing, I was back in Delhi, at the hospital. Once again, my treatment and surgery went very well. I was averse to the idea of getting operated once again and I had said no to surgery initially. But Dr Leena Dadhwal prevailed upon me with her encouragement and moral support. She took care of me as a mother would. Kalpana nursed me like a daughter. I cannot speak in Hindi and felt I may have a problem communicating with my doctors. I was pleasantly surprised when Dr Leena and Kalpana were able to communicate with me in Nepalese.

I want to thank all the doctors and every member of the staff at the hospital for their kindness, especially Dr Dadhwal and Kalpana. I have returned home with hope that I will be well again. Last but not the least, my time at the hospital was very comfortable. If I were to rate the hospital on a scale of 10 for its cleanliness, I will give it a 10 upon 10.

- Maya Bhattarai, Nepal

Thank you for all the medical care and support provided to me by your team at RGCIRC, Niti Bagh. Right from my first interaction with Dr Leena Dadhwal to whom I had gone for a consultation, through my treatment whether as an in-patient with her and the entire team or in OPD with Dr Manish Sharma, I have been very satisfied with my line of treatment and the advice given by the doctors. Clearly, the doctors were experts in their domain and well experienced. The patience with which all the doctors at the centre explain the line of treatment to their patients and respond to all the questions of a worried patient is a rarity in our times. The staff – whether nursing or housekeeping – is very kind, polite, cooperative and ever willing to extend help. I have never seen even one nurse at the hospital ever frown at a patient. They are all smiles and assurances. The cleanliness at the hospital is thorough – at all times, including during the Covid pandemic. As RGCIRC enters its silver jubilee year, I wish you and your teams all the very best and kudos for the good work you do.

– Neeti Churamani



सन् २०१८ में मुझे पता चला कि मुझे पैंक्रियास का कैंसर है। कीमोथेरपी और रेडिएशन के बाद भी मेरा दर्द कम नहीं हो रहा था। मुझे पेट के ऊपरी हिस्से में दर्द रहता था जो रीढ़ की हड्डी की तरफ भी पहुँचता था जिसके कारण मुझे अलग अलग अस्पतालों की इमरजेंसी में इंजेक्शन लगवाने अक्सर जाना पड़ता था। लेकिन दर्द था कि कम नहीं होता था। इलाज से ज़्यादा दर्द सहना भारी पड रहा था।

फिर किसी डॉक्टर ने RGCIRC के Pain and Palliative Clinic के बारे में मुझे बताया। मैं डॉ सनी मलिक से मिला जिन्होंने मुझे दर्द का इलाज और पैलिएटवि केयर के बारे में जानकारी दी। कुछ दवाईयाँ लेनी होंगी, उन्होंने कहा और साथ ही उन्होंने रीढ़ की हड्डी के पास नर्व ब्लाक (इंजेक्शन) - celiac plexus block - लगवाने की सलाह दी। उन्होंने यह भी बताया की इस इंजेक्शन को एक्स-रे या फिर अल्ट्रासाउंड के ज़रिए दिया जाता है जो कि एक नयी तकनीक है। इस इंजेक्शन से मुझे दर्द में ७०-८० प्रतिशत आराम मिला और अरसे बाद मैं रात को दर्द मुक्त सो पाया।

डॉ मलिक मुझे और मेरे परिवार को palliative care के बारे में लगातार बताते रहे और काउंसलिंग करते रहे। छह महीने बीते और मेरा दर्द बढ़ने लगा। इस बार Radio-frequency Ablation Machine द्वारा splanchnic nerve block लगाया गया जो कि पेट के कैंसर से होने वाली दर्द में लगाया जाता है। मेरी मानसिक दशा में कई उतार-चढ़ाव आए और मैं कई बार ज़िन्दगी से लड़ा भी। डॉ मलिक मुझसे हमेशा कहते कि वे मुझे एक बेहतर ज़िन्दगी - quality of life - देने की कोशिश करते रहेंगे। उन्होंने ही मुझे मानसिक, भावनात्मक और आध्यात्मिक स्तर पर होने वाली तकलीफ के बारे में बताया। एक-डेढ़ साल निकला, बीमारी बढ़ी और दर्द ने फिर ज़ोर से दस्तक दी। मॉर्फीन की मात्रा बढ़ने लगी। मेरे डॉक्टर ने पहले से ही मुझे तैयार किया हुआ था। इस बार उन्होंने Epidural Pump Implantation का सुझाव दिया जिसे OT में करवाया जाता है। मेरा दर्द एक बार फिर कम हो गया। इस दौरान डॉ मलिक लगातार हमसे बात करते रहे। आने वाले वक्त में क्या हो सकता है anticipated events - के बारे में हम जागरूक किया। दर्द के अलावा, उन्होंने कैंसर के अन्य लक्षणों पर palliative care के ज़रिये अंकुश लगाया।

आज इस बीमारी के साथ चलते मुझे साढ़े तीन साल हो गए हैं। RGCIRC के Pain and Palliative Care Department की बदौलत मैं एक बेहतर ज़िन्दगी जी रहा हूँ। इस सफ़र में डॉ सनी मलिक ने सिर्फ मेरा इलाज नहीं किया - वे हमारे परिवार के अन्तरंग मित्र भी बने हैं।

- सुरेन्द्र कुमार

After a long time, we find the environment at home somewhat light and are so happy to see our mother laugh. Dad, too, is demonstrating some positivity. We are grateful to you for bringing laughter back to this beautiful family.

– Preeti and Rajesh

Thank you Dr Savera and Hema ji for your service to my father Shri Indra Dutt. Even as I thank you from the bottom of my heart for your support at a very difficult and challenging time, it is difficult to express in words my gratitude. I can never repay your kindness and understanding. Please share the note with your senior authorities so that they know how your patients feel about the invaluable work you do. You have gone beyond the call of duty to assist and support us.

– Rashmi

I first came to RGCIRC in December 2020 for the treatment of my wife, Neetu Chaurasyia, who had breast cancer. However, she did not respond to chemotherapy. Drs Sumit and Shiva and their team managed her unbearable pain with pain killers till her breast was removed three months later. Biopsy results showed she had Metaplastic Carcinoma, rarest of the rare cancers. I went to AIIMS, Delhi; Tata Memorial, Mumbai: and SGPGI, Lucknow for their opinion hoping they would be able to advise better treatment options. But all of them said RGCIRC was doing the best for this kind of cancer. With renewed faith. I returned to be informed that her cancer could come back very soon. A few days later, Neetu complained of pain in the right side of the lungs. She was positive for lung cancer with multiple nodules as per the PET reports. Neither chemo nor immunotherapy worked for her: the pain in her back, chest and head was unbearable in spite of the painkillers.

The case was handed over to the pain management team when I had to visit emergency for pain relief. Dr Bablesh and her team were able to zero in on the reason for pain. Thereafter, the medicines worked well and gave my wife the much needed respite. But soon the disease reached her brain – the pain came back along with fever. Since then, Dr Bablesh has been taking very good care of her and giving her medicines that now work very well for my wife. Dr Bablesh is a very kind lady who knows not only how to handle her patient but also counsel the attendant with empathy. We are now on followup and everyone at the hospital takes very good care of us. What a blessing it is to have been introduced to Drs Bablesh Mahawar, Sumit Goyal, Shiva, Shrijina, Dharmishta, Munish Gairola, Sharthak, Sandeep and the Day Care team.

– Nagendra Chaurasyia

Dear Dr Bhurani, I want to thank you so much for all your work and help with my brother, Mohammad Khabir from Ukraine. Your help in diagnosing his condition and your treatment made us very happy. You were very compassionate, kind and professional with us and provided gold-standard care.We flew over from the UK and Ukraine – and you made the effort so worthwhile.

– Nafie Sherzai, London

In 2018. I was detected with Osteogenic Sarcoma, a type of bone cancer, in my left leg. My first chemo cycle was unbearably painful. So, my doctors prescribed a daily dose of 120mg morphine. This was followed by surgery in which the leg was amputated but I got another chance to live my life to the fullest. However, soon after I began to suffer from phantom pains. It felt like shocks and currents in the leg that was amputated a couple of weeks ago. My pain management doctor gave me medication and after a few days I was rid of those nasty pains. I am grateful to Dr Bablesh, Head of the Department of Pain Management at RGCIRC who helped me in every way possible.

– Viditya Saini

The Rajiv Gandhi Cancer Hospital has been an integral part of my life, a second home if you will, since 2015 when I was detected with breast cancer. Since then, during hundreds of my visits to the hospital, I have interacted with several departments – pathology, physiotherapy, radiation, pain clinic and elsewhere; and I have received the best possible treatment everywhere. RGCIRC was the first name that came to mind when my family and I were thinking of where to go next. I had earlier visited the hospital with a few members of my family with cancer history and had found their services very impressive. It was amazing to see highly professional doctors and teams of nurses taking care of patients. Fortunately, I had stage one cancer and was HER2 negative. My reports indicated I wouldn't need many chemo sessions. We followed my doctor's advice and started the treatment, including surgery, chemo and radiation. As advised, I would go for follow up every six months, and things were looking up. But three years down, I found my cancer had come back. The infection was metastatic which meant it couldn't be cured now: it had spread to my liver and bones. My sister with the same diagnosis had been treated 11 years ago at RGCIRC and she had stayed well in the past 17 years. But my story was turning out differently. The only treatment left for me was to either contain it, slow or stop its spread. All the doctors, especially the oncology team headed by Dr Doval, is one of

the best in India who apart from treatment also provide moral support to their patients. My doctors have not given up on me and are providing me the best treatment till date. Dr Doval's experience and expertise have helped me stay healthy.

I know I may not live long. But my doctors and my family make sure I live a healthy and happy life. There are days when I hope for a miracle. My doctors have been a great motivating force – my ray of hope. I am grateful to everyone who has been a part of this journey – every single person from the hospital – including the day-care staff nurses who are made for the job. The cleanliness of the hospital, the hygiene and security are unmatchable, everything eventually contributing to good treatment.

– Rekha Mehta

Awesome patient care and treatment system. A big thank-you to Dr Abhishek Bansal for helping us and giving us the right direction. I was treated by the highly skilled Dr Shivendra and his team who gave me another life. Thank you all. I have a suggestion. There is a rush to use lifts. I request the management to open the staircases as alternative routes to the floors.

- Pema Choden, Bhutan



Small lights have a way of being seen in a dark world



Hony. Secretary 4. Mr. Amresh Sood Treasurer 5. Mr. Ashok Kumar A 6. Mr. RN Bansal 7. Ms. Jyotsna Govil 8. Dr. Sunil Khetrapa 5 9. DI. KV Swaliniathan 10. Mr. AS Narag 11. Mr. Neel Kamal Goyal 12. Dr. Nalini Deka 13. Mr. Arun K Batra 14. Mr. Samir Mathur, IAS (R) 15. Representative of LG

1. Mr. Rakesh ChopraChairman

2. Ms. Harmala Gupta
Vice Chairperson
3. Mr. Pramod Maheshy

3. Mr. Pramod Maheshwari

- 5. Mr. Ashok Kumar Agarwal

- 7. Ms. Jyotsna Govil8. Dr. Sunil Khetrapal9. Dr. KV Swaminathan

Milestones

1996

• President of India Dr SD Sharma inaugurates RGCIRC

• The institute is recognised as a Scientific and Industrial Research Organisation (SIRO) by the Department of Science and Technology (DST), Government of India

• Tumour Board instituted

 Conventional Radiation Therapy LINAC Accelerators-2 and Cobalt Unit

• 4 OTs with split/window ACs and a common Air Handling Unit (AHU)

1997

Ethics Committee constituted

 Rehabilitation services since inception

1998

• Diploma courses under the Indian Medical Association (IMA):

Medical Laboratory Technology X-Ray and Imaging Technology **Operation Theatre Technology**

2000

• First international conference RGCON; conducted annually since then

2001

• Panel expansion (markers added) for cancer diagnosis

• Semi-automated blood grouping and cross matching

2002

• Four-bed BMT unit inaugurated by Dr API Abdul Kalam

2003

Phase 1 trial conducted with Dabur

• Ashray - residential facility for cancer patients and their caregivers at subsidised rates

• DNB Programme, post-graduate degree started in Surgery, Radiation and Radiology

2005

• DNB seats added in Medical Oncology and Anaesthesia

• First hospital-based Cancer Registry (1996-2002) published

2006

• B.Sc Radiotherapy, in affiliation with Guru Gobind Singh IP University offered

2007

- The concept of organ-specific clinics adopted
- 100 per cent manual component separation with triple blood bags
- Cryopreservation of stem cell

• Nucleic acid testing (NAT), a molecular technique for screening donor blood to reduce the risk of transfusion-transmitted infections (TTIs) in recipients, begins

2008

• First PET-CT machine - backbone of cancer imaging - installed

- Department of Preventive Oncology added to the clinical armamentarium
- MRI upgraded to 1.5 Tesla
- Fellowship in Paediatric Hematooncology began

2009

• The institute acquires IGRT (Imageguided Radiotherapy) equipment, the next generation LINAC

• Picture Archival and Communication Systems (PACS) installed in Radiology

2010

• Surgical and Medical ICUs renovated • Four new OTs added and existing four renovated on the modular pattern with HVAC system (heating, ventilating and air-conditioning systems)

2011

- The robot comes to RGCIRC
- Rapid Arc, the new radiotherapy equipment, installed
- Diploma course begins in Medical Record Technology under the IMA

2012

- Dedicated Paediatric Oncology ward established
- Stereotactic Radiotherapy and Stereotactic Radiosurgery commences
- Full field digital Mammography with Tomosynthesis installed
- Fully automated Immunohistochemistry (IHC) slide preparation system -VENTANA XL – installed, the first of its kind in North India _____

2013

- Biorepository inaugurated
- TrueBeam, state-of-the-art radiation equipment, installed in Radiotherapy
- Hospital expands: 302 beds, including day-care wards
- CT scan upgraded
- SPECT-CT with gamma camera installed

2014

 Molecular Diagnostic Laboratory unveiled

.....

• Theranostics in radiopharmaceutical therapy initiated with specific PET-CT imaging and therapy of neuroendocrine tumours and prostate cancer

2015

• Grace, a residential facility begins for paediatric patients and their caregivers

• Next-generation Sequencing (NGS) in Molecular Diagnostic Lab begins

• US Patent No. 9.013.182 granted for invention: Methods for computing Pharmacokinetics Parameter in MRI

• Funds begin to be earmarked for inhouse research annually

• Workload goes up: second PET-CT installed

• Next-generation Picture Archival and Communication Systems (PACS)-Radiology

• Innovian Real-time Monitoring System: automatic charting for anaesthesia set up

2016

 Satellite centre of RGCIRC started in Niti Bagh, South Delhi

• Synergy Platform replaces LINAC 2

• After-completion of Therapy Clinic (ACT) for childhood cancer survivors begins

• Blood Bank, one of the busiest in Delhi, is fully automated

2017

• Pain and Palliation Department started

2018

• Department of Interventional Oncology, considered as the fourth pillar of clinical oncology, inaugurated

• Cath Lab added to the Department of Radiology

• Journal of Current Oncology launched in 2018

• In-house pharmacy inaugurated. Discounts on oncology drugs upto 21 per cent and consumables upto 50 per cent

2019

- Department of Philanthropy instituted
- Second robot installed

• First PET-CT replaced with state-of-theart digital PET-CT

• Navigation System in Neurosurgery brought to RGCIRC

• Infectious Diseases Department started

2020

• Building Expansion: D Block added with 200 more beds and a dedicated SICU/ MICU

• Six Major OTs added: 14 most advanced OTs to give state-of the-art services

- Complementary and Alternative Medicine Unit started
- Fully-automated NAT lab for testing viral markers

.....

2021

• Tomotherapy, a new way to deliver radiation treatment, begins

• Total laboratory automation with the most advanced Laboratory Information Services (LIS)

• Advanced treatment planning system capable of delivering IMRT, VMAT (Volumetric Modulated Arc Therapy) and Total Board Irradiation

• Latest 3 Tesla state-of-the-art MRI

Statistics

RGCIRC began with 152 beds in 1996. As of 2021, it is a 498-bedded hospital.

The number of patients has gone up from 4500 to nearly 18000 annually in the last 25 years.

Lives of 3 lakh patients touched since inception.

Starting with a modest 13 consultants, the institute now has more than 90 across specialties.

There are 15 clinical, 25 non-clinical departments with visiting faculty in 9 major specialities. Services are offered in roughly 8 areas, including blood bank, preventive oncology and genetic counselling.

A 51-bedded Surgical ICU, 21-bedded Medical ICU.

A dedicated Leukemia Ward, separate Thyroid Ward, and an independent 27-bedded Bone Marrow Transplant Unit credited with pioneering unrelated donors, MUD (Matched Unrelated Donor) and stem cell transplants.

Number of nurses, technicians, administrative staff and junior/ senior residents and attending consultants risen from an initial 125 to 1500 in 2020-21.

Surgeries up from 990 to nearly 14000 every year: latest techniques of HIFU, HIPEC, Navigation System in use; 4000 plus robotic surgeries done since 2011.

Chemotherapies up from about 1250 to nearly 54000 per year: targetted, immune and precision medicine practices in advance of chemotherapy; 950 plus BMTs done till date.

Radiation therapy numbers up from 430 to around 2300 per year: Brachytherapy, IMRT, IGRT and Tomotherapy available.

Laboratory tests up from about 65,000 in 1996 to about 15 lakh in 2019. Techniques to perform the tests markedly enhanced.

Awards

1. Greentech Environmental Award in 1999

2. Golden Peacock Award for Environmental Excellence in 2000

3. Healthcare Radius Award for Outstanding Contribution to Indian Healthcare Industry in 2014

4. Best Cancer Hospital in India at Healthcare Achievers Awards by Times of India and New India Insurance in 2014

5. The Week India's Best Oncology Hospital by the Week Nielsen Survey in 2014, 2015 and 2016

6. India's Most Trusted Hospital for Oncology by India Today (Readers' Digest Most Trusted Brands) in 2016

7. National Business Leadership & Service Excellence Award for Best Oncology Hospital in India in 2017

8. Indywood Medical Excellence Award "National Chapter" by Indywood Film Carnival & Govt. of Telangana in 2017

9. India's Most Trusted Hospital in Oncology by India Today (Reader's Digest Most Trusted Brands) in 2017 & 2018

10. Best Hospital in Oncology Care in Business Excellence Award for Pharma & Healthcare in 2018

11. Finest India Skills & Talent Award (Runner up) by Fire & Security Association of India in 2020

International Affiliations

1. RGCIRC is a member of Union for International Cancer Control (UICC), Geneva, Switzerland. UICC unites and supports the cancer community to reduce the global cancer burden. It has 1187 organisations as members across 172 countries.

2. Fox Chase Cancer Centre, Philadelphia, USA, for Second Opinion by the patient from an international cancer hospital of repute.

3. The Société Internationale d'Urologie (SIU), Montreal, Canada. The SIU is a major international platform for sustainable urological education and collaborative philanthropic activities aimed at improving urological care with more than 10,000 members from over 130 countries/regions.

Accreditations and Certifications

- a) ISO 9001-14001 (first hospital to get both)
- b) Greentech Environmental Award
- c) NABL accreditation for labs
- d) NABH accreditation for hospital
- e) NABH accreditation for Blood Bank
- f) Green OT Certification by Bureau Veritas
- g) Nursing Excellence Certification by NABH
- h) Ethics Committee, RGCIRC registered with Drugs Controller General of India
- i) Swachh Sarvekshan 2020 (2nd position for state performance as a 'good ambassador' in the city)
- j) Swachh Sarvekshan 2021 (1st position for state performance as a 'good ambassador' in the city)

Scope of Services

PREVENTION

- Screening Camps
- OPD Cancer Screening
- Awareness programmes
- Tobacco Cessation Counselling
- Genetic Counselling

DIAGNOSTIC

- Imaging services
- X-Ray, Ultrasound, Dexa Scanning, OPG, Mammography, ECG, Colour
- Doppler etc.
- CT-Scan
- MRI
- Nuclear Medicine
- Theranostics (use of radio-active
- drugs to detect and treat tumours)
- Thyroid scan
- Bone Scan - PET-CT
- PET-MRI Fusion
- Laboratory
- Hematology
- Biochemistry
- Microbiology
- Histopathology and Cytology: Biopsies, Immunohistochemistry, Tumour Markers
- Molecular Diagnostic Laboratory - Next Generation Sequencing (NGS)
- Interventional Radiology
- Endoscopy and Bronchoscopy
- Image-guided Biopsies - Biopsies under Ultrasound, CT and MRI

TREATMENT

All major modalities, including surgery, medicine and radiation therapy, have organ-specific units. Given below is the organ-wise break-up in surgical oncology.

SURGICAL ONCOLOGY

The Department of Surgical Oncology is a fast evolving specialty at RGCIRC with subspecialties in nine fields. The surgical services include conventional, endoscopic, laparoscopic and robotic surgeries. The department has 14 major operation theatres and three minor OTs. It consists of the following units: - Head and Neck Oncology

- Breast Oncology
- Thoracic Oncology
- Paediatric Surgical Oncology
- Orthopaedic Oncology - Gynae Oncology
- Uro Oncology
- Neuro Oncology
- Reconstructive

• MEDICAL ONCOLOGY

The team is sub grouped according to the area of specialisation as per the disease of different organ systems. Evidence-based, internationally approved chemotherapy guidelines are followed for treatment of various solid and haematological malignancies.

The hospital's medical oncology department includes specially trained nursing and peripheral staff that assists in the administration of chemotherapy in Day Care as well as in the IPD. Chemotherapy drug mixing is done at a separately designated Cytotoxic Admixture Lab, under laminar airflow with prescribed quality controls. The department provides:

- Chemotherapy - Hormone Therapy

- GI and Liver Transplant Oncology

- Immunotherapy - Monoclonal Antibody Therapy – Bone Marrow Transplant (BMT)

PAEDIATRIC HAEMATOLOGY ONCOLOGY

The department has a dedicated team of experts in the field of Paediatric Haematology/Oncology. The team comprises experienced paediatric oncologists, haematologist, paediatric onco surgeon, radiation oncologist, paediatric oncology residents and nurses, child psychologist and playroom teachers' whose workis to ensure that the best care is delivered to every child. Children with all types of haematological and solid organ malignancies receive specialised oncology services here. The department treats all children and adolescents up to the age to 18 years, for Leukemias, Lymphomas, Brain Tumours, Bone and Soft Tissue sarcomas, and other paediatric solid tumours in addition to a variety of haematological conditions like Immune Thrombocytopenia, Thalassemia, Inborn Errors of Metabolism and Bone Marrow Failure, Patients have the benefit of comprehensive multispecialty care, including chemotherapy, provided by a highly specialised, experienced and dedicated team of experts.

HAEMATOLOGY ONCOLOGY

The institute has a 21-bedded BMT unit equipped with HEPA filters and a dedicated team of renowned haematologists and BMT specialists along with a team of nursing staff trained and experienced in bone marrow transplantation. Bone marrow/stem cell transplants being regularly conducted at RGCIRC are:

- Autologous stem cell transplant (ASCT) - Allogeneic stem cell transplant

RADIATION ONCOLOGY

The institute, with its tradition of quality and excellence, offers comprehensive and modern radiotherapy services to its patients. The department is equipped with state-of-the-art Linear Accelerators, Simulators, Brachytherapy units, dedicated treatment-planning computers and mould room equipments to fabricate lead shields and templates in house. The department has been intricately networked to CT scan and MRI, and has facilities for:

- A. External Beam Radiotherapy (EBRT) or Teletherapy :
- 3D-Conformal Radiotherapy
- Intensity Modulated Radiation Therapy
- Image Guided Radiation Therapy
- Volumetric Modulated Arc Therapy
- Stereotactic Radiotherapy
- Tomotherapy
- Newer Technologies (DIBH)
- B. Brachytherapy

INTERVENTIONAL ONCOLOGY

RGCIRC is the first in India to establish a dedicated Interventional Oncology service line, which is now recognised as the fourth pillar in cancer care.

The service, available round the clock, is provided by highly trained physicians and supporting staff. The following are some of the highlights:

a) Ablative Therapies – The best-in-class Radio Frequency Ablation (RFA) and Microwave Ablation(MWA) machines along with the technique of hydrodissection to prevent any collateral injury. We are a high volume centre for ablative therapies with a large referral base.

TREATMENT (CONT'D)

b) Arterially Directed Therapies in liver – Trans-Arterial Chemo Embolisation (TACE) and Trans-Arterial Radio Embolisation (TARE) also known as Selective Internal Radio Therapy (SIRT).

c) Controlling active bleeding as a lifesaving procedure

d) Palliative Procedures

e) Biliary Procedures (PTBD and Stenting)

f) Portal-Vein Embolisation

PALLIATIVE CARE

Pain Management

Home care

NURSING SERVICES

Oncology nurses work together closely with doctors to ensure patients and their families experience compassionate care as well as access to latest cancer treatments. Our services also include access to support groups and education programmes to assist patients and their families.

RESEARCH

- Basic
- Biorepository
- Clinical

EDUCATION/TRAINING

- DRNB, DNB & FNB
- Diplomas & Fellowships

SUPPORT SERVICES

- Anaesthesiology ServicesEmergency and Ambulance Services
- Infectious Diseases Wing
- ICU (Medical and Surgical)
- High Dependency Unit (HDU)
- Daycare Services
- Blood Bank Services
- NAT Lab
- Physiotherapy and Onco-rehabilitation
 Psycho-oncology (Counselling Services)
 Clinical Nutrition and Dietetics

- PharmacyCytotoxic Admixture Unit
- Complementary and Alternative Therapies