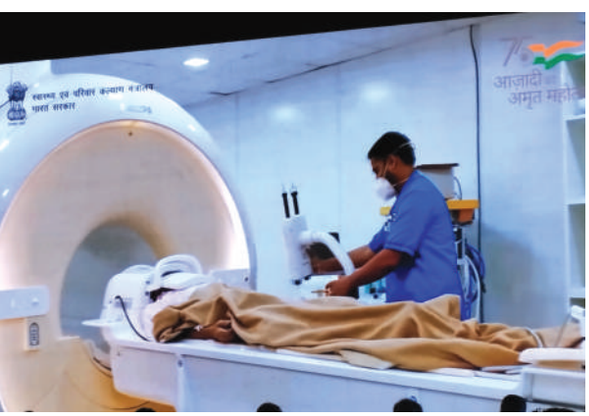
Issue : Jan. - Mar. 2025 / Vol. 3. No. 1

CNCI Bulletin

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



DIRECTOR'S MESSAGE

Dr. Jayanta Chakrabarti
Director,

Colorectal Cancer Awareness Month 2025: Addressing the Rising Incidence and Mortality Rates

The International Agency for Research on Cancer (IARC) is observing Colorectal Cancer Awareness Month 2025 to highlight the importance of early detection and prevention strategies for this deadly disease. Colorectal cancer (CRC) is the third most commonly diagnosed cancer and the second leading cause of cancer-related deaths worldwide, accounting for approximately 1.9 million new cases and 935,000 deaths annually.

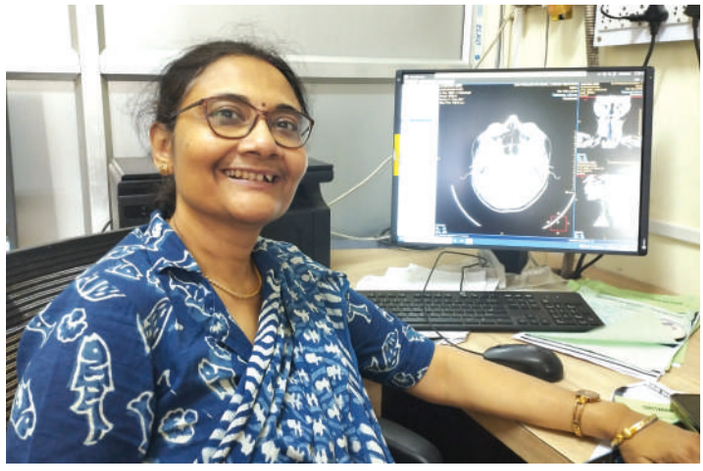
CRC incidence rates among individuals under 50 years have been increasing for at least two decades, with some studies reporting a 30-year upward trend. This alarming phenomenon warrants further investigation into underlying causes and the development of targeted prevention and early detection strategies. CRC risk increases with age, with most cases occurring in individuals over 50 years.

Common symptoms of CRC include diarrhoea, constipation, hematochezia, abdominal pain, unintentional weight loss, fatigue, and iron deficiency anaemia. However, many individuals may not exhibit symptoms in the early stages of the disease, emphasizing the importance of regular screening. The IARC recommends screening individuals at average risk starting at 45 years.

Early detection and removal of precancerous lesions can significantly reduce CRC incidence and mortality rates. In addition to screening, adopting healthy lifestyle habits can reduce CRC risk, including maintaining a balanced diet, engaging in regular physical activity, and avoiding tobacco and excessive alcohol consumption.

By promoting awareness, encouraging early detection, and adopting prevention strategies, we can work towards reducing the global burden of colorectal cancer. It is essential to educate individuals about the importance of screening, healthy lifestyle habits, and being aware of their family history and risk factors. Together, we can make a difference and reduce the incidence and mortality rates of colorectal cancer worldwide.

From Editors Desk



Dr. Suparna Mazumder,
Prof. & HOD, ***Radiology***

Dear readers,

This is our first bulletin of 2025 and we have an interesting array of articles lined up for you encompassing various aspects of cancer.

World Cancer day has been observed this year worldwide on **4th February** with the theme of United by **Unique (2025-2027)** where we stand united in our message to fight cancer and try to thread all the unique stories of various types of cancers as faced by patients of different countries and regions.The goal is to make a people centric approach for care giving.

The fight against cancer is not going to be easy given its multifactorial nature. An estimated 20 million new cases and 9.7 million cancer related deaths were reported globally in 2022 with nearly 70% deaths occurring in Low and middle income countries **(LMICs)** . Projections estimate an 85% increase in new cases by 2050.

The global target is to reduce the premature mortality from **NCDs** (ie four non communicable diseases, cancer being one) by one thirds by 2030.

In this context increasing awareness is also needed about cancers in **adolescents and young adults (AYA cancers)** which is defined as cancers in the age group 15-39 years.This was analyzed using data from Global burden of disease(GBD) 2021 study and GLOBOCAN 2022 project. In 2022 an estimated 1,300,196 incidental cases and 377,621 cancer related deaths occurred among AYAs worldwide.

The most common cancers were of breast, thyroid , testicular, cervix and skin (melanoma). Others are brain and CNS tumours, colorectal cancers ,leukaemia , lymphoma , sarcomas (bones and soft tissues) ovarian and nasopharynx (H&N) cancers .The leading causes of deaths were breast, cervical cancers and leukaemia.The burden was higher in females(incidence- 52.9 in F : 28.3 in M and mortality -13.1 in F :10.6 in M per 100,000 person years)

In the 15-29 age group leukaemia was the main cause of mortality while breast cancer was the leading cause of death in the older age group.Thyroid cancer had the least mortality in AYAs.

With the epidemiological evidence on the global burden and emerging trendsof AYA cancers policymakers should prioritize equitable resource allocation and implement targeted interventions to address the disparities particularly in low HDI (human development index)regions &with regard to gonadal cancers.For many cancers such as Breast, Cervical& NHL active prevention, early diagnosis and effective treatment can reduce mortality.

Vigilance and awareness are the keys to a healthier world.

We hope you enjoy this issue.

Thank you

Cancer Awareness: The Pivotal Role of CNCI

Dr. Sankar Sengupta
Medical Superintendent and Professor & HOD,
Department of Laboratory Medicine,

Early Cancer Detection and Awareness: A Crucial Step in the Fight against Cancer.

As a specialized cancer institution, Chittaranjan National Cancer Institute (CNCI) is uniquely positioned to educate patients, families, and communities about cancer risk factors, early detection methods, and treatment options. In line with its commitment to cancer prevention and control, CNCI regularly organizes community outreach programs, workshops, and seminars to promote awareness about cancer prevention, early detection, and treatment.

Leading the Charge in Preventive Oncology

CNCI continues to spearhead initiatives in preventive oncology, setting new standards in cancer prevention and early detection. Notably, the Institute has been conducting cervical cancer screening since 1988, with approximately 6,000 women screened annually. In 2023, CNCI introduced a Mobile Mammography Van (MMU) to enhance breast cancer screening and early detection among rural populations. Monthly cancer screening camps are also organized by CNCI to screen for common cancers such as oral, cervical, and breast cancer.

A Pioneer in Cancer Care and Research

As a pioneer in cancer care and research in the region and nationwide, CNCI has established itself as a centre of excellence through the tireless efforts of its doctors, scientists, and support staff, supplemented by grants-in-aid from central and state governments.

India's Progress in Cancer Prevention and Control

India has made significant strides in cancer prevention, treatment, and research, driven by policy reforms, expanded healthcare infrastructure, and financial assistance schemes. The Union Budget 2025-26 prioritizes strengthening cancer care through initiatives such as Day Care Cancer Centres and customs duty exemptions on life-saving drugs. Programs like NPCDCS, PMJAY, and HMCPF ensure affordable treatment and early detection, while research initiatives like NexCAR19 and the National Cancer Grid are advancing oncology care.

Challenges and Future Directions

Despite progress, challenges persist in ensuring equitable access, early detection, and addressing rising cancer cases. To overcome these challenges, greater investment in awareness, lifestyle interventions, and technology-driven solutions is essential. Through a multi-sectoral approach and sustained government efforts, India aims to establish a comprehensive and inclusive cancer care system, improving patient outcomes nationwide.

HPV Vaccination- The Way Forward to Cervical Cancer Elimination

Dr. Manisha Vernekar,
Specialist grade I,
Dept of Gyne oncology,

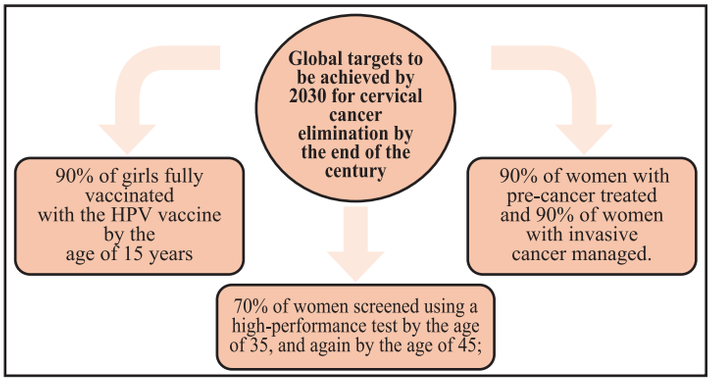
Implementation of primary prevention of cervical cancer screening by human papillomavirus vaccination remains as one of the major challenges for low resource countries. In the recently published Globocan 2020 data, India is contributing 20.51% of new cases and 22.62% of deaths globally due to cervical cancer.[1] These numbers show an upward trend as compared to Globocan 2018 data.[2] It is now a known fact that cervical cancer is a preventable cancer if detected early. On 17th November 2019, World Health Organization (WHO) launched a global strategy to accelerate the elimination of cervical cancer by 2030.3 WHO set the 90:70:90 target to be met by 2030 : 90% vaccination coverage of the adolescent girls; twice in a lifetime screening coverage of 70% of women between 35 and 45 years using a high-performance test and appropriate treatment of up to 90% of women.[4]

There is enough evidence in literature that vaccines are safe, highly immunogenic and induce strong protection against HPV infection and its sequelae.Human Papilloma Virus high-risk genotypes are responsible for more than 95% of cervical cancer cases. An estimated 70% of occurrences of invasive cervical cancer globally are thought to be caused by HPV strains 16 and 18.Currently, Cervarix ® (bivalent, Glaxo Smith Kline), Gardasil ® (quadrivalent, Merck), and Gardasil-9 ® are the three vaccines offered in the Indian market (nona-valent, Merck). The Serum Institute of India has launchedCervavac®, a quadrivalent vaccine that is inexpensive and developed in India.This is India's first indigenous vaccine available in market since January 2023. India's first homegrown HPV vaccine can be a game changer as it will be more affordable and accessible.

An indigenous affordable HPV vaccine can address India's cervical cancer burden if other barriers surrounding vaccination are addressed at the same time. Inclusion in the national immunization program will make people realize its importance, as well. Mass awareness campaigns to address vaccine-related myths, misconceptions, stigma needs to be organized in order to increase its acceptance.

Cervavac®	Gardasil®	Gardasil-9®
6,11,16,18	6, 11,16,18	6,11,16,18,31, 33,45,52,58

Cervical cancer vaccines contain virus-like particles (VLP) without any pathogenic DNA. This does not cause a new HPV infection and does not cure an existing HPV infection. The vaccination guards against female cancers and pre-cancers of the cervix, vagina, vulva, and anal regions. Additionally, the nonavalent and quadrivalent vaccines offer defence against genital warts caused by HPV 6 and 11. With the bivalent vaccine, there is cross-protection against serotypes 31 and 45. [5]



Whom should we vaccinate?

Although females between the ages of 9 and 15 are the major focus of the HPV vaccine, it is approved for use in anybody between the ages of 9 and 45 years. Upto the age of 15, two doses are advised; beyond that, three doses is recommended. The Two doses should be spaced out by six months interval. In the event of three doses, the bivalent vaccine requires 0, 1, and 6 months while the quadrivalent vaccine requires 0, 2, and 6 months.

Vaccination from 15 to 26 years is referred to as "catch-up vaccination".5 Counselling regarding reduced efficacy and the significance of cervical cancer screening starting at the age of 25 to 30 years should be provided to the people in this age group as well as to women older than 26 years who are willing for the vaccination.

Women aged > 26 years who have been sexually active should be counselled regarding reduced efficacy in older age group and the importance of screeningbecause not all HPV strains that cause cervical cancer are covered by the vaccine. Consequently, cervical cancer screening and vaccination are complimentary.

Vaccination in Boys

In 2013, Australia was the first country to include boys in their national immunisation schedule. HPV vaccination of boys offers protection against anogenital HPV infections, genital warts and cancer precursors of the anal region. Recently, HPV vaccination has also been found to protect against HPV infections of the oropharynx.6

Dr. Sreeya Bose,
Medical consultant (preventive oncology),
Dept of Gyne oncology,

Role of Single dose vaccination

According to a recent WHO position paper published in December 2022, a single dosage of the cervical cancer vaccination can offer equal protection to a two- or three-dose strategy. SAGE, an independent expert advisory panel for WHO first recommended this alternate single-dose timing in April 2022 .[7]

WHO now recommends

A **one or two-dose schedule** for girls aged 9-14 years as well as for girls and women aged 15-20 years

Two doses with a 6-month interval for women older than 21 years

Is the vaccine safe?

FDA has licensed the vaccines as safe and effective. Globally, more than 270 million doses of the vaccine have been given, and there have not been any significant adverse events associated with it, according to the vaccine's good safety statistics. Minor side effects including pain at the injection site, tenderness, edema, fever, headache, myalgia, and gastrointestinal problems have all been documented. Even compared to regularly provided vaccines like tetanus toxoid, the reported anaphylaxis rate is significantly lower.

The benefits of HPV vaccination far outweigh the risk of potential side effects.

How effective is this HPV vaccine?

According to previous studies like the FUTURE I[8], FUTURE II[9] and PATRICIA[10] trials, the cervical cancer vaccination is about 99% effective in preventing cervical cancer and 90–94% effective at avoiding cervical precancers like CIN 3.

Special scenarios

1. Pregnancy: Cervical cancer vaccine is not recommended in pregnancy. However, termination of pregnancy is not required in women who have been inadvertently vaccinated during a previously undiagnosed pregnancy.

2. Lactation: HPV vaccination is not contraindicated.

3. Interrupted or missed doses: FOGSI good clinical practice recommendation (GCPR, 2020) recommends two doses of HPV vaccine at least 6 months apart for girls aged 9 to <15 years of age, although the interval between two-doses can be extended to 12–15 months in circumstances where the second-dose is not repeated within 6 months. There is no need to restart the reschedule in case of missed or interrupted doses.

4. Immunocompromised population like HIV infection:

The FOGSI GCPR committee, (FOGSI GCPR 2020) recommends that HIV-positive girls should be offered three doses even below 15 years of age.

Therapeutic vaccines

In addition to preventive vaccines, such as Gardasil and Cervarix, laboratory research and several human clinical trials are focused on the development of therapeutic HPV vaccines. In general, these vaccines focus on the main HPV, E6 and E7. Since expression of E6 and E7 is required for promoting the growth of cervical cancer cells (and cells within warts), it is hoped that immune responses against the two oncogenes might eradicate established.

Problems in the Implementation of HPV vaccination programs on a larger scale and the current scenario of vaccination in India

The WHO Strategic Advisory Group of Experts (SAGE) Working Group on *Vaccine Hesitancy* defined vaccine hesitancy as "delay in acceptance or refusal of vaccination despite the availability of vaccination services." [10]

Vaccine hesitancy is due to lack of evidence-based knowledge and motivation among the general public, administrative and political stakeholders, and even among some segments of the medical community. In the past, rumours and false information have damaged the vaccine's reputation. Despite the obstacles, the widespread adoption of HPV vaccination in India in the future is encouraged by the successful HPV vaccination programmes in Punjab and Sikkim (with high coverage and safety), government-sponsored opportunistic vaccination in Delhi, prospects of a single dose providing adequate and acceptable protection, and the availability of the affordable Indian vaccine (Cervavac) .[11]

Indian HPV vaccine- a ray of hope

On July 12, 2022, the Drugs Controller General of India approved Cervavac for market authorization to females and males aged 9 to 26 years based on promising results from a significant phase 2/3 clinical research. On September 1, 2022, the vaccine had its public debut. Compared to currently available licenced HPV vaccines, Cervavac will be significantly less expensive.

Despite the fact that different HPV vaccinations have been accessible in India since 2008, efforts to develop a nationwide vaccination programme have restrictions, primarily due to worries about side effects and cost. Although the final confirmations are still pending, the new vaccine will be funded by the Indian government and provided through state-run services.

Till then, there is a long way to go to meet the 2030 elimination target of 90% in India as presently less than 1% of our girls are vaccinated and less than 2% of Indian women have ever been screened according to NFHS-5.

Abbreviations

WHO- World Health Organisation

HPV- Human Papilloma Virus

SAGE- Strategic Advisory Group of Experts

FOGSI- Federation of Obstetric and Gynecological Societies of India

GCPR- Good Clinical Practice Recommendations

References:

1.https://gco.iarc.fr/today/data/factsheets/populations/356-india-fact-sheets.pdf

2.http://cancerindia.org.in/globocan-2018-india- factsheet/

3.https://www.who.int/publications/i/item/978924 0014107

4.https://www.who.int/publications/i/item/978924 0030824

5.Bhatla, N. *et al.* (2020) "Human papillomavirus vaccination: Good clinical practice recommendations from the Federation of Obstetric and Gynecological Societies of India," *Journal of Obstetrics and Gynaecology Research*, 46(9), pp. 1651–1660. Available at: https://doi.org/10.1111/jog.14345.

6. Morten Frisch, Andréa Besson, Kim Katrine Bjerring Clemmensen, PalleValentiner-Branth, KåreMølbak, Anders Hviid, Quadrivalent human papillomavirus vaccination in boys and risk of autoimmune diseases, neurological diseases and venous thromboembolism, *International Journal of Epidemiology*, Volume 47, Issue 2, April 2018, Pages 634–641, https://doi.org/10.1093/ije/dyx273

7. Who updates recommendations on HPV vaccination scheduleWorld Health Organization. World Health Organization. Available at: https://www.who.int/news/item/20-12-2022-WHO-updates-recommendations-on-HPV-vaccination-schedule (Accessed: February 3, 2023).

8. Garland SM, Hernandez-Avila M, Wheeler CM et al. Females united to unilaterally reduce endo/ectocervical disease (FUTURE I) investigators. Quadrivalent vaccine against human papillomavirus to prevent anogenital diseases. N Engl J Med 2007; 356: 1928–1943.

9.FUTURE II Study Group.Quadrivalent vaccine against human papillomavirus to prevent high grade cervical lesions. N Engl J Med 2007; 356: 1915–1927

10. Paavonen J, Naud P, Salmeron J et al. Efficacy of human papillomavirus (HPV)-16/18 AS04-adjuvanted vaccine against cervical infection and precancer caused by oncogenic HPV types (PATRICIA): Final analysis of a double-blind, randomised study in young women. Lancet 2009; 374: 301–314.

11. MacDonald, Noni E. "Vaccine Hesitancy: Definition, Scope, and Determinants." *Vaccine*, vol. 33, no. 34, 2015, pp. 4161–4164., https://doi.org/10.1016/j.vaccine.2015.04.036.

44th Annual Meeting of the Indian Association for Cancer Research (IACR) and International Conference on "Convergence of Fundamental and Translational Approaches in Cancer Theranostics"

Dr. Arpita Chandra
Senior Scientific officer
In vitro carcinogenesis and cellular chemotherapy, CNCI

The 44th Annual Meeting of the Indian Association for Cancer Research (IACR) and an International Conference was held from January 16th-18th, 2025, at the Biswa Bangla Convention Centre in Kolkata.This prestigious event was hosted by Chittaranjan National Cancer Institute, Kolkata, in association with the IACR West Bengal Chapter.

The theme of conference was, "Convergence of Fundamental and Translational Approaches in Cancer Theranostics", which aimed to bring together national and international cancer researchers for exchanging their scientific knowledge, expertise and innovation. The conference had begun with two pre-conference workshops on 'Career Crafting and Science Communication' and 'Advanced Flow Cytometry Applications in Immunophenotyping and Data Analysis'. These sessions were designed to provide postgraduate and PhD students with enhanced career opportunities and practical experience in advanced flow cytometry techniques respectively.

The inaugural session of the conference included inspiring welcome address by the honourable Director of CNCI, Dr. Jayanta Chakrabarti, followed by the speech of Dr. Sorab N. Dalal, the President, IACR. Dr. Chakrabarti discussed the heritage and history of Chittaranjan National Cancer Institute, Kolkata and emphasized on the importance of collaboration between researchers, clinicians, and industry to advance cancer research and treatment. He also, highlighted the significance of time bound research balancing the basic and translational research in the form of immunotherapy or targeted cancer therapy.

This conference focused on the importance of integrating basic research with clinical applications to develop more effective cancer diagnostics and treatments. The event showcased impressive arrays of scientific presentations, encompassing keynote lectures, plenary sessions, oral presentations, and poster sessions. These sessions covered a broad spectrum of cutting-edge topics in cancer research. Distinguished speakers delivered thought-provoking insights, setting the stage for the innovative ideas which were discussed in the following sessions. The oral presentations highlighted significant advancements and experimental breakthroughs, while poster sessions provided a platform for demonstrating emerging researches. The three day conferencewas true scientific bonanza featuring several sessions dedicated to molecular approach and cancer therapy, emerging role of immunotherapy in cancer care, cancer research and industrial sector, epigenetic regulation and cancer, targeted therapy and immunotherapy in cancer and next generation sequencing in cancer research, drug development, therapeutic advancements in cancer management, diagnostic /prognostic marker and clinical settings etc. Some of the innovations showcased in this conference have the potential to revolutionize cancer detection and treatment. The poster sessions witnessed vibrant discussions and knowledge exchanges. In addition to the scientific sessions, the conference also provided ample opportunities for networking and collaboration. Young researchers and students had the chance to interact with leading experts in the field cancer research for exchange of scientific ideas and seeking mentorship. The 44th Annual Meeting of the IACR included an awards ceremony recognizing outstanding contributions to cancer research. Several young investigators were honoured for their innovative work, inspiring the next generation of cancer researchers to continue pushing the boundaries of knowledge.

The conference concluded with a vote of thanks to all the contributors including organisers, sponsors and participants. Through these efforts, the IACR continues to make significant progress in addressing the challenges of cancer research and treatment aiming to enhance therapeutic applications for patient welfare.This august gathering of scientific minds illustrated the depth and breadth of current investigations in the field of cancer research uniting researchers, clinicians, and students from around the world to share their latest findings and foster collaborations in the fight against cancer.

The venue of the conference

Pre-conference workshop

Inaugural ceremony

The registration desk

Oral presentation session

The poster session

Felicitation

Valedictory session

OVARIAN MYXOMA: A rare benign tumour of ovary which mimic malignancy - diagnosed in a 29 years female

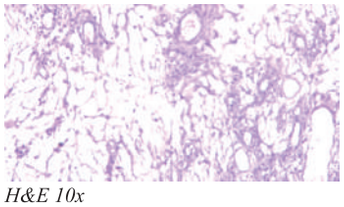
Dr. Srabanti Hajra
Specialist Grade I
Dept. of Pathology

A 29 years old female presented with abdominal pain and graduallyincreasing swelling in the left pelvic region for last 6 months.CT scan of abdomen shows a huge (20x15x10cm) solid, cystic, left adnexal SOL. There was minimal ascites and no lymph node enlargement.Tumourmarkers were within normal limits. CA 125-9.82unit/ml,CA19.9 -0.8 unit/ml,CEA-2.14 ng/ml, AFP -1.4 ng /ml ,Beta HCG -0.24mIU/ml.

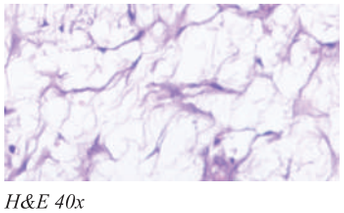
LDH was slightly raised - 366 unit/L.

Left Adnexal Mass (Cut opened)

During operation left adnexal mass was sent for FROZEN section. It was a huge globular mass measuring 20cm in maximum dimension. Outer surface was smooth, glistening, capsule was intact. On cut section partly cystic, partly solid, gelatinous material is seen within the cystic spaces. It is reported as benignlesion on frozen sections.



H&E 10x

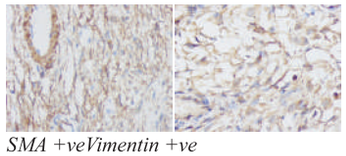


H&E 40x

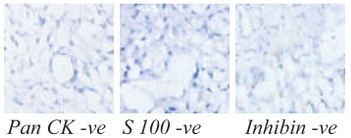
On routine histopathology benign looking stellate or spindle shaped cells are seen embedded in a myxoid stroma. Mitosis and necrosis are not seen. Vascular proliferations are noticed in some areas. Peritoneal wash fluid was negative for malignancy.

IHC shows spindle cells were positive for SMA (strong and diffuse), Vimentin (strong and diffuse), Desmin (focal).Negative for PAN CK, S100, Inhibin, Ki 67% was only 2%.

Final diagnosis was ovarian myxoma.



SMA +veVimentin +ve



Pan CK -ve S 100 -ve Inhibin -ve

Discussion:

Myxomas are benign tumours that generally arise from the heart,soft tissues, muscle, skin and bones.

Ovarian myxomas are very rare tumour which radiologically and grossly mimic malignancy. Microscopically stellate/spindle shaped cells are seen in a myxoid matrix without any infiltrative pattern, mitosis and necrosis. They should be differentiated from other lesions of ovaries with myxoid changes that is fibromas with myxoid degeneration, angiomyxomas etc. Aggressive angiomyxoma may mimicmyxoma in both immunohistochemical and ultrastructural level but in angiomyxoma, there will be thick-walled blood vessels and infiltrative borders with finger like invasions into the surrounding fatty tissue. Although ovarian myxomas are benign, their behavior is uncertain and recurrence may occur.

ETHICS IN PALLIATIVE CARE

Dr. Debasish Jatua,
In Charge Department of
Pain & Palliative Care
Co PI PBCR, Kolkata
& HBCR, CNCI

Palliative care is a philosophy of Care which enables a caregiver to think of a person suffering with life-limiting chronic disease as a human being first than just only a patient.

The goal of Palliative Care is to neither hasten nor delay the death of a person but to improve the Quality of Life of a person during the course of a life-limiting chronic disease through control of Pain & other controllable symptoms associated with the illness on the basis of four Ethical pillars consisting of

Beneficence

Non-Maleficence

Autonomy & Justice

Whichare omnipresent during taking any medical decisions & dispensing opioids.

Beneficence means that all medical practitioners have a moral duty to promote the course of action that they believe is in the best interests of the patient.

While

Non-maleficence is the obligation of a physician not to harm the patientie to do No harm.

Let us take a situation for further introspection.it is often seen in Palliative care outpatients that cancer patient come with severe constipation after ingesting the combination drug of Tramadol+Paracetamol which they buy from any Medicine shopto control their unbearable pain at night.

In this scenario the best interest for sufferer is that the Constipation be relieved which itself will reduce the Pain while any drug which does not cause constipation like NSAID & Paracetamol be prescribed along with a H2 receptor antagonist thus practising the principle of Beneficience.

while

removing Tramadol (less strong Opioid) which was causing the constipation by enacting a vicious cycle of pain obligated the Physician in removing the harmful vicious distressing cycle thus practising the principleofNon-maleficience.

Autonomy means that a patient has the ultimate decision making responsibility for their own treatment because patients have the right to choose what happens to their body.A medical practioner cannot impose treatment on a patient unless patient is deemed unable to make autonomous decisions.

While

Justice is the principle that when weighing up ofsomething;to think whether it's compatible with law, the patient's rights, and if it's fair and balancedieto treat all people equally and equitably.

Let us take another situation for discussion.An unmarried female patient who recently lost her job due to fungating Ca breast;on Tramadol 200 mg/day & Lactulose syrup with moderate pain was admitted from emergency

She was prescribed Morphine 60mg/day because Equivalent dose of 200mg of Tramadol is (200/5)ie40mg Morphine,so to control moderate pain half of her equivalent present dose(20mg) of Morphine ie(40/2) was increased along with cheaper & stimulant laxative Bisacodyl,antibiotics & referred to Hospice which she refused.

In this scenario Hospice care was preferred by the physician to incorporate palliative medicine & nursing care together to heal her physical wound while her psycho-socio-spiritual distress would have been tackled by a multi professional teamof psychologist, social worker & volunteer caregivers thus providing Holistic Care thus providing her fair & balanced mode of management hence emphasising the principle of Justice.

While

Since the patient decided against getting admitted in Hospice& preferred to stay in the Hospital, here her decision-making responsibility regarding what happens to her body was acknowledged by the Doctor thus practising the principle of Autonomy.

Following the above mentioned medical ethics & putting them in real life practise as elaborated earlier is the key in improving the Quality of Life thus providing optimum patient care in the field of Palliative Medicine

Cancer from Broader Perspectives: The Dawn of Comparative Oncology and Beyond

Dr Sarbashis Hota,
Senior Resident,
Department of Laboratory Medicine

Our understanding of cancer has evolved with time, as has evolved the epistemological framework of scientific knowledge, we all know. Frankly speaking, Cancer is not a new disease, as evidenced by the discovery of Swartkrans cave, which housed 1.7 million year old fossil of a hominine metatarsal harbouring osteosarcoma1. Fundamental of our current understanding of cancer, as 'a distorted version of our normal selves' relies on the notion of clonal proliferation of a single cell acquiring one or more genetic aberrations, which gives certain advantage for autonomous growth. The corollary of this idea is that fundamentally, cancer may arise in any metazoan or multicellular organism, which can get jeopardized by the unrestrained proliferation of one of its 'rouge' member.

This compels us to have a look on different life forms. Common sense dictates that the larger(more cellular) and aged the organism will become, more is the chance of acquiring mutation for a particular cell- thus incidence of malignancy will be higher for that particular species. But interestingly which is actually not the case, long ago pointed out by Richard Peto, which is famous as 'Peto's Paradox'.

This is evident if we just look at the mammals. Although mice have at least thousand times less cells and thirty times shorter lifespan, as compared to the human; the prevalence of cancer is nearly similar in two species. It is often postulated thatevo-lutionary selection on large sizeor longevity is inherently inseparable (say in case of a blue whale or elephant) from natural selection of potent anticancer mechanisms. It is this fact that can shed light on better understanding or coping strategies for human cancer.

Though procuring hard data on prevalence and type of cancer across species is often difficult. The article published on Nature by Vincze O et al2 tried to rely on a database on cancer related mortality based on autopsy study of Zoo animals. They evaluated 191 species and objectively showed that Peto's paradox is at least partially true. Not just a cause of morbidity and mortality; cancer may sometimes lead to extinction of an entire species. The curious example of 'Devil's facial tumour disease' may be put forth, a type of 'infectious' nerve sheath tumour notorious for horizontal spread, whichhas led to near extinction of the species of Tasmanian Devils3.

There is extensive variation of cancer risks among vertebrates across phyla and clad. Study shows that species like black footed penguin, common porpoise or Rodrigues fruit bat are nearly immune to cancer, whereas an exceptionally high rate was found in ferrets and opossums4. The same study has tried to analyse this propensity with in vitro DNA damage sensitivity assays on species specific mammalian cell culture.

Cancer like tumours have been reported in many invertebrate species including insects, molluscs and crustaceans5. Tumors of either epithelial or connective tissue origin were reported in annelids, sipunculids, arthropods, molluscs, and ascidians. Though,according to some authorities, reasonably convincing signs of malignancy are found only in a small number of reported cases, artificial means to induce cancer in experimental invertebrates are frequently employed now -a -days.

The plant kingdom is also not exempt from neoplasia. However, plant tumours are often less frequent and are not as deadly as those in animals. Fundamental differences between plant and animal development may be the key player in this regard. There are interesting similarities in pathogenesis of neoplasia between plants and animals, like the involvement of the retinoblastoma pathway as well as similar mechanisms used for stem cell maintenance6.

Finally, the role played by the commensal microbiota is recently emerging as a deciding factor. Frankly speaking, if the cell count is taken into account, we are only 10% human in true sense. The large microbiota has coevolved with human host just like in the cases of other multicellular organisms7. Crosstalk between carcinogenesis and oral or gut microbiota is a fertile area of research, which has just started to being explored.

It was comparative anatomy that stood as one of the concrete proofs in favour of the theory of evolution. Knowledge is not compartmentalised in discrete branches, the interdisciplinary fields have become more accessible after digitization of literature sources and integration of world academia following globalization. The domain of oncology, as a field of modern medicine can become more enriched and progress further with inclusion of these interdisciplinary branches.

References:

1. Rifkin RF, Potgieter M, Ramond JB, Cowan DA. Ancient oncogenesis, infection and human evolution. Evol Appl. 2017 Jul 11;10(10):949-964.

2. Vincze, O., Colchero, F., Lemaître, JF. et al. Cancer risk across mammals. Nature 601, 263-267 (2022).

3. Bender HS. Devil Facial Tumour Disease (DFTD): Using Genetics and Genomics to Investigate Infectious Disease in an Endangered Marsupial. Marsupial Genetics and Genomics. 2010 Feb 20:499-515.

4. Compton ZT, Harris V, Mellon W et al. Cancer Prevalence Across Vertebrates. Res Sq [Preprint]. 2023 Jul 6.

5. Berta Scharrer;Margaret SzabóLochhead.Tumors in the Invertebrates: A Review. Cancer Res (1950) 10 (7): 403-419.

6. Doonan, J., Sablowski, R. Walls around tumours - why plants do not develop cancer. Nat Rev Cancer 10, 794-802 (2010).

7. Davenport, E.R., Sanders, J.G., Song, S.J. et al. The human microbiome in evolution. BMC Biol 15, 127 (2017).

Platelet Transfusion: Oncology Clinical Practice Guideline Update

Dr. Rathindra Nath Biswas
MD IHBT, Assistant Professor
Department of Transfusion Medicine,

Platelet Transfusion Threshold in Patients with Hematologic Malignancies.

The Panel recommends a threshold of < 10× 109/L for prophylactic platelet transfusion in patients receiving therapy for hematologic malignancies. Transfusion at higher levels may be advisable in patients with signs of haemorrhage, high fever, hyperleukocytosis, rapid fall of platelet count, or coagulation abnormalities (e.g, acute promyelocytic leukaemia) and in those undergoing invasive procedures or in circumstances in which platelet transfusions may not be readily available in case of emergencies, as might be the case for outpatients who live at a distance from the treatment centre (Type of recommendation: evidence based; Evidence quality: high; Strength of recommendation: strong).

Platelet Transfusion Threshold in the Setting of Hematopoietic Stem-Cell Transplantation UPDATED.

The Panel recommends a threshold of < 10 × 109/L for prophylactic platelet transfusion in adult and paediatric patients undergoing allogeneic HSCT. Prophylactic platelet transfusion may be administered at higher counts based on clinician judgment. In adult recipients of autologous HSCT, randomized trials have demonstrated similar rates of bleeding with decreased platelet usage when patients are transfused at the first sign of bleeding rather than prophylactically, and this approach may be used in experienced centres. This recommendation is not generalizable to pediatric patients (Type of recommendation: evidence based; Evidence quality: high; Strength of recommendation: moderate).

Platelet Transfusion in Patients With Chronic, Stable, Severe Thrombocytopenia Who Are Not Receiving Active Treatment

Patients with chronic, stable, severe thrombocytopenia, such as individuals with myelodysplasia or aplastic anemia, who are not receiving active treatment may be observed without prophylactic transfusion, reserving platelet transfusions for episodes of hemorrhage or during times of active treatment (Type of recommendation: informal consensus; Evidence quality: intermediate; Strength of recommendation: moderate).

Platelet Transfusion Threshold in Patients With Solid Tumors UPDATED.

Theriskofbleeding inpatients withsolid tumors during chemotherapy-induced thrombocytopenia is related to the depth and duration of the platelet nadir, although other factors contribute as well. The Panel recommends a threshold of < 10 × 109/L for prophylactic platelet transfusion, based on extrapolation from studies in hematologic malignancies. Platelet transfusion at higher levels is appropriate in patients with active localized bleeding, which can sometimes be seen in patients with necrotic tumors (Type of recommendation: informal consensus; Evidence quality: low; Strength of recommendation: moderate).

Platelet Count at Which Surgical or Invasive Procedures May Be Performed

The Panel recommends a threshold 40 × 109/L to 50 × 109/L for performing major invasive procedures in the absence of associated coagulation abnormalities. Platelet transfusions should also be available on short notice, in case intraoperative or postoperative bleeding occurs

Certain procedures, such as bone marrow aspirations and biopsies, and removal of central venous catheters, can be performed safely at counts < 20 × 109/L. If platelet transfusions are administered before a procedure, it is critical that a post-transfusion platelet count be obtained to prove that the desired platelet count level has been reached.

Drug Induced Interstitial Lung Disease in Cancer & Role of ICU

Dr. Dibyadip Mukhopadhyay,
Specialist Critical Care Grade II,

Antineoplastic agents are acknowledged as the primary cause of DI - ILD (accounting for 23%-51% of all reported cases), followed by anti - rheumatic drugs, amiodarone and antibiotics. In the oncology setting, the cytotoxic agent bleomycinand mammalian target of rapamycin (mTOR) inhibitoreverolimus (3%-58%) are associated with the highest incidenceof DI - ILD (7%-21% of treated patients).Among novel drugs, the Food and Drug Administration and European Medicines Agency-approved HER2-targeting ADC trastuzumab-deruxtecan (T-DXd) carries a known riskof DI - ILD with 15.8% incidence and 2.4%mortality in clinical trials.However, in the latest phase III DESTINY-Breast03, no T-DXd-related deaths and very severe forms (grade 4) occurred and DI - ILD incidence was 10.5%.Everolimus, erlotinib, and immunecheckpoint inhibitors are also associated with DI - ILD.Case-fatality rates varybetween 0% and 51.3% according to different drugs.

Clinical experience has demonstrated that, although potentially serious and life-threatening, DI - ILD is treatable if timely and accurately diagnosed, early and appropriately managed and strictly monitored. Effective management of DI - ILD in the oncology setting is built upon multidisciplinary interaction between critical care physicians, oncologists, infectious disease specialists, radiologists, pulmonologists and pharmacologists inall procedural phases. Outcomes are majorly dependent on and on early detection and immediate intervention.

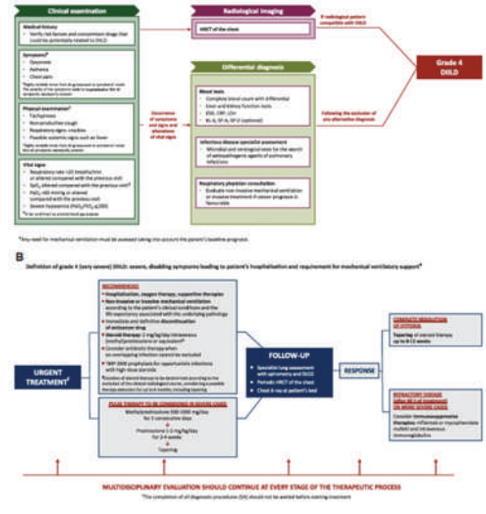
DIILD can be difficult to identify and manage since it is a diagnosis of exclusion. In this regard, the Pneumotox online platformcan be used as a reference for drug-related respiratorytoxicities.

Furthermore, increasing patients' educationcan allow to ensure they pay close attention to theirsymptoms and report any changes to their physician/supportivecare group immediately.

We at CNCI, Newtown campus have been effectively able to manage fourteen such cases of Grade III and Grade IV DIIILD successfully in our critical care unit with the help of early suspicion, astute management and help of rapid tools of diagnosis like film array (BIOFIRE) and MALDI TOF services available with us.

We are committed to continue and improvise the same level of services and standard of care in future to prevent any mortalities from any drug related adverse events.

Diagnosis and management algorithm of severe forms is as follows:



Reference:

Drug-induced interstitial lung disease during cancer therapies: expert opinion on diagnosis and treatmentP. Conte1, P. A. Ascierto2, G. Patelli3,4, R. Danesi5, A. Vanzulli3,6, ESMO OPEN

Regulatory Requirements for establishing a New Radiotherapy facility: An Overview

Shri Rajib Das,
Physicist & Radiological Safety Officer
Dept. of Medical Physics.

Radiotherapy is a modality of medical treatment using ionizing radiation such as gamma rays (emitted from radioactive source), high energy X-rays(generated by medical accelerator) and particle therapy using Hadron therapy accelerator(i.e. proton/carbon ion based).The aim of Radiotherapy is to deliver intended radiation dose to the tumor and minimum possible dose to the surrounding normal tissue.

To establish a Radiotherapy facility, the user institute must go through the Regulatory requirements as mentioned in the Atomic Energy (Radiation Protection) Rules 2024 and AERB Safety codes [AERB/RF-SC/MED-1(Rev.1)].

There are many steps required for regulatory clearance from AERB. Among them the most important steps are:

1) **Registration of Institute in eLORA:** To access eLORA system, employer needs to register his/her institute for obtaining login credentials (userID and Password).
2) **Selection of Radiotherapy equipment:** The institute may verify from the supplier that the radiotherapy equipment (Medical Accelerator/ Simulator/ Telecobalt/Gamma Knife/ Brachytherapy unit) is type approved or NOC is issued by AERB to local supplier, otherwise Licence to operate equipment procured will not be issued by AERB.
3) **Adequate Radiotherapy Staff:** The Institute needs to appoint adequate number qualified staff such as Radiation Oncologists, Medical Physicist and Radiation Therapy Technolosts as per the qualification and experience stipulated in AERB safety code -AERB /RF-SC/MED-1(Rev1)
4) **Nomination and approval of Radiological Safety Officer (RSO):** The institute requires to nominate Medical Physicists(if possible) to work as a RSO in the institution by submitting application form in eLORA.It is essential to obtain RSO approval for obtaining procurement permission for Radiotherapy equipment in a new Radiotherapy facility.
5) **Site and Layout Plan approval for Radiotherapy Installation:** It is required to prepare site and room layout drawings in consultation with Medical Physicist/Radiation Safety expert, Radiation Oncologists, Architects and the supplier of the equipment. Once the planning is finalized from institute side, submit the application form for 'Site and Layout Approval' along with PDF files of the drawings as an attachment of the application form. The applications along with drawings are reviewed by AERB and approval is issued from radiation safety stand point.
6) **Personnel Monitors Services:** Personnel monitoring services such as TLD badges shall be obtained from the AERB recognized agency for all radiation workers. The Ultratech Lab. Private Ltd provides TLD services in West Bengal.
7) **Measuring and Monitoring Instruments:** The Instituterequires to procure appropriate measuring instruments for measurement of output and other dosimetric parameters such as Thimble Ionisation Chamber, Parallel Plate Ionisation Chamber, Well type Ionisation Chamber , Electrometer , Dosimetric Phantom, Radiation Field Analyser etc. The institute also requires procuring appropriate monitoring instruments for area monitoring (Survey Meters, Contamination Monitors, and Gamma Zone Monitors etc), Security systems and QA instruments.
8) **Other associated Equipment and Accessories:** One of the major associated equipment for Radiotherapy includes Simulator/CT-Simulator for simulating the patient prior to Radiation Therapy. The Layout plan of Simulator Installation and Layout approval from AERB also requires.

The other associated equipment /accessories include Treatment Planning System (TPS), Last Man Out Switch (LMOS) beam modifiers, patient immobilization device such as moulds, quality assurance test tools, etc.

For obtaining requisite regulatory clearances the institute needs to submit relevant application through AERB's e-Governance application-eLORA (e-Licensing of Radiation Application) system after institute registration with AERB (Atomic Energy Regulatory Board, Govt. of India).After obtaining commissioning approval, a radiation survey is required to be carried out and survey report is required to be submitted to AERB.Only after approval to survey report, radiation related QA tests should be carried out thoroughly. Patient treatment can be started only after obtaining Licence for operation. The Licence shall be renewed before expiry of Licence.

Nutritional Support Protocols:Essential for Head and Neck Cancer Treatment

Debolina Banerjee,
Dietician

Head and neck cancer (HNC) patients often face multiple nutritional challenges before, during, and after treatment due to the close proximity of the cancer to organs that are vital for normal eating function. Common treatment-related side effects, such as dysphagia, odynophagia, dysgeusia, xerostomia, thick saliva, microsites, nausea, and vomiting, all further impair the patient's ability to maintain adequate oral intake. Malnutrition is seen in 40%-80% of patients with cancer and is a major cause of morbidity and mortality

Malnutrition and unintentional weight loss in HNC patients during and after treatment are associated with poorer treatment outcomes, increased morbidity and mortality, and poor quality of life, even in overweight and obese patients whose Body Mass Index (BMI) is not suggestive of malnutrition. The main nutrition goal for HNC patients is thus to maximize nutrition intake either orally or through nutrition support therapy in order to prevent or limit weight loss, preserve lean body mass, minimize treatment delays and unplanned hospitalizations, and improve treatment outcomes.

Maintaining an adequate nutritional status is considered a fundamental aspect in the treatment of patients with head and neck cancer who undergo anticancer treatments. Prehabilitation interventions, both nutritional and physical, have been shown to be particularly effective when combined in a multimodal nutritional prehabilitation intervention, highlighting a synergistic effect that yields superior results in patient management. By optimizing the nutritional status and functional capacity of patients prior to anticancer treatments, healthcare providers can improve treatment outcomes, reduce complications, and ultimately enhance overall well-being and prognosis for individuals with head and neck cancer.

The effectiveness of nutritional counselling compared to standard treatment has been evident, as it promotes increased caloric intake and reduces the number of hospitalisations and unscheduled visits to the emergency department .This suggests that early and targeted nutritional

counselling can help maintain an adequate nutritional status during the treatment journey of head and neck cancer.

Analysis of oral supplementation with oral nutritional supplements (ONS) and immune nutrition has shown significant improvements in reducing weight loss, duration of hospitalisation, quality of life, and immunological complications, as well as a reduction in postponement of anticancer therapy. These results highlight the importance of integrating nutritional counselling with the use of oral supplements and immunonutrients to maximise beneficial effects on nutrition and immune responses during the treatment of head and neck cancer. Furthermore, physical prehabilitation, such as swallowing exercises, has demonstrated improvements in oral nutrition without the need for enteral or parenteral nutrition .This is made possible by maintaining good swallowing functionality even after treatment and a lower number of complications such as aspiration, penetration, xerostomia, and fibrosis during and after chemotherapy and radiotherapy. These findings shows the importance of physical prehabilitation as an essential component in optimising nutrition and the well-being for patients with head and neck cancer.

PRACTICING DIETETICS- SOP - H&N SURGERY AND RADIATION THERAPY CNCI CAMPUS 2

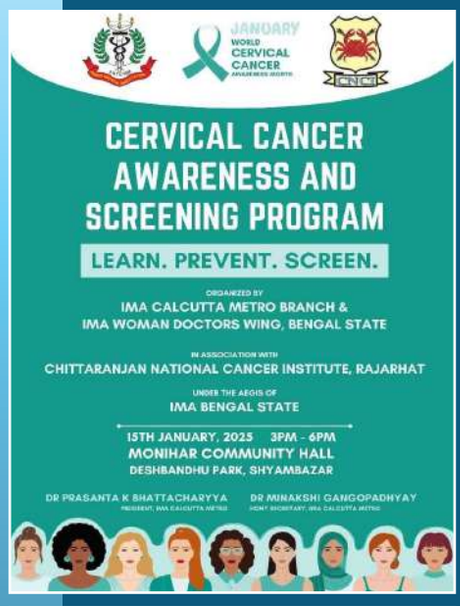
PREOPERATIVE APPROACH: 3 WEEKS BEFORE SURGERY:	• Nutritional screening (anthropometric, bio-chemical, clinical, dietary). • Nutritional intervention (optimize the intake of macro and micro nutrients & supplements the immune nutrients) and individualized nutritional counseling. • Follow up after 15 days.
POST OPERATIVE APPROACH: FROM POD 0 AT ICU	• Nutritional screening (SGA & ERAS based protocol). • Initiation of enteral feed from POD 01. • Reassessment and modification of therapeutic diet as per the clinical needs & medical advices. • At the time of discharge Therapeutic home diet chart as per the discharge advice.
FOLLOW UP AFTER 10 DAYS	• Nutritional screening (anthropometric, bio-chemical, clinical, dietary). • Modification of diet as per clinical needs. • Transition of route of nutrition delivery (Tube feeds to oral feed) as per the medical advice. • Optimize the calorie requirements along with immuno nutrients.
BEFORE 1WEEK OF RADIATION	• Nutritional screening (anthropometric, bio-chemical, clinical, dietary). • Nutritional intervention and individualized nutritional counseling. • Modification of diet as per clinical needs.
DURING RADIATION THERAPY : 1 WEEK AFTER RADIATION	• Assessing the GI symptoms, appetite, swallowing and chewing capacity, and mucositis. • Symptomatic medical nutrition therapy. • Modify the consistency and compositions of diet as per clinical needs. • Follow up after every 2 weeks.

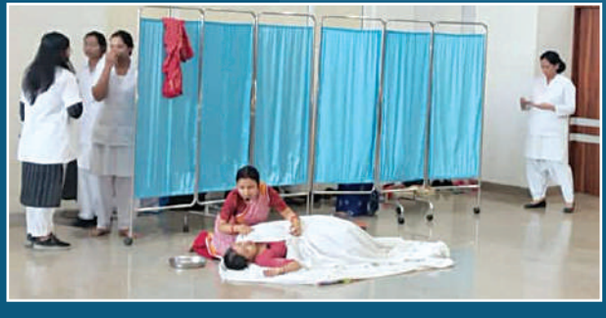
Campus Life at CNCI, Kolkata

Continue with our zeal for cancer screening and awareness to detect and prevent the common cancers.

Collaborate with international Institutions of repute for advanced training and Cancer research.

Achieve solvency and maintain the High standard of care expected from our patients and society at large.





CHITTARANJAN NATIONAL CANCER INSTITUTE (KOLKATA)

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

1st CAMPUS, HAZRA : 37, S.P. Mukherjee Road, Kolkata - 700 026, Phone: 033-2476 5101

2 nd CAMPUS, NEW TOWN : Street Number 299, DJ Block, Action Area I, New Town, Kolkata - 700 160, Phone: 033-3506 0600

Published by **SANMOY CHAKRABORTY** On behalf on **CNCI**, Designed & Printed, by Mistry Company, Regent Estate, Kolkata - 700 092, Ph.: 033 3572 2407, 9830211292. Price: Rs.1/-