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8th Edition of

International Cancer Conference

18-20 September, 2025

VIRTUAL

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BOOK OF ABSTRACTS

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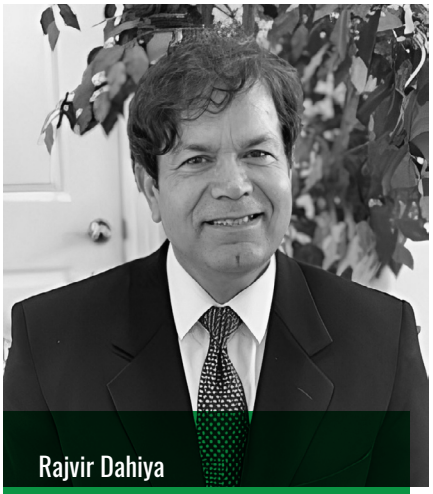

Rajvir Dahiya
University of California San Francisco, United States

Jianhua Luo
University of Pittsburgh School of Medicine, United States

Jie Xu
The University of Texas MD Anderson Cancer Center, United States

Michael Thompson
University of Toronto, Canada

Patricia Tai
UpToDate, Canada

Michele Mishto
The Francis Crick Institute, United Kingdom

Jose Manuel Cervera Grau
Preclinical Lab and Computational Drug Discovery Program, Relayer Biotech Inc, Spain

George Zachos
University of Crete, Greece

Shinya Tajima
National Hospital Organization, Shizuoka Medical Centre, Japan

Keynote Speakers

Marika Crohns
Impactful Innovations Management Consultants LLC, United Arab Emirates

Sergey Suchkov
N.D. Zelinskii Institute for Organic Chemistry of the Russian Academy of Sciences, Russian Federation

Thank You All...

Welcome Message

Dear Conference Attendees,

It is a considerable honor for me to serve on eh Organizing Committee and be asked to provide a few lines of welcome online International Cancer Conference 2025. The theme for this 8th Edition of the meeting will be a The Future of Cancer Management: Innovations and Challenges". The Conference is specifically dedicated to attract a particular broad range of topics within the scope of advancing our understanding, management and treatment of various forms of the disease. These will include critical aspects of cancer research, types, treatment, detection and diagnosis, especially at the early-stage, and genomics among a number of areas. In addition, there will be important consideration of the many aspects of future research into the disease.

In the online format Attendees can look forward to a series of presentations, interactive sessions, and workshops that will cover all the aforementioned topics in a highly meaningful fashion. There will be ample opportunity for discussion among particiapmans. Coming from the filled of early-stage detection, I am highly enthused to welcome you to this Conference which will undoubtedly result in a very significant contribution to our thinning and practice in the field.

Michael Thompaon

University of Toronto, Canada

Welcome Message

Dear Colleagues and Honored Guests,

It is with profound honor and heartfelt enthusiasm that we welcome you to this International Cancer Conference—a global gathering of the brightest minds united by a singular mission: to transform the future of cancer care.

Today, we stand at the intersection of science and hope. Your relentless dedication in advancing the frontiers of cancer diagnosis, prognosis, and innovative treatment is not only shaping the future of medicine—it is saving lives. Each discovery you make, each breakthrough you pioneer, echoes far beyond the walls of your laboratories and clinics. It reaches the hearts of millions of patients and families across the globe, offering them renewed strength and the promise of a better tomorrow.

To all the scientists, clinicians, and researchers in attendance—thank you. Your work is the foundation of a new era in cancer care—one that embraces the power of personalized medicine, driven by precision, fueled by compassion, and guided by vision.

To the patients and survivors—your courage inspires every step forward. You are the reason we gather, research, and innovate. You are the hope we carry into every experiment and every clinical trial.

Through global collaboration and groundbreaking discoveries, we are drawing closer to a future where cancer can be predicted, prevented, and ultimately eradicated.

Let this conference be more than an exchange of knowledge—let it be a catalyst for change, a spark for new ideas, and a reaffirmation of our unwavering commitment to a world without cancer.

Welcome to the future of cancer care.

Rajvir Dahiya

University of California San Francisco (UCSF) School of Medicine, San Francisco, USA

Welcome Message

Welcome to this well-organized and informative conference! The providers and organizers are highly experienced, striving to make your learning experience exceptional. This event offers valuable opportunities for networking and enhancing your scientific/clinical skills.

The venue, a favorite travel destination, boasts stunning heritage buildings, churches, and museums that never fail to inspire admiration. With eight years of successful experience, the conference continues to attract renowned international experts for keynote speeches and poster presentations.

We hope you find this event insightful, engaging, and enriching. Enjoy the conference!

Welkom [Afrikaans], مرحبا[Arabic], 欢迎 [Chinese], welcome [English], bienvenue [French], willkommen [German], □□□□□□ [Hindi], benvenuta [Italian], سلامتغي تاد[Malay Arabic], witamy [Polish], boas-vindas [Portuguese], bienvenida [Spanish], □□□□□□□□□□□□ [Thai], hoş geldin [Turkish], chào mừng [Vietnamese]! We apologize that not all languages can be included due to space limitations; however, this conference will undoubtedly serve as an international hub for scientists from all nations!

Professor Patricia Tak Hing Tai

UpToDate, Canada

ABOUT
MAGNUS GROUP

Magnus Group, a distinguished scientific event organizer, has been at the forefront of fostering knowledge exchange and collaboration since its inception in 2015. With a steadfast commitment to the ethos of Share, receive, grow, Magnus Group has successfully organized over 200 conferences spanning diverse fields, including Healthcare, Medical, Pharmaceutics, Chemistry, Nursing, Agriculture, and Plant Sciences.

The core philosophy of Magnus Group revolves around creating dynamic platforms that facilitate the exchange of cutting-edge research, insights, and innovations within the global scientific community. By bringing together experts, scholars, and professionals from various disciplines, Magnus Group cultivates an environment conducive to intellectual discourse, networking, and interdisciplinary collaboration.

Magnus Group's unwavering dedication to organizing impactful scientific events has positioned it as a key player in the global scientific community. By adhering to the motto of Share, receive, grow, Magnus Group continues to contribute significantly to the advancement of knowledge and the development of innovative solutions in various scientific domains.

ABOUT
ICC 2025

The 8th Edition of the International Cancer Conference (ICC 2025) will take place online from September 18 to 20, 2025, under the theme "The Future of Cancer Management: Innovations and Challenges." This prestigious event will serve as a global platform for collaboration, discussion, and the exchange of groundbreaking research in the field of cancer science and clinical oncology.

ICC 2025 is expected to attract a diverse and multidisciplinary audience, including leading scientists, clinicians, researchers, industry professionals, and patient advocates. By bringing together experts from various sectors of the cancer community, the conference aims to foster meaningful dialogue, drive innovation, and promote partnerships that accelerate progress in understanding and treating cancer.

The conference program will cover a comprehensive range of topics, from the biology, causes, and classification of cancer to organ-specific malignancies and the latest advances in diagnostics and imaging. Attendees will also explore cutting-edge developments in cancer treatment, including clinical trials, immunotherapy, targeted therapies, and the growing impact of artificial intelligence in oncology. Additionally, sessions will address cancer prevention strategies and the complex interactions between cancer and other diseases.

Participants can expect engaging keynote presentations, interactive sessions, and expert-led workshops designed to deepen knowledge, encourage critical thinking, and share real-world applications through case studies and emerging research.

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KEYNOTE PRESENTATIONS

Frederick H. Silver[1,2]*, Tanmay Deshmukh[2]

[1]Department Pathology and Lab Medicine, RWJMS, Rutgers, the State University of New Jersey, Piscataway, NJ, USA

[2]OptoVibronex, LLC, Ben Franklin Tech Ventures, Bethlehem, PA 18014, USA

Use of VOCT and machine learning to diagnose and understand skin cancers

Vibrational Optical Coherence Tomography (VOCT) is a new technique to optically image and measure the resonant frequency of cells, blood vessels, papillary collagen, and fibrotic tissue in the skin and other soft tissues. The technique uses low levels of infrared light (0.1mW) for imaging and audible sound (55dB) to vibrate the tissue to evaluate the effects of physical forces on tissue deformation. It is well known that cancer cells and cancerous tissue are stiffer than normal skin and this difference can be used to quantitatively differentiate benign from cancerous lesions. While Optical Coherence Tomography (OCT) is used extensively in ophthalmology its use in dermatology is just beginning for lesion identification. VOCT can be useful to both the dermatologist and general practitioner to noninvasively evaluate the types, margins, and depths of skin lesions. While conventional OCT provides an image of the tissue, VOCT provides images of tissues as well as quantitative physical data that can be used in concert with machine learning to assist in diagnosis and understanding of the pathophysiology of skin cancers. Results of studies on normal skin indicate that cells, blood vessels, and papillary collagen have resonant frequencies of 50, 100, and 150 Hz, respectively. Additional resonant frequencies at 80, 130, and 250-260 Hz are seen in

Biography

Dr. Frederick H. Silver is a Professor of Pathology and Laboratory Medicine at Robert Wood Johnson Medical School, Rutgers, the State University of New Jersey. He did his Ph.D. in Polymer Science and Engineering at M.I.T. followed by a postdoctoral fellowship in Developmental Medicine at Mass General Hospital in Boston, MA. Dr. Silver has published over 250 peer reviewed scientific papers, 5 textbooks on biomaterials and biomedical engineering, and has over 21 patents issued and pending. He is a section editor for Biomaterials for the MDPI Journal Biomolecules. He is an inventor of the vibrational optical coherence tomography technique.

cancerous lesions, corresponding to cancer associated fibroblasts, new thin blood vessels and fibrotic tissue, respectively. This talk will summarize the results of clinical studies using VOCT data and machine learning to characterize the differences between normal skin, basal cell carcinomas, squamous cell cells carcinomas, seborrheic keratoses, and melanomas yielding specificities and sensitivities approaching and exceeding 90%. In addition, a comparison is made between the histopathology and OCT images identifying the relationship between morphologies seen by histopathology and those seen in OCT images. The results of these studies suggest that VOCT in conjunction with visual inspection and dermoscopy can be used noninvasively to screen patients for skin cancers. The ability to use VOCT over the internet makes it useful in the remote screening of skin lesions using telemedicine.

Eleni Petsalaki, Sofia Balafouti, George Zachos*

Department of Biology, University of Crete, Vassilika Vouton, Heraklion 70013, Greece

Maintaining genome integrity in cytokinesis: The wise cells build bridges

Chromatin bridges are strings of mis-segregated chromatin connecting the anaphase poles or daughter nuclei in mitotic cell division and can arise from incomplete DNA replication or decatenation, or from dicentric chromosomes generated by end-to-end chromosome fusions. Chromatin bridges pose a major threat for genome integrity because, if unsupported, they can lead to chromatin bridge breakage-fusion-bridge cycles or to chromothripsis, which can cause burst-like accumulation of genomic alterations that can drive carcinogenesis. As a result, preventing chromatin bridges from breaking is essential for cells to maintain genome stability. For this purpose, human cells use at least two major mechanisms to stabilize chromatin bridges: Firstly, they impose an abscission-delay, called “the abscission checkpoint”, to prevent chromatin breakage or tetraploidization by regression of the cleavage furrow. Secondly, they generate accumulations of polymerized actin, called “actin patches” at the base of the intercellular canal to stabilize chromatin bridges and prevent them from breaking. Recent findings from our lab shed light into how chromatin bridges are sensed by the cell and into the molecular mechanisms involved. We show that Topoisomerase II, an enzyme that can untangle catenated DNA molecules, recognizes “knotted” DNA on chromatin bridges and triggers a downstream MRN-ATM-Chk2-INCENP signaling pathway to delay abscission and prevent chromatin breakage. We also

Biography

George Zachos completed his PhD at the University of Crete and received postdoctoral training at the Beatson Institute for Cancer Research, Glasgow, U.K. investigating DNA damage checkpoint mechanisms. In 2008, he moved to the Department of Biology of the University of Crete in Greece as an Assistant Professor in Cell Biology, became Associate Professor in 2015 and continues to hold this position today. Discoveries from the Zachos lab have identified novel mechanisms of the mitotic spindle and abscission checkpoints during cell division in human cells. He has published >40 papers in leading scientific journals and has received >3000 citations.

show that daughter nuclei connected by chromatin bridges are under mechanical tension that requires interaction of a mechanosensing nuclear envelope protein complex with the actin cytoskeleton. This nuclear tension promotes local enrichment of a small Rho GTPase that modulates the actin cytoskeleton at the base of the intercellular canal, to generate actin patches and prevent chromatin bridge breakage in cytokinesis. These findings describe basic mechanisms that maintain genome stability in human cells and can protect against tumorigenesis.

Jianhua Luo, MD, PhD

Department of Pathology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

Serum based machine learning models to assess the risk of liver cancer

Hepatocellular Carcinoma (HCC) is one of the most lethal malignancies for human. Early diagnosis of HCC is crucial in reducing the mortality of the disease. In this study, a panel of 9 fusion transcripts in the serum samples from 136 individuals using TaqMan qRT-PCR was analyzed. Seven fusion genes were frequently detected in the serum samples of HCC patients, including MAN2A1-FER (100%), SLC45A2-AMACR (62.3%), ZMPSTE24-ZMYM4 (62.3%), PTEN-NOLC1 (57.4%), CCNH-C5orf30 (55.7%), STAMBPL1-FAS (26.2%) and PCMTD1-SNTG1 (16.4%). Machine learning models were constructed based on serum fusion gene levels to predict HCC occurrence in the training cohort using leave-one-out-cross-validation approach. One of the machine learning models called 4-fusion genes logistic regression model (MAN2A1-FER<40, CCNH-C5orf30<38, SLC45A2-AMACR<41, PTEN-NOLC1<40) produced a 91.5% accuracy in the training cohort. The same model generated an accuracy of 83.3% in the testing cohort. When serum ⍰-Fetal Protein (AFP) level was incorporated into the machine learning model, a 2-fusion gene+AFP logistic regression model (MAN2A1-FER<40, CCNH-C5orf30<38, AFP) was found to generate an accuracy of 94.8% in the training cohort. The same model generated 95% accuracy in both the testing cohort and the combined cohorts. Cancer treatment reduced most of the serum fusion transcript levels. Serum fusion gene machine

Biography

Dr. Luo has been studying molecular mechanisms of human malignancies in the last 35 years. Currently, he is a Professor of Pathology and Director of High Throughput Genome Center at University of Pittsburgh. In the last 29 years, Dr. Luo has been largely focusing on the genetic and molecular mechanism of human cancers such as prostate cancer. He is one of the pioneers in utilizing high throughput gene expression and genome analyses to analyze field effects in prostate cancer and liver cancer. He is also the first in using methylation array and whole genome methylation sequencing to analyze prostate cancer. He and his colleague helped to develop an ultra-low error synthetic long-read sequencing technology called LOOPSeq that can be utilized to quantify mRNA isoforms and mutation isoform distributions in single cell level. His group has discovered 21 novel fusion genes in prostate, liver and colon cancers. Subsequently, his group discovered that many of these fusion genes are recurrent in many other types of human cancers. His group also developed

learning models may serve as important tools in screening HCC and monitoring the impact of HCC treatment.

a genome intervention strategy targeting at the chromosomal breakpoint of fusion gene to treat cancers. Overall, these findings advance our understanding of how cancer develops and behaves, and lay down the foundation for better future diagnosis and treatment for human malignancies.

Jie Xu MD, PhD

Department of Hematopathology, The University of Texas MD Anderson Cancer Center, Houston, TX

The clinical and pathologic features of acute myeloid leukemia with mast cell differentiation

Blasts in Acute Myeloid Leukemia (AML) can show differentiation toward various lineages, including monocytic, erythroid, megakaryocytic, and plasmacytoid dendritic cell lineage. The incidence and clinicopathological features of Mast Cell (MC) differentiation in AML is largely unknown. Among 2,167 AML cases, we identified 21 (~1%) cases of AML with MC differentiation (AML-MC), defined as: (1) an increased immature MC population (>0.3%) by flow cytometry immunophenotyping (FCI); (2) cells with metachromatic granules observed on Bone Marrow (BM) aspirate smears; and (3)>1% MCs shown by tryptase immunohistochemistry in biopsy specimens. The median age of these patients was 68 years. The MCs consistently had low side scatter, consistent with immature and hypogranular forms, and were positive for CD38, CD123 and CD45 (dim), partially positive for CD34 in 81%, positive for CD25 in 33% of cases, and consistently negative for CD2. Tryptase immunohistochemistry showed interstitial MCs. Conventional chromosomal analysis showed a complex karyotype in 13 (68%) cases. Recurrent translocations were identified in 5 cases, including t (9;22) (q34.1;q11.2), inv (16) (p13.1q22), and t (8;21) (q22;q22.1). Fluorescence in situ hybridization showed TP53 deletion in 9 (43%) cases. Next generation sequencing showed TP53 mutations in 11 of 21 (52%) cases analyzed. All cases were negative for KIT mutation. Patients with AML-MC had a very poor

Biography

Dr. Jie Xu is currently an Associate Professor at the University of Texas MD Anderson Cancer Center and the Program Director of Hematopathology Fellowship Program. She is board certified by the American Board of Pathology in Anatomic Pathology, Clinical Pathology, and Hematology. In addition to clinical responsibilities, Dr. Xu has been actively participating in multiple research projects, leading to 150 papers. Her research has been supported by multiple funds. She serves as members of editorial boards for 5 journals and ad oc reviewers for 19 prestigious journals.

outcome, with a median OS of 9.6 months. OS was significantly associated with older age (>65 years; p=0.005). In conclusion, patients with AML-MC are characterized by older age, interstitial MCs, complex karyotype, TP53 alterations, and a poor prognosis.

Dr. José Manuel Cervera-Grau

Head of Preclinical Lab and Computational Drug Discovery Program/ Relayer Biotech
Madrid, Spain

Member of new technologies at International Cancer Care Society (ICCS)

The future of cancer management: Innovations and challenges

The future of cancer management is being reshaped by a convergence of technologies that not only transform diagnosis and treatment, but also the way we understand tumor biology, interact with patients, and design clinical trials (AI, blockchain, supercomputing, and medical devices). Cancer management in the future will be predictive, preventive, personalized and participatory. It will not only be about healing, but also about anticipating , accompanying and transforming. Technology will not replace the oncologist, but it will turn him into an architect of clinical decisions, supported by intelligent systems, molecules designed ad hoc in silico and patients empowered changing Porter's forces.

Biography

Jose Manuel Cervera Grau is a specialist in Medical Oncology (18ys), Head of several Research Units from preclinical to clinical setting, In National Research Centers, ITIC, and in General Hospitals with expertise in Clinical Trials, biology, biochemistry and biotechnology (basic and translational research, business development and Clinical Development launching new Drugs of Human Origin in Oncology in big pharma during the last 8 years). Recently developed expertise in AI foundation models and blockchain technologies to be applied in drug discovery programs and early clinical trials creating complexes projects.

Dr. Marika Crohns MD, PhD

Impactful Innovations Management Consultants LLC, Dubai, UAE

Revolutionizing cancer detection and treatment with AI: Paving the way for early diagnosis and precision medicine

The rapid advancements in Artificial Intelligence (AI) have ushered in a new era of possibilities within healthcare, particularly in the detection and treatment of cancer. AI's ability to process and analyze vast amounts of medical data with precision has the potential to revolutionize oncology by providing earlier and more accurate diagnoses, optimizing treatment plans, and personalizing patient care. Recent innovations in AI-driven imaging techniques, such as deep learning algorithms, are now capable of detecting subtle patterns in medical images that may go unnoticed by human clinicians, enabling earlier identification of tumors at stages where intervention can be most effective.

Additionally, AI's application in genomics is unlocking new avenues for targeted therapies. Machine learning models can analyze genetic data to identify mutations linked to various types of cancer, paving the way for precision medicine that tailor's treatment to the individual patient's molecular profile. This could lead to more effective and less invasive therapies, minimizing side effects while maximizing treatment outcomes.

AI-powered systems are also enhancing the ability to predict cancer progression and response to treatment. By combining clinical data, medical imaging, and genomic information, these systems can provide real-time, actionable insights, guiding oncologists in their decision-making process. Furthermore, the integration

Biography

Dr. Marika Crohns is a distinguished healthcare executive with over 20 years of international leadership experience. She holds MD, PhD, Board Certification in Oncology and Radiation Therapy, as well as certification in Pharmaceutical Medicine in addition to commercial training in the UK. As an award-winning keynote speaker, she is a passionate advocate on novel technologies in healthcare. She is also the author of a groundbreaking research book. Currently, Dr. Crohns acts as the CEO of two international companies, and serves on the boards of several international companies and organizations. Her dynamic career reflects a commitment to innovation, transformative oncology, leadership, and advancing global health. She is currently the CEO for Impactful Innovations Management Consultants LLC and PRiMe International LLC.

of AI in drug discovery is accelerating the identification of novel cancer drugs, bringing hope for new treatment options in cases where conventional therapies fail.

Despite these promising advancements, challenges such as data privacy concerns, the need for large-scale clinical trials, and the integration of AI tools into existing healthcare infrastructures must be addressed. Nonetheless, the potential of AI to transform cancer care is immense, and as technology continues to evolve, we are on the brink of a future where early detection, personalized treatment, and improved outcomes are within reach for all cancer patients.

Michael Thompson*, Soha Ahmadi, Katharina Davoudian, Nanina Lotay, Lidia Nemtsov

Department of Chemistry, University of Toronto, Toronto, Ontario, Canada

Multiplexed detection of ovarian cancer biomarkers

This presentation discusses biosensor detection of Ovarian Cancer (OC). Personalized medicine offers a promising strategy for tailoring OC treatment to an individual's genetic makeup and specific cancer subtype. This precision-based approach requires consideration of all parameters influencing OC pathogenesis, including the expression profiles of various biomarkers. To enhance early detection and diagnostic accuracy, particularly in light of OC's heterogeneity, a multiplex biosensor presents a compelling solution. Unlike single-marker assays, multiplex sensors enable the simultaneous detection of multiple biomarkers associated with different histological subtypes of OC. This reduces the risk of false negatives, such as those that might occur when relying solely on CA-125, which is predominantly elevated HGSC but may remain at normal levels in early-stage disease or in other subtypes. By integrating multiple biomarkers, a multiplex platform improves both sensitivity and specificity, broadening diagnostic coverage across diverse patient populations. Moreover, a better understanding on the various parameters influencing OC supports the advancement of personalized treatment strategies, allowing clinicians to tailor therapeutic interventions based on a patient's unique combination of biomarker concentrations and disease characteristics. In our work we use a number of electrochemical strategies to produce multiplexed sensing. This includes Cyclic Voltammetry (CV), Differential Pulse Voltammetry (DPV) and Electrochemical Impedance Spectroscopy (EIS).

Biography

Professor Michael Thompson was appointed Lecturer in Instrumental Analysis at Loughborough University in 1971. He then moved to the University of Toronto where he is now Professor of Bioanalytical Chemistry. He is recognized internationally for his pioneering work over many years in the area of research into new biosensor technologies. His research is centered on the surface chemistry of proteins, cells and bacteria. He has been awarded many prestigious international prizes for his research including The Robert Boyle Gold Medal of the Royal Society of Chemistry, The Elsevier Prize in Biosensor and Bioelectronics Technology, the E.W.R. Steacie Award of the Chemical Society of Canada, and recently the 2023 Royal Society of Chemistry Horizons Prize in Analytical Science.

Michele Mishto

King's College London, The Francis Crick Institute, UK

Targeting the post-translationally generated epitopes to fight cancer

MHC class I complexes can present antigenic peptides that have a sequence produced by post-translational mechanisms such as peptide splicing. Some examples of tumour-associated spliced epitopes have been investigated for their immunogenicity in the context of cancer so far. We developed several pipelines to identify and predict these noncanonical epitopes, which are freely available. In addition, we tested the immunogenicity and the potential for therapeutical applications for those associated to various forms of cancer.

Biography

Prof. Michele Mishto is Professor in Immunobiology at the King's College London and senior Group leader at the Francis Crick Institute in London (UK). PhD in Medical Biotechnology at University of Bologna (ITA) and a long post-doc and project leader experience at the Institute of Biochemistry at Universitätsmedizin Charite' Berlin (GER). His research focus on antigen presentation and proteasomes.

Patricia Tai[1]*, Evgeny Sadikov[2], Kurian Joseph[3], Edward Yu[4], Derek Liu[3], Arbind Dubey[5], Rashmi Koul[5], Aoife Jones Thachuthara[6], Kelvin Wong[7]

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Update on PSMA PET scans: Initial and salvage treatment of nodal/ distant metastases in prostate cancer

This update concerns the Prostate-Specific Membrane Antigen (PSMA) Positron-Emission Tomography (PET) and key controversies in managing nodal and distant metastases in prostate cancer. PSMA PET is increasingly favored over conventional imaging techniques, yet treatment decisions for positive findings remain debated, particularly regarding (1)

Biography

Prof. Patricia Tai, a gold medal graduate from University of Hong Kong (ranked 35/100 globally), trained under renowned experts Prof. John Ho (nasopharyngeal cancer), Prof. David McDonald (brain tumor response: McDonald's criteria), and Mr. Jake Van Dyk (medical physics). As an international skin cancer specialist, she has authored five Up-to-date chapters (Wolters Kluwer, United States). She is also the Clinical Professor of University of Saskatchewan in Western Canada. She has 148 full publications, 127 conference abstracts, and 168 presentations. With 13 academic awards, her h-index is currently 29.

therapeutic strategies, (2) disease progression monitoring, and (3) intensification approaches for Metastatic Castration-Resistant Prostate Cancer (mCRPC).

For nodal metastases, both metastasis-directed and systemic treatments have been explored. Total androgen blockade with Gonadotropin-Releasing Hormone (GnRH) agonists or antagonists, combined with anti-androgens, is recommended. GnRH antagonists offer faster, more effective responses with fewer complications. Patients with nodal or distant metastases should generally avoid Intermittent androgen deprivation therapy. Prostatectomy remains investigational for oligometastatic cases.

Upon progression to castration-resistant prostate cancer, intensification strategies may include radiotherapy (e.g., radium-223, lutetium-177 PSMA-targeted therapy), chemotherapy, and immunotherapy. Lutetium-177 PSMA therapy is FDA-approved only for mCRPC patients who have failed Androgen Receptor Pathway Inhibitors (ARPI). Triplet therapy or early radiopharmaceutical administration may benefit younger, fit patients. Pembrolizumab and poly (ADP-ribose) polymerase (PARP) inhibitors have become standard-of-care for patients with germline or somatic BRCA or ATM mutations in mCRPC. However, controversy persists regarding the prognostic role of tumor suppressor genes.

In conclusion, various approaches exist for managing nodal or distant site positivity detected via PSMA PET. This review highlights ongoing debates in radiotherapy (including PSMA radioligand therapy), systemic therapies, and immunotherapy to improve treatment outcomes for prostate cancer patients.

Rajvir Dahiya M.S., Ph.D., M.D., D.Sc.

Professor Emeritus, University of California San Francisco School of Medicine (UCSF) San Francisco, CA 94143, USA

Role of mRNA genomics technology in cancer screening, diagnosis, prognosis, precision medicine, and gene therapy

Current cancer screening methods radiological imaging, DNA-based tests, and pathological assessments often fail to detect malignancies at early stages. Despite technological advances, gene-based diagnostics specifically designed for early cancer detection remain limited. To bridge this gap, we evaluated the clinical utility and diagnostic accuracy of gene verify test, a plasma cell-free mRNA-based test for prostate cancer. This novel, non-invasive approach has the potential to deliver faster, more precise diagnoses while eliminating the risks associated with surgical biopsies. In our study, we analyzed 455 prostate cancer samples (160 blood and 294 tissue) and 150 normal samples, collected from nine hospitals. Blood and surgical specimens were obtained based on defined eligibility criteria. The study aimed to correlate mRNA genomic profiling with clinico-pathologic parameters. In blood samples, a 25-gene panel effectively distinguished prostate cancer patients from non-cancer individuals, achieving an AUC of 0.906 (sensitivity 90%, specificity 91%). Similar diagnostic performance was observed in tissue samples (AUC 0.9514, sensitivity 95%, specificity 94%). Notably, patients with Gleason scores>7 showed significantly higher expression of the gene panel compared to those with GS<7, underscoring the test's prognostic potential. Comparable gene expression patterns between blood and tissue samples support the use of blood-based testing for screening, diagnosis, and risk assessment.

Biography

Rajvir Dahiya holds Ph.D. in Experimental Medicine from Post Graduate Institute of Medical Education and Research Chandigarh, India, post-doctoral fellowship in medical oncology research from the University of Chicago Pritzker School of Medicine, M.D. from the Kagoshima University Faculty of Medicine, Kagoshima, Japan and D.Sc. from the Osaka University Graduate School of Medicine, Osaka, Japan. He became director of Oncology Urology Oncology Research Center at the UCSF/VAMC in 1991. After 34 years of service, he retired as a Professor Emeritus and Director of Urology Research Center. Dahiya has published more than 550 original research manuscripts. Dahiya's world ranking in medicine is 4759 and USA ranking is 2644 with more than 35,500 research citations and D-index of 107 in 2024. He has written books and holds multiple patents in oncology. Based on the NIH and VA data base NIH Reporter and Grantome, Dahiya's research programs were supported (99 times awarded) by the NIH and VA. Currently, he is an associate editor of "Clinical Cancer Research" journal.

These findings were further validated in a prospective study. Gene Verify test demonstrated high accuracy in detecting early- stage prostate cancer with strong concordance to biopsy results. To our knowledge, this is the first real-time clinical validation of a blood-based, cell-free mRNA genomic test for prostate cancer screening. Our results indicate that mRNA genomic profiling from blood can accurately diagnose prostate cancer and help stratify patients into prognostic groups. This non-invasive method offers a promising alternative to traditional biopsy delivering faster, safer, and more accessible early detection, and paving the way for personalized treatment strategies.

Sergey Suchkov[1,6]*, Hiroyuki Abe[7,16], Shawn Murphy[14,15], David Smith[17], William Thilly[18], Paul Barach[19]

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[2]Professor in Medicine & Immunology, Director for the Center of Biodesign of N.D. Zelinskii Institute for Organic Chemistry of the Russian Academy of Sciences, Moscow, Russia

[3]R&D Director, InMedStar, Russia

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[7]Member, ISPM (International Society for Personalized Medicine), Japan

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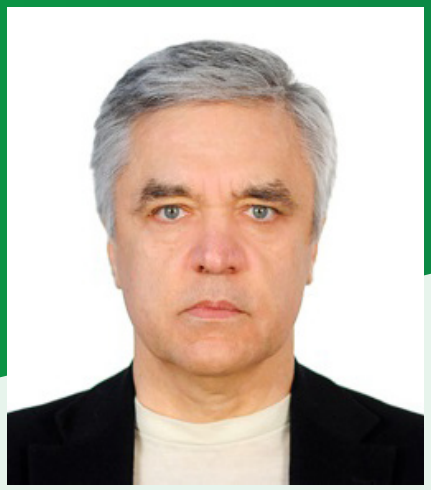
[10]Member, ACS (American Chemical Society), Washington, DC, USA

[11]Member, AHA (American Heart Association), Dallas, TX, USA

[12]Member, ARVO (The Association in Research in Vision & Ophthalmology), Rockville, MD, USA

Biography



Sergey Suchkov was born in the City of Astrakhan, Russia, in a family of dynasty medical doctors. In 1980, graduated from Astrakhan State Medical University and was awarded with MD. In 1985, Suchkov maintained his PhD as a PhD student of the I.M. Sechenov Moscow Medical Academy and Institute of Medical Enzymology. In 2001, Suchkov maintained his Doctor Degree at the National Institute of Immunology, Russia. From 1989 through 1995, Dr Suchkov was being a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004 - a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). In 1993-1996, Dr Suchkov was a Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK. Dr. Sergey Suchkov, MD, PhD, currently serves as Professor of Medicine and Immunology and Director of the Center of Biodesign at the N.D. Zelinskii Institute for Organic Chemistry, Russian Academy of

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Sciences, Moscow. He is also R&D Director at InMedStar (Russia-UAE) and Senior Scientific Advisor to the China Hong Kong Innovation International Business Association. Dr. Suchkov holds memberships in several prestigious organizations, including the New York Academy of Sciences (USA), EPMA (Brussels), ISPM (Japan), PMC (Washington, USA), AMEE (Scotland), ACS (USA), AHA (USA), ARVO (USA), and ISER (USA). He also serves as Secretary General of the United Cultural Convention (UCC), Cambridge, UK.

Personalized and Precision Medicine (PPM) through the view of biodesign-inspired translational research: An option for clinical oncologists, caregivers and consumers to realize the potential of genomics-informed care to secure the human biosafety

A new systems approach to diseased states and wellness result in a new branch in the healthcare services, namely, Personalized and Precision Medicine (PPM). Meanwhile, the era of genomics-based medicine and thus genomics biomarkers promises to provide molecular tests that will permit PPM as applicable to Personalized & Precision Oncology (PPO).

To achieve the implementation of PPM-guided oncology concept, it is necessary to create a fundamentally new strategy based upon the subclinical recognition of biopredictors (including genomics ones) of hidden abnormalities (pre-cancer conditions) long before the disease clinically manifests itself. Every human has a unique genetic makeup that causes them to respond differently to cancer. In this context, the genomic profiling can be done using genomic, transcriptomic, epigenomic or metagenomic information, and will look at the genetic structure of the tumor. This helps us discover “actionable” mutations that can be targeted with therapy. These discoveries can lead to new treatment recommendations that may effectively treat your cancer on a personalized level. Through those analyses, we can not only diagnose and classify cancer patients and/or pre-cancer persons-at-risk based on their comparative risk, but also monitor their response to emerging canonical, preventive or prophylactic therapies. Continued progress using these methods will transform how we approach treatment modalities for cancer patients.

The advent of Next Generation Sequencing (NGS) and GWAS technologies has advanced our understanding of the intrinsic biology of different tumor types. Prospective randomized

clinical trials will determine whether matching actionable aberration with targeted therapy will contribute to improve survival in patients with malignancies.

PPM globally holds great promise, especially in cancer therapy and control, where PPO would allow practitioners to use this information to optimize the targeted treatment of a patient. PPO for groups of individuals would also allow for the use of population group specific diagnostic or prognostic cancer biomarkers. The integration of PPM-guided genomics into clinical practice is transforming treatment paradigms. Identification of oncogenes and tumor suppressor genes can become the stimulus for rational design of novel, selective drugs that execute specific activity directed at underlying genetic aberrations. This information can be used to track the progress of cancer, and to establish the molecular basis for drug resistance and allow the targeting of the genes or pathways responsible for drug resistance.

The enormous development of biodesign-driven genomics research has raised great expectations concerning its impact on PPM aiming to customize medical practice with a focus on the individual, based on the use of genetic tests, identification of genomic biomarkers, and development of targeted drugs. In this sense, the impact of precision cancer pathology allows a modular approach, as its various aspects are under development in sometimes unrelated areas of PPM. Integration of the concepts will provide a true challenge for the future, requiring collaboration between clinicians, physiologists, pathologists, biodesigners and bioengineers and remaining a real challenge to bioindustry.

Meanwhile, each decision-maker values the impact of their decision to use PPM and PPO on their own budget and well-being, which may not necessarily be optimal for society as a whole. It would be extremely useful to integrate data harvesting from different databanks for applications such as prediction and personalization of further treatment to thus provide more tailored measures for cancer patients and/or pre-cancer persons-at-risk resulting in improved outcomes, reduced adverse events, and more cost effective use of health care resources. A lack of medical guidelines has been identified by the majority of responders as the predominant barrier for adoption, indicating a need for the development of best practices and guidelines to support the implementation of PPM in clinical practice!

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A case of apocrine carcinoma with prominent papillary DCISs with non-comedo special necrosis patterns

A case of about-80-year-old-female is herein presented. She felt palpable mass in her right breast of about 10mm-in-diameter before 1 year for our exams. In this time, she felt the mass is larger and larger. Hence, she came to

Biography

After graduating from Keio University School of Medicine, Shaniya Tajima was employed as assistant professor to Department of Pathology at Keio University. where he learned pathological-anatomy and diagnostic-pathology. Then he joined to Department of Radiology at St. Marianna University School of Medicine to specialize in breast-imaging. He has presented several scientific exhibitions on the radio-pathological correlation of the breast. Following four years of study St. Marianna University Graduate School of Medicine and acquiring his PhD., he is now conducting research in pathology at the National Hospital Organization (NHO) Shizuoka Medical Centre.

our hospital for further examinations and treatments. Ultrasonography (US) demonstrated 31x22x24mm-in-size of heterogenous-low-echoic mass of right inner quadrants. The mass showed blood signal and irregular border in US. Hence, malignancy was suggested and breast Core Needle Biopsy (CNB) was done. The pathological-biopsy-diagnosis was “invasive breast carcinoma”. Then, total mastectomy was done. The operated specimen revealed the consisted cells showed collection (aggregation) of DCIS (Ductal Carcinoma In Situ) lesions and partially observed invasion like as “carcinoma arising from sclerosing papilloma”. Collected and aggregated DCISs exhibited mass-like lesion of prominent intraductal papillary lesion with non-comedo necrosis mainly “solid -paillary DCIS feature”. The composed cells revealed large and abundant eosinophilic cytoplasm with contained granules with AR and GCDFP15 both positive compatible with Pure-Apocrine-Carcinoma (pAC). The composed cells exhibited the nuclei were round with conspicuous nucleoli with high nuclear atypia. Intrinsic subtype was “Triple negative” (ER:0, PgR:0, HER2:0). In Immunohistochemically (IHC), partial invaded cells revealed CK5/6 positive with negative nests and stromal type was SMA as well as D2-40 positive heterogenous feature of Cancer Associated Fibroblasts (CAFs) were heterogenous positive. However, expansile-invasion-like cells exhibited no CK5/6 positive and stayed in fibrous capsule. This phenomen might reflect the previous report of Rakha EA, at al. of hypothesizing theory of “breast expansile growth”. Our results suggests their theory in a part. We think our case is only case report however, would be worthy for understanding and enlightning the “DCIS to invasion mechanism”. Further, D2-40 showed intraductal Fibrovascular-Core (FVC) positive with contained pAC cells with partial destruction of FVC. Besides, silver staining demonstrated intraductal FVC infarctions as well as distraction of FVC by pAC cells. These features might reflect infarction of FVC and leading to failure its function and it might cause intraductal “heterogenous necrosis” not “comedo-necrosis” in this case. This might reflect comparatively long-term clinical-status as well as good prognostic factor. It is well known heterogenous necrosis is worse prognostic factor in all “invasive carcinomas”, however, our case suggests in the conditions of not non-comedo but “heterogenous necrosis in intraductal lesions”, it might be considered the one of the sign of comparatively well prognostic factor. We would like to thoroughly discuss this special phenomenon and its mechanism by reference of related articles including WHO 5th and hypothesizing its unique “breast expansile invasion” pattern by our pathological new knowledge. Furthermore, we would like to discuss the “DCIS to Invasion Mechanism” of its difficulty and challenging theme by our unique case.

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ORAL PRESENTATIONS

Alaa Asfour[1*] SHO, Muhanad Shurrab[1] SHO, Moath Swailem[1] SHO, Mohammad Abu Jubba[1] SHO, Dr Murtadha Ibrahim[2] Consultant

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Patient's Reported Outcomes (PRO) among general medical inpatients with a background of cancer: The Leicester experience

Background: Among patients admitted under general medicine, those with a background of cancer often admitted for non-oncological reasons. Their past experiences and on-going care needs may influence what they expect from hospital care. These un-met needs are not always fully addressed during non-oncological admissions. However, there is limitation of knowing how they perceive their hospital experience outside oncology settings.

Objective: To assess patient-reported satisfaction in individuals with a background of cancer admitted under general medicine, this will help to identify the gap between the patient's un-met needs and the current care.

Methods: More than thirty targeted patients completed an anonymised survey for PRO over two months in the General Medical wards at Leicester Royal Infirmary, University Hospitals of Leicester NHS Trust. The survey focused on communication, responsiveness, pain control, coordination of care, and emotional support, which make it include both quantitative ratings and qualitative comments.

Results: The majority reported their overall hospital experience within the rating of 'good'. High satisfaction was noted for staff courtesy along with clarity of information. On the other hand, lower scores were associated with emotional support and continuity of care across teams (Oncology and general medicine team). Most of the patients appreciated compassionate communication but often expressed concerns about delays in care coordination.

Conclusion: This study highlights the importance of identifying the un-met needs for cancer-background patients admitted to non-oncology services. While general satisfaction was positive, targeted improvements in holistic support and proper coordination between departments may enhance the inpatient experience. Regular feedback from this patient group is essential to improve targeted patient-cantered care in general medical wards.

Biography

Dr Alaa Asfour, completed his MBBCh from Cairo University, Faculty of Medicine. Currently, working as a trust grade doctor -core level- at Leicester Royal Infirmary, UHL NHS Trust. His current area of interest lies within advance his career in surgery, alongside developing his research interest.

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A rare case of mixed small cell and sarcomatoid carcinoma of the renal pelvis

Invasive urothelial carcinoma is the most common malignancy of the renal pelvis, often exhibiting variant histology or divergent differentiation. Mixed small cell and sarcomatoid carcinoma of the renal pelvis is an exceedingly rare and aggressive entity with limited literature describing its presentation and management. We present the case of an 84-year-old male who presented with vomiting, right-sided back pain, and acute kidney injury. Imaging revealed a 58 mm mass in the right renal pelvis causing pelvicalyceal dilatation. The patient underwent a right nephroureterectomy under the suspicion of transitional cell carcinoma.

Histopathological examination of the resected specimen revealed a high-grade biphasic neoplasm with both neuroendocrine and sarcomatous components. The epithelial component exhibited features consistent with small cell carcinoma, while the stromal component showed spindle cell morphology with marked pleomorphism. Immunohistochemistry confirmed the diagnosis: the epithelial cells were positive for CAIX, synaptophysin, CD56, EMA, and PAX8, supporting neuroendocrine differentiation; the stromal component showed vimentin positivity, indicating a sarcomatoid phenotype. The tumor extended into perinephric fat, consistent with a high-grade and locally advanced lesion. Final diagnosis from the specialist center confirmed mixed small cell and sarcomatoid carcinoma.

This case highlights the diagnostic complexity and rare histological presentation of urothelial carcinoma with divergent differentiation. Recognition of such rare variants is critical, as they carry different prognostic and therapeutic implications. Immunohistochemistry played a crucial role in confirming the diagnosis, ruling out other differential diagnoses such as lymphoma, lymphoepithelioma-like carcinoma, and poorly differentiated urothelial carcinoma.

The management of mixed small cell and sarcomatoid carcinoma remains challenging due to the tumor's high-grade features, aggressive behavior, and lack of standardized treatment protocols. While nephroureterectomy offers local control, the role of systemic chemotherapy, particularly platinum-based regimens, remains extrapolated from small cell lung and bladder

carcinoma data. The sarcomatoid component's resistance to conventional chemotherapy further complicates management. Emerging therapies such as immune checkpoint inhibitors and molecularly targeted treatments are being explored, though their role in such rare mixed histologies remains investigational. Ongoing surveillance is crucial given the high risk of recurrence and progression.

This case underscores the importance of considering rare histologic variants in renal pelvic tumors and highlights the essential role of multidisciplinary evaluation including pathology, oncology, and urology in ensuring accurate diagnosis and optimal patient care.

Biography

Dr. Anjana Kalladathil Sreenivasan completed her MBBS at Kempegowda Institute of Medical Sciences, Bangalore, India, in 2021. She has worked as a junior doctor and general practitioner in the Department of Medicine at multiple hospitals in India. She is ECFMG certified in USA with four months of clinical experience in the USA in Pathology, including Hematopathology, Gynecologic Pathology, and Transfusion Medicine. She later obtained GMC registration in the UK and is currently involved in audits, clinical attachment, and teaching within the NHS. She is preparing to apply for the upcoming ST1 Histopathology training in the UK.

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Delays in presentation, diagnosis, and treatment in Sudanese women with breast cancer: A cross-sectional study

Background: The poor prognosis of breast cancer in Sudan could be due to delayed treatment and diagnosis at an advanced stage. Our study aimed to assess the extent of delays from onset of symptoms to treatment in Sudanese women with breast cancer, as well as identify factors contributing to these delays.

Materials and Methods: We conducted a multi-center cross sectional study between March and April 2023. Data were collected from the medical records and interviews with women with breast cancer in the two main oncology centers in Sudan. Linear regression was used to identify the predictors of delayed presentation.

Results: We interviewed 601 women with breast cancer. The majority of women (50.1%) were diagnosed at locally advanced or metastatic disease. The median interval from the onset of symptoms to receiving oncologic treatment was 221 days (IQR=92, 496). The longest delay was the presentation delay 61 (31 244) days. The median duration for diagnosis delay and treatment delay was 21 (10.57) days and 27 (10.64) days, respectively. Predictors of early presentation included, being young (β=−5.3; 95% CI=0.06 to 10), married (β=−264; 95% CI=−427 to −101), divorced (β=−306; 95% CI=−549 to −63), or widowed β=−320; 95% CI=−-543 to −97), urban residence (β=−107; 95% CI=−213 to −2.3), and seeking traditional healer (β=−204; 95% CI=−383 to −26).

Conclusion: Most Sudanese women with breast cancer experience significant patient delays, often presenting at advanced stages. The delay on the patient's part plays a significant role in the overall delay experienced by Sudanese women with breast cancer. Factors like being single, older, and living in rural areas contribute to these delays. As such, it is vital to establish an early diagnosis strategy that emphasizes raising awareness of the initial signs and symptoms of breast cancer and enhancing access to healthcare services. Increasing breast cancer

education, improving healthcare access and addressing sociodemographic barriers can potentially expedite diagnosis and improve outcomes.

Keywords: Breast cancer, Diagnosis and Treatment Interval, Early Detection, Predictors of Delay, Low- and Middle-Income Countries.

Biography

Dr Badria Tebaig studied medicine at the University of Khartoum, Sudan and graduated with MBBS in August 2021. She then joined University of Khartoum, Faculty of Medicine as a teaching assistant at the department of physiology. She is currently working as a Trust Grade Doctor at Northern Lincolnshire and Goole NHS Foundation Trust and perusing a master degree in Human Physiology.

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Integrative spatial multiomics analysis reveals tumour-immune hubs as critical drivers for immunotherapy in patients with in-transit metastases of melanoma

Introduction: In-Transit Metastases (ITM) in melanoma is a type of locoregional metastasis found between the primary tumour site and the regional draining lymph node. Treating ITM can be a challenge; some recur after surgery alone and others are unresectable at presentation. Immunotherapy has been used to treat patients with ITM in the adjuvant or metastatic settings, but some tumours appear resistant to these treatments. Existing literatures have highlighted that multiomic profiles and spatial features of the tumour microenvironment can influence patient outcomes to immunotherapy. This study aims to characterise the distinct molecular and spatial cellular features of tumour microenvironment in patients with ITM.

Method: Forty-eight patient samples were collected from a cohort of patients with ITM receiving anti-PD-1-based therapies at pre-treatment and progression. Patients who achieved a best RECIST response of complete or partial response in the advanced setting or a recurrence-free survival of over 12 months (since treatment initiation) in the adjuvant setting were categorised as "responsive" to anti-PD-1-based therapies. Those not meeting these criteria were deemed "resistant". To characterise the tumour immune ecosystem, single-cell sequencing and highplex 40-marker immunofluorescent imaging were performed on 18 matched tumour dissociates and formalin-fixed paraffin-embedded tissue samples from patients with ITM at pre-treatment (n=3 resistant and 5 responsive) and progression (n=10). Additionally, whole genome

sequencing was performed on 12 fresh frozen samples (n=4 resistant and 8 responsive at pre-treatment) to characterise intrinsic variants that implicated biological processes in the tumour microenvironment. Computational analyses were performed using cellular neighbourhood characterisation, receptor-ligand interactions, unsupervised clustering and pathway enrichment.

Findings (Impact): Spatial neighbourhood analysis identified lymphoid aggregates consisting of B cells, CD4+ and CD8+ T cells and dendritic cells. The B and T cells are in close proximity with HLA-A+ melanoma at the tumour margin and interacted with tumour cells using ligand-receptor pairs including CD74/CD44 and CD74/CXCR4. Sequencing and imaging analyses revealed that resistant ITM samples exhibited various immune evasion phenotypes, including the upregulation of immune checkpoint receptors (LAG3, VISTA, IDO1), dysfunctional T cell signatures and reduced immune recruitment. Furthermore, pathway enrichment results demonstrated lowered T cell metabolism, due to repression of the phosphoinositide 3-kinase/protein kinase B pathway, was identified in patients resistant to immunotherapy.

Conclusion: Integrating spatial imaging with multiomics-based feature reveal both immune-responsive and immune-suppressive hubs within the tumour tissue architecture. This work provides a foundation for developing more effective immunotherapy strategies tailored to the unique immune landscape of ITM patients.

Biography

Dr. Camelia Quek is a NHMRC Investigator Fellow at Melanoma Institute Australia, Adjunct Senior Lecturer at the University of Sydney, and Steering Committee at the Cancer Research Network. Dr Quek originally did a first degree in molecular biology at the University of New South Wales (University Medal in Molecular Biology) before moving on to do a PhD in RNA transcriptomics and bioinformatics at the University of Melbourne (Sawyer Medal). Dr Quek specialise in high-dimensional data interpretation, she integrates these insights into clinical practice. Her work has advanced understanding of the tumor microenvironment in melanoma immunotherapy, identifying biomarkers through gene expression and single-cell multi-omics to enhance clinical decision-making.

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Harnessing CD4 T cells with mRNA vaccines to drive anti-tumor immunity

Among the emerging strategies in cancer immunotherapy, individualized mRNA-based vaccines have garnered significant attention for their ability to stimulate a robust tumor-specific immune response by targeting patient-specific immunogenic tumor mutations. Although the focus of cancer vaccines has mainly been on targeting CD8+ T cells, there is substantial evidence to support the importance of eliciting CD4+ T cell responses.

To explore this, we developed an mRNA lipoplex vaccine encoding a single MHCII-restricted neoantigen. The vaccine elicited T Follicular Helper (Tfh) and T Helper 1 (Th1) CD4 T cell responses while decreasing regulatory T cells, and induced rejection of established tumors in mice, independently of MHCII expression by cancer cells. IL-21 and IFN-γ, which are essential for Tfh and Th1 functionality respectively, were crucial for anti-tumor activity.

Furthermore, our study revealed that neoantigen-specific vaccination promoted B cell maturation in tumor and the generation of neoantigen-specific antibodies exhibiting anti-tumor activity, likely through Antibody-Dependent Cellular Cytotoxicity (ADCC).

Furthermore, we found that EnRV RNA-LPX vaccination stimulated the expansion and function of intratumoral CD8 T cells and depleting CD8 T cells led to a complete loss of anti-tumor activity. Conventional type 1 Dendritic Cells (cDC1s) were found to play a crucial role in eliciting neoantigen-specific CD4 T cells, and in facilitating CD4 T cell help to CD8 T cells within the tumor microenvironment, ultimately driving tumor regression. These results underscore the importance of cDC1s in orchestrating the overall immune response following MHCII RNA-LPX vaccination. As the vaccine did not contain MHCI epitopes, our data demonstrate that only eliciting a CD4+ response can be sufficient to enhance endogenous CD8+ responses to tumor antigens presented by cDC1s.

Altogether, an RNA-LPX vaccine encoding for a single MHCII-restricted neoantigen successfully initiates a strong and coordinated immune response, leading to tumor elimination. These findings support exploring novel strategies, including cancer vaccines, aimed at augmenting CD4 T cell responses, which hold a significant potential for enhancing antitumor efficacy.

Biography

Dr. Camille Balanca studied Oncology at the Paul Sabatier University in Toulouse, France and graduated in 2017. She then joined the research group of Prof. Maha Ayyoub at the Cancer Research Center of Toulouse, France to study T cell exhaustion in cancer patients and received her PhD degree in 2021. Following her doctorate, she undertook postdoctoral research in Ira Mellman's lab at Genentech, South San Francisco, CA where she focused on exploring cancer vaccines in preclinical models.

Dr Cho May Than[1*] & Dr Phyu Hnin Ei[2*]

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Silent but serious: Adrenal insufficiency triggered by immune checkpoint inhibitor therapy

Immune Checkpoint Inhibitors (ICIs), particularly PD-1 inhibitors such as pembrolizumab, have transformed the management of advanced melanoma. However, ICIs are associated with Immune-Related Adverse Events (irAEs), which can affect various organs, including the endocrine system. One such rare but serious irAE is hypophysitis resulting in secondary adrenal insufficiency. This case report presents a 62-year-old female with stage 3 BRAF- negative cutaneous superficial spreading melanoma who developed pembrolizumab- induced adrenal insufficiency.

Following wide local excision of recurrent in-transit metastases, the patient commenced adjuvant pembrolizumab therapy in October 2024. After three cycles, she presented in February 2025 with fatigue, nausea, and hypotension. Biochemical investigations revealed a cortisol level of 16 nmol/L, consistent with adrenal insufficiency. Pembrolizumab was discontinued, and she was initiated on hydrocortisone replacement therapy (10+5+5 mg). The patient remains clinically stable with no evidence of disease recurrence. She is under ongoing endocrinology and oncology follow-up, with plans for pituitary imaging and adrenal axis reassessment.

This case highlights the importance of recognising rare endocrine complications associated with ICIs. Clinicians should maintain a high index of suspicion for irAEs, especially in patients presenting with vague systemic symptoms. Early diagnosis, prompt hormone replacement, and patient education on steroid use and sick day rules are essential in preventing adrenal crises. Multidisciplinary collaboration is critical to ensure safe and effective management of immunotherapy-related toxicities.

Biography

Dr Cho May Than is currently working as a CT1 doctor in Acute Medicine at Pilgrim Hospital, United Lincolnshire Hospitals NHS Trust, UK. She graduated with an MBBS degree from the University of Medicine 1, Myanmar in 2016 and has a special interest in oncology, endocrine complications of immunotherapy, and quality improvement in patient care. She is actively involved in clinical practice, case-based teaching, and is pursuing a career in medical oncology in the UK.

Dr Phyu Hnin Ei is currently working as a CT1 doctor in Acute Medicine at Lincoln County Hospital, United Lincolnshire Hospitals NHS Trust, UK. She graduated with an MBBS degree from the University of Medicine 1, Myanmar in 2014 and has a special interest in oncology, endocrine complications of immunotherapy, and quality improvement in patient care. She is actively involved in clinical practice, case-based teaching, and is pursuing a career in medical oncology in the UK.

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First-in-human phase II clinical trial of Multiplex Intratumoral Immunotherapy (MITI) with RPT-01-5001 in patients with metastatic solid cancer (abscopal 5001trial)

Background: Little is known of the synergy of combination intratumoral immunotherapy and cancer ablation. We undertook a Phase II Trial (Abscopal 5001; NCT04713371) for patients with metastatic solid cancer to assess the safety and efficacy of cryoablation with concurrent injection of RPT-01-5001 (combination of low-dose checkpoint inhibitors and chemotherapy), a treatment process referred to as Multiplex Intratumoral Immunotherapy (MITI™).

Methods: Twelve patients with metastatic cancer who had failed standard therapy and one with sacral chordoma received at least one intratumoral treatment of MITI, preceded by 3-5 days of oral low-dose cyclophosphamide. MITI consisted of CT-guided cryoablation followed by intratumoral injection of RPT-01-5001. In addition, GM-CSF was subcutaneously administered daily for a total of 4 weeks. Treatment was repeated every 4 weeks if tumor burden remained stable or reduced as noted by iRECIST criteria. These criteria were modified when follow-up biopsies revealed pathology with minimal or no cancer despite persistent suspicious mass(es) on imaging.

Results: Cancers included prostate (4 patients), sarcoma (2), and 1 each of breast, colon, bladder, uterine cervix, tongue, kidney, and sacral chordoma. Eight patients received 3 cycles of treatment, two received 2, and three received 1. All patients tolerated the procedure well and were discharged within 2 hours. Adverse event rate was 69%, all of which were Grade 1 or 2, except for two Grade 3 with delayed cryosurgical complication of transient pneumothorax (15%). At completion of up to 3 cycles of treatment, Partial Response (iPR) was observed in 5 patients (38.5%) and Stable Disease (iSD) in 5 (38.5%), for a Disease Control Rate (iDCR) of 77%. Disparity between post-treatment imaging and pathologic findings was observed in 4 patients (positive vs. negative, respectively), requiring modification of the iRECIST criteria in favor of pathology. Best response ranged from 0-91%, with a mean for responding patients of 38%. Median Progression-Free Survival (PFS) and 95% confidence intervals (95% CI) were 5.4 months (1.8 to 23.1 months); median overall survival (OS) was 20.9 months (9.1 to 22.8 months). Injection site response was observed in 9 (69%), and distal abscopal effect was seen in 4 (31%), including one sarcoma and one bladder cancer patient with complete abscopal response of lung metastases; biopsy-confirmed resolution of liver metastases was also noted in the bladder cancer patient.

Conclusions: MITI with RPT-01-5001 is safe and highly feasible, providing 77% disease control and 31% abscopal effect in patients with metastatic cancer who have failed standard therapy.

Biography

Dr. David G. Bostwick, MD, MBA is founder and Chief Executive Officer of Rampart Health. He is internationally renowned, with over 45 years of experience and interest in prostate cancer, bladder cancer and urologic diseases. He has previously held appointments at the National Cancer Institute, Stanford University, University of Chicago, University of Maryland, and Mayo Clinic. In 1999, he founded Bostwick Laboratories and grew it into the largest and most profitable medical laboratory focused on urologic pathology in the US and UK, with revenue topping $175 million at peak; the Company was purchased in 2011. Dr. Bostwick has authored 18 books, more than 25 book chapters, and more than 475 professional papers. He has presented more than 2000 lectures around the world, and has served as Principal Investigator or Co-Investigator for more than 10 clinical trials.

Dhuha Al-Sajee

Department of Pathology and Laboratory Medicine, Division: Pathology, The University Health Network, Canada

Squamous differentiation in sinonasal tumours: A diagnostic pitfall

Malignant tumors of the sinonasal tract account for approximately 3% of all head and neck malignancies. These tumors typically carry a poor prognosis. Diagnosis can be particularly challenging due to the small size of biopsy samples, crush artifact, and overlapping histologic and clinical features. A broad general approach that includes detailed clinical and radiological review, correlation of the histological features with immunohistochemical findings and the appropriate use of molecular studies help reach a correct diagnosis. While Squamous Cell Carcinoma (SCC) represents the majority of sinonasal malignancies, a growing number of recently characterized entities also demonstrate squamous differentiation but are not true SCCs. Examples such as NUT carcinoma, teratocarcinosarcoma, and SWI-SNF complex deficient carcinomas among others warrant accurate diagnosis. Accurate recognition of these distinct tumor types is crucial, as their clinical behavior, treatment strategies, and prognoses may differ significantly from conventional SCC.

Biography

Dr. Dhuha Al-Sajee graduated from Al-Nahrain University, college of Medicine in 2000. She pursued a career in pathology by obtaining an MSc in histopathology 2005 (Al-Nahrain University, Baghdad, Iraq), then the certificate of the Arab Board for Health Specialization in 2014. She then joined McMaster University in 2011 and obtained a PhD and postdoctoral fellowship (2018) and eventually completed a residency training in Anatomical pathology in 2023. She later joined the University Health Network/Toronto General Hospital as a clinical fellow to subspecialize in Head and Neck Pathology and competed this fellowship in 2024. Currently, she is a head and neck pathologist at St. Joseph's Healthcare Hamilton, On, Canada.

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Atypical presentation of Rosai-Dorfman disease with extensive cervical and mediastinal lymphadenopathy

Background: Rosai-Dorfman Disease (RDD) is a rare condition often regarded as a benign histiocytic disorder that predominantly affecting children and young adults. Clinical presentation of RDD can mimic malignancy, making timely diagnosis and accurate management crucial.

Case Presentation: A 3-year-old Caucasian male presented to our Paediatric centre with a history of one-month progressively enlarging bilateral cervical lymphadenopathy. The patient was otherwise clinically well with no constitutional symptoms apart from a history of intermittent hoarseness associated with frequent viral infections. Physical examination revealed enlarged bilateral submandibular and cervical lymph nodes with no evidence of hepatomegaly or splenomegaly.

Laboratory investigations showed severe lymphopenia, specifically marked T-cell lymphopenia. Radiological scanning revealed extensive cervical lymphadenopathy along with mediastinal widening, which initially raised suspicion for malignancy. A biopsy of enlarged cervical lymph nodes confirmed a diagnosis of RDD. Bone marrow aspirate was normal while genetic testing is still pending to explore potential underlying immunodeficiency.

Prophylaxis co-trimoxazole was commenced and live vaccines were withheld. The patient has been regularly reviewed by multidisciplinary team, involving immunologists and oncologists. This case was reviewed by the National UK Histiocytosis Advisory Panel, which recommended conservative management with close monitoring and considering corticosteroid therapy upon disease progression.

Conclusion: This case emphasises the importance of considering RDD in the differential diagnoses of paediatric presentations with lymphadenopathy with mediastinal involvement. It highlights the diagnostic challenges and the value of multidisciplinary approach in managing this rare disease.

Biography

Dr. Doaa Abdalla obtained her Bachelor of Medicine and Surgery degree from Alzaiem Alazhari University, Sudan, in 2012. She pursued her early career in paediatrics in Sudan before relocating to the UK in 2021. She gained full membership of the Royal College of Paediatrics and Child Health (MRCPCH) in 2022 and obtained a Diploma in Child Health from the Royal College of Physicians of Ireland. She is currently working at Leicester Royal Infirmary as a specialty trainee registrar in Paediatric Oncology and Hematology.

Sofia Balafouti, George Zachos, Eleni Petsalaki*
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A new tension-sensitive signaling pathway involving polymerization of actin prevents chromatin bridge breakage in cytokinesis

Chromatin bridges are strands of incompletely segregated DNA connecting the anaphase poles or daughter nuclei. Chromatin bridges can arise from incompletely replicated DNA, defective resolution of DNA catenates or dicentric chromosomes which are formed by chromosome fusions. If unresolved, chromatin bridges can break in cytokinesis leading to micronuclei formation and accumulation of DNA damage which lead to changes in the DNA sequence and can result in carcinogenesis. To prevent this, human cells activate the abscission checkpoint which delays abscission to prevent chromatin bridge breakage or tetraploidization due to regression of the cleavage furrow. We recently showed that the DNA topoisomerase II enzyme binds to catenated DNA on chromatin bridges and Rad17 protein is recruited on DNA “knots”. In turn, Rad17 recruits the Mre11-Rad50-Nbs1 protein complex and activates the ATM-Chk2-INCENP signaling pathway which leads to proper localization of Aurora B at the midbody in order to delay abscission. Furthermore, human cells form accumulations of polymerized actin (actin patches) at the base of the intercellular canal to stabilize chromatin bridges; however, the molecular mechanisms involved are incompletely understood. In the present study, we identify small GTPases, which control the growth or contraction of filamentous actin fibers, that localize to actin patches and are required for stable chromatin bridges in cytokinesis. Inhibition of these actin regulators reduces actin patch formation and promotes chromatin bridge breakage by confocal microscopy analysis of fixed cells or live-cell fluorescence microscopy. Furthermore, chromatin breakage in cells deficient for the above proteins is not caused by premature abscission, but correlates with reduced actin patches compared with wild-type cells. We also propose that DNA bridges generate tension inside the nucleus which is then transmitted through specific mechanosensitive complexes to the cell cytoskeleton to promote generation of actin patches in the cytoplasm. This study identifies a novel signaling pathway that prevents chromatin bridge breakage by promoting actin patch formation in cytokinesis in human cells. Because chromatin breakage can lead to genomic instability that is associated with cancer formation or progression, understanding how cells stabilize chromatin bridges may help us understand mechanisms of tumorigenesis.

Keypoints:

- Genomic instability can be caused by chromatin bridge breakage in cytokinesis.

- Actin fibers, Called Actin Patches, are formed at the base of the intercellular canal to stabilize chromatin bridges and prevent them from breaking.
- Novel signaling pathways preventing chromatin bridge breakage by promoting actin patch formation in cytokinesis.

Biography

Dr Eleni Petsalaki is a Post Docroral Research Scientist in Dr George Zachos' lab at University of Crete, Greece. She completed her PhD in 2014 in Molecular Biology and Biomedicine at the Department of Biology. Her main interest is mitotic cell division and mechanisms that monitor mitotic progression called the mitotic spindle checkpoint and the abscission checkpoint. She is an author of 16 publications including Journal of Cell Biology, Nature Communications, Journal of Cell Science and others. Her publications have received >500 citations so far. She is currently a member of FEBS, AACR, EACR and Royal Society of Biology.

Farasat Veisi

Department of Biology, Payame Noor University of Tehran, Qeshm International Campus, Qeshm, Iran

Hybrid deep learning architectures for enhancing cancer diagnosis

Lung cancer is among the most fatal cancers, necessitating advanced diagnostic tools for early detection. This study investigates the performance of a novel deep learning approach combining EfficientNet with an attention-based transformer model to classify lung cancer images from Kaggle's RSNA pulmonary embolism dataset. The dataset contains 250,000 CT scan images categorized into malignant and benign cases, requiring extensive preprocessing such as contrast enhancement and lung segmentation using U-net architectures. The EfficientNet backbone is employed for high-resolution feature extraction, while the transformer model enhances contextual understanding by focusing on critical regions of interest. The model is trained with a batch size of 64 for 100 epochs using the AdamW optimizer and cosine annealing learning rate scheduling. Experimental results indicate that the hybrid EfficientNet-transformer model achieves an accuracy of 94.2%, precision of 93.8%, and a recall of 96.4%, outperforming standalone CNN-based methods. The integration of attention mechanisms significantly improves classification robustness, emphasizing the potential of transformer-based architectures in medical imaging applications. To further assess the model's reliability, Grad-CAM heat maps were employed to visualize regions influencing predictions, ensuring interpretability in clinical settings. Additionally, domain adaptation techniques were explored to enhance generalization across different scanner modalities. These findings highlight the importance of combining EfficientNet with attention mechanisms to refine lung cancer diagnosis. The proposed model paves the way for AI-driven radiological assessments, improving early lung cancer detection and clinical decision-making.

Biography

Ms. Farasat Veisi is a researcher in Molecular Genetics at the Payame Noor University of Tehran Qeshm International Campus, Iran, specializing in the integration of artificial intelligence (AI) in biomedical research. Her work focuses on disease classification and prediction through machine learning and deep learning algorithms, aiming to enhance diagnostic accuracy and personalized treatment strategies. Her research explores AI-driven predictive modeling in healthcare, with notable contributions including: • Advanced Predictive Healthcare Through Novel Deep Learning Models Using the Genetic Disorders Dataset • AI-Driven Framework for Chronic Disease Prediction and Management • Enhancing Breast Cancer Detection: FT-Transformer vs. Traditional Models. Farasat actively participates in international conferences, presenting her findings on the intersection of genetics, AI, and precision medicine. Her expertise spans bioinformatics, statistical modeling, and deep learning architectures such as CNNs, RNNs, and transformer models. Proficient in Python, R, and MATLAB, she applies advanced computational techniques to genomic data analysis and disease risk assessment. Her work is driven by a commitment to bridging genomics and AI, contributing to innovative solutions.

Gared Arthur S. Tribunalo*, Mari Angeline V. Dejucos, Myer Angela S. Gulayan

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ARABITECT: Microwave-assisted green synthesis of graphene oxide quantum dots from *Coffea arabica L.* as fluorescent probe with cytotoxic effects for selective and sensitive novel macroscopic detection of HCT166 human colon adenocarcinoma

Colon cancer remains one of the most elusive cancers to detect, as it often shows no symptoms in its early stages. Additionally, its gold-standard diagnostics carry substantial risks, while existing cancer detection studies are narrowly focused on the microscopic scale, leaving a critical gap in safe, effective, and accessible detection methods. Hence, this study aims to address these drawbacks through exploring the potential of GOQDs derived from *Coffea arabica L*. waste as a novel macroscopic detector of HCT166 cell lines. Baseline characterization using UV/Vis and FTIR spectroscopy revealed that GOQDs exhibit optimal excitation within the UV-B spectrum and contain hydroxyl and carboxyl groups. Further analysis using XRD, TEM, EDX, and FESEM confirmed the successful synthesis of GOQDs. The GOQDs' potential for detecting HCT116 cell line was distinguishable through the naked eye and were validated through fluorescence measurements, where GOQDs-HCT116 samples demonstrated 46.30% fluorescence in blue colorimetry at an 80% concentration, compared to 7.50% for healthy cells with GOQDs. Additionally, in vivo analyses using *Drosophila melanogaster* in three standardized tests (oral, direct-smash, and homogenization) with a fixed 1 mL GOQDs treatment corroborated the in vitro results, showing that cancer-induced flies exhibited the highest fluorescence with 55.56% gap in blue colorimetry. Cytotoxicity assessment via the MTT assay revealed that GOQDs had an IC50 value of 3.26 µg/mL and could inhibit 97-100% of cancer cells at 7.5 µg/mL. Consequently, EPR spectroscopy identified that GOQDs exhibit unpaired electrons, which generate ROS that contribute to cancer cell inhibition. The marketability of GOQDs was also evaluated, showing a production cost reduction of 37,579 times, an 82.5-fold increase in diagnostic speed, and a 12,240-fold reduction in retrieval time. This study confirms that GOQDs synthesized from *Coffea arabica* L. provide a novel method for detecting the HCT116 cell line, while also exhibiting cytotoxic activity.

Biography

Mr. Gared Arthur S. Tribunalo studied at Daniel R. Aguinaldo National High School, a student researcher-journalist. He is the research chief officer of the Students' Environmental Alliance of Davao and a member of Science and Technology Leaders in Learning and Research.

Dr. Gaurav Vishal

Consultant Head and Neck Oncosurgeon, Prathima Cancer Institute, Warangal, India

Neck node status in squamous cell carcinoma of the lower alveolus

Introduction: Squamous Cell Carcinoma (SCC) is the most common malignant neoplasm of the oral cavity. According to literature, SCC of the lower alveolus account for 7.5 to 17.5% of all the oral cancers. Carcinoma of the lower alveolus is treated mainly by surgery followed by adjuvant therapy, depending upon the stage and histopathological characteristics. The purpose of this study was to evaluate the neck node status, distribution of patients according to T stage and management of squamous cell carcinoma of the lower alveolus.

Methodology: 31 histopathologically proven cases of squamous cell carcinoma of the lower alveolus were included in present study. Recurrent cases and prior treatment of lower alveolus cancer by chemotherapy and radiotherapy were excluded. All the patients involved in the study underwent tumor resection with neck dissection.

Results: A total of 31 patients were staged as per TNM criteria (AJCC 8th edition). 54.84% patients were Pathologically Node-Negative (pN0). In Pathologically Node-Positive (pN+) patients N3 category was the highest followed by N2 category and N1 category. T3 lesion was absent in this study. The lymph node positivity was maximum in T1 followed by T4. The percentage of T1, T2 and T4 lesions were 03.23, 06.46 and 90.32% respectively. Final histopathological stage grouping revealed early stage (stage I and II) disease in 2 patients and advanced stage (stage III and IV) disease in 29 patients. 02, 19 and 10 patients were treated by surgery alone, surgery with postoperative radiotherapy and surgery with postoperative CTRT respectively.

Conclusion: This study concluded that majority (93.55%) of the patients had diagnosed in advanced stage of carcinoma. 45.16% of the patients were pathologically node-positive (pN+) and nearly one-third of the patients were Pathologically Node-Positive With Extranodal Extension (pN+/ENE+). Histopathology reports demonstrated the most of the patients had well-differentiated squamous cell carcinoma. Stage I and II (Early stage) patients were treated primarily by surgery alone and stage III and IV (advanced stage) patients were treated with combination therapy.

Biography

Dr. Gaurav Vishal is an Oral and Maxillofacial Surgeon (M.D.S), Fellowship in Oral Oncology and Reconstructive Surgery. He completed M.D.S- Oral and Maxillofacial Surgery from Institute of Dental Sciences, Bareilly, India in 2020, Observership in Head and Neck Surgical Oncology from Mahavir Cancer Sansthan, Patna and Fellowship in Oral Oncology and Reconstructive Surgery from Rohilkhand Medical College and hospital, Bareilly, India in 2021. He has received the Emerging Oncosurgeon Award by HPP Cancer Hospital & Research Institute, with collaboration of Indian Medical Association, Lucknow (Oncological CME was organized in Lucknow), India. He has participated in various International conferences as a Speaker and Moderator. He is an expert in the field of Head & Neck Oncology, Reconstructive Surgery, Facial Trauma, Maxillofacial Pathology, Tobacco Cessation and Basal Implantology. He has several International and National Publications to his credit.

Joel Raj*, Yuvleen Kaur, Reshma Soundharrajan

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An unexpected breast adenocarcinoma with an interesting extra-mammary spread: A case of scalp, oral, and cardiac metastases

Breast cancer is the most commonly diagnosed malignancy among women worldwide, accounting for approximately 30% of all new cancers in females annually. Risk factors include prolonged estrogen exposure (e.g., early menarche, late menopause, hormone replacement therapy), advancing age, and genetic predispositions such as BRCA1/BRCA2 mutations.

We present the case of a 51-year-old woman who initially presented with a chronic cough and was diagnosed with presumed metastatic lung adenocarcinoma in June 2024. She received chemotherapy from August to November 2024. Subsequently, she developed scalp lesions, which upon excision and pathological analysis revealed breast tissue. In January 2025, she was hospitalized for bilateral deep vein thromboses and pulmonary emboli, suggestive of a paraneoplastic hypercoagulable state. By February 2025, she developed painful oral lesions of unclear etiology—infectious, nutritional, or metastatic. Imaging revealed a right lower lobe mass with extensive metastases to the liver, lymph nodes, muscle, and bone, as well as a cardiac mass concerning for intracardiac metastasis. A liver biopsy confirmed the diagnosis of metastatic breast adenocarcinoma.

While breast cancer frequently metastasizes to bone, liver, lungs, and brain, involvement of the scalp, oral cavity, and cardiac valves is exceptionally rare. This case highlights a uniquely aggressive presentation of breast adenocarcinoma, initially misdiagnosed as a primary lung malignancy. Although scalp metastases have been sparsely documented in the literature, the combination of cutaneous, mucosal, and cardiac involvement is exceedingly uncommon.

This case underscores the importance of maintaining a broad differential diagnosis in patients with metastatic disease, especially when imaging findings are incongruent with clinical progression. It also emphasizes the value of thorough physical examination, repeated tissue sampling, and immunohistochemical analysis in identifying the true primary malignancy. Early recognition of unusual metastatic patterns can prevent diagnostic delay and facilitate timely, appropriate management.

Biography

Joel Raj is a 3rd year medical student studying at TCU Burnett School of medicine in Forth Worth, TX, United States of America. He completed his BS in Biology with a concentration in microbiology and infectious disease at the University of Texas at Austin. He started the Hematology & Oncology student interest group at the TCU Burnett School of medicine and has goals of being Hematologist-Oncologist in the future.

Jose Luis Braga De Aquino

Prof. Surgical Clinic Catholic University, Campinas, Brazil

Early and late evaluation of salvage esophagectomy advanced esophageal cancer

Even through the esophageal câncer has innumerable treatment options, its prognosis is still unsettled. Because esophagectomy is rarely curative, others therapies, such as chemoradiation emerging in advanced disease followed or not surgery.The salvage esophagectomy is an alternative for those patients with recurrent disease.Thus the intend is show the results of the salvage esophagectomy in patients with esopha-geal câncer who had previously undergone chemoradiation and discussion about the morbidity of this surgical tecnic. Too, its show the our experien-ce in 72 patients with unrresectabeled esophageal carcinoma were treated with chemorradiation followed by salvage esophagectomy by transtoracic approach.Patients was evaluated with regard pos-operative complica-tions and disease free survival. The major complications was deiscence at the level of the of the anastomosis esophagogastric cervical, presents in 16 patients (22.2%) and pulmonar infection in 23 patients (31.9%). In 53 patients that were available for a five years follow-up, was a rate of 43.3% (23 patients) of disease free survival.Thus with the results its conclued that the salvage esophagectomy seems to be valuable in cases without any other therapeutic options.

Biography

Professor of Surgical Clinic at the Faculty of Medicine of Catholic University of Campinas, Brazil working with Head and Neck Surgery, Thoracic Surgery, Digestive and Esophageal Diseases.Leader of one of Catholic University Research Groups “Diagnostic And Clinical Surgery Treatment”, with a multidisciplinary focus with the clinical, surgical and nutritional áreas. He is a Professor of the Postgraduate Course in Health Science at Catholic University, Editor-in-Chief of the “Revista De Ciências Médi-Cas” at Catholic University; Associate editor of the “Revista Do Colégio Brasileiro De Cirurgiões”.Author e co-author of 213 articles published in national and international magazines and winner of several awards for works presented in Congresses.

Jose Luis Braga De Aquino

Prof. Surgical Clinic Catholic University Campinas, Brazil

Early and late evaluation of palliative surgery for esophageal cancer with isoperistaltic gastric tube

Although malignant neoplasms of the esophagus remain a very common disease, their diagnosis might often come late, which explains why 50% of patients require palliative treatment.The ideal scenario would be the performance of procedures that provided an adequate quality of life and satisfactorily restored swallowing. Thus the intend it shows the results of palliative methods, discussed with emphasis on the tecnique of the Isoperistaltic Greater Curvature Gastric Tube (IGCGT). 143 patients with unresectable squamous cell carcinoma of the esophagus (T4b)were evaluated at this facility.In the early postoperative evaluation, 64 patients (44.7%) presented systemic complicaitons, with pulmonar infection being the most frequent; 51 patients(35.6%) presented local complications, with cervical esophagogastric anastomosis leak being the most frequent. Thirteen patients (9.1%) died as a result of postoperative complications. Out of 112 patients who were adequately followed up, 91(81.2%) achieved good palliation with this procedure, as they had adequate restoration of swallowing function, with a median survival of 3 years in 63 patients (69.2%). With these results, it is possible to conclude that despite showing non-negligible morbidity, IGCGT can be performed quickly and safely, offering adequate palliation and survival rate.

Biography

Professor of Surgical Clinic at the Faculty of Medicine of Catholic University, Brazil working with Head and Neck Surgery, Thoracic Surgery, Digestive and Esophageal Diseases. Leader of one of the Catholic University Research Groups “Diagnostic And Clinical Surgery Treatment” with a multidisciplinar focus with the clinical, surgical and nutritional áreas. Professor of the Postgraduate Course in Health Sciences at Catholic University, Editor-in-Chief of the “Revista De Ciências Médicas at Catholic University; Associate editor of the “Revista Do Colégio Brasileiro De Cirur-Giões”. Author and co-author of 213 articles published in national and international magazines and winner of several awards for works presented in Congresses.

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The next generation cancer treatments - The role of quantum biology, genomics and artificial intelligence

Aim: This study delves into cutting-edge cancer treatments by leveraging advancements in quantum biology, genomics, and artificial intelligence. Additionally, it investigates the integration of AI-generated auto-contours, using deep learning segmentation, into diverse treatment planning systems.

Introduction: Despite advancements in cancer treatment—from deep X-ray therapies to high-energy photons, electrons, protons, carbon ions, and neutrons—the cure rate remains a significant challenge. The core issue lies within the biological domain, which requires more focused attention. Genomics holds the key to discovering robust solutions for cancer treatment, with the integration of physics into genomics being a pivotal next-generation approach. The combination of AI and physics offers the most promising outcomes in genomics. Quantum biology, which applies quantum mechanical principles to biological systems, could revolutionize cancer therapy in the future by addressing many of its unresolved challenges. Until such breakthroughs are realized, it is crucial to maximize the effectiveness of current technologies. In this context, artificial intelligence and machine learning should be fully leveraged. In our study, we have applied AI-generated auto-contours, utilizing deep learning segmentation, across diverse treatment planning systems. This approach enhances treatment outcomes, improves accessibility to remote areas, and provides financial benefits.

Material and Methods: The study utilized the ray station planning system 12A (Ray Search Laboratories, Sweden), renowned for its GPU-powered algorithm capable of generating AI-generated contours through deep learning segmentation. The research encompassed a group of hospitals comprising five facilities equipped with Eclipse V16.1 (Varian Medical Systems, USA) and Monaco V6.1.2 (Elekta Medical Systems, Crawley, UK) treatment planning systems, distributed across various locations in India. Additionally, a central planning system utilizing Ray Station TPS was deployed at a distinct location. Simulated CT images for Radiation Oncology (RO) planning were transmitted to the cloud and subsequently imported into the Ray Station platform. Auto contours were then generated on these CT images and exported back to the respective TPS via cloud connectivity. Importantly, this process enabled the seamless transfer of auto contoured images from the cloud to both Eclipse and Monaco contour stations, ensuring

consistency and interoperability across diverse treatment planning environments. The study analyzed over 500 cases across these five units, encompassing various diagnoses, to assess the efficacy of this approach.

Results: The OAR contours generated through deep learning segmentation in Ray Station were seamlessly transferred to both Monaco and Eclipse TPS via cloud connectivity. Analysis revealed that 98% of the contours were deemed perfect and utilized in clinical planning. The remaining 2% of errors were primarily attributed to factors such as patient movement and image clarity. Notably, the average time required for each auto contour was less than 2 minutes.

Conclusions: The ray station planning system, leveraging a GPU-powered algorithm and deep learning segmentation, proves instrumental in generating AI-generated auto contours for all Organs At Risk (OARs). Importantly, this technology demonstrates its versatility by seamlessly integrating into other planning systems. The efficiency gains realized through this tool not only translate to significant time savings but also ensure uniformity of contours across all our units. This consistency fosters enhanced quality in treatment planning, facilitates research endeavour, and ultimately contributes to improved patient care especially in developing countries where the budget for dedicated treatment planning systems are not adequate.

Keywords: AI, Auto Contours, Ray Station, Treatment Planning Systems (TPS), Deep Learning Segmentation, Cloud Connectivity.

Biography

Dr K R Muralidhar studied Post PG at Bhabha Atomic Research center, Mumbai, India, in Radioloical Physics after his MScTech at JNTU University, India. He worked in Indo-American Cancer Institute, American Oncology institute. He got trained in Tata Memorial Hospital India, NHU Singapore, Well corn university USA, Varian Switzerland, Arizona USA. He received PhD in 2008 and post doctor fellowship at MD Anderson University, USA. He obtained the position of Director of Physics at Karkinos Healthcare. He has more than 80 publications and presentations. He got IAEA, UICC Felloships and various National Awards.

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Improving quality of life among cancer patients in the modern era

Introduction: Modern cancer treatments often lead to a wide range of acute side effects, such as nausea, fatigue, pain, and infections that significantly impair daily functioning. Long-term complications, including neuropathy, hormonal imbalances, infertility, and emotional disturbances (e.g., anxiety, depression, cognitive impairment), may persist for years post-treatment, affecting survivors’ overall quality of life and reintegration into normal life.

Methods: A literature review of the past five years was conducted to identify strategies aimed at improving quality of life and managing post-treatment complications among cancer survivors.

Results: Common treatment-related complications include radiation-induced skin toxicity, persistent fatigue, alopecia, and weight changes. Advanced radiotherapy techniques like IMRT and SRS help reduce toxicity to healthy tissues. Head and neck cancer treatments can cause xerostomia, visible disfigurement, and facial lymphedema, now more effectively managed with minimally invasive surgery.

Cardiac complications, especially when using agents like doxorubicin, can be mitigated by dose limitation and coordinated care with cardiologists for close monitoring. A multimodal AI-based system, CardioAI, was developed to support symptom monitoring and risk prediction.

Gastrointestinal side effects include altered bowel habits, limiting fat to roughly 20% of daily energy significantly reduces abdominal pain and nocturnal diarrhea in cancer patients with bile acid malabsorption, supporting its routine use to prevent radiation-related gastrointestinal complications, while urological concerns such as urinary incontinence commonly occur after prostatectomy. Routine and resistance-band assisted Pelvic Floor Muscle Training (PFMT) significantly reduces incontinence severity and shortens time to continence. One 2019 study

noted improved urine control, quality of life, and reduced anxiety/depression within 3 months of starting. Pelvic fractures are sometimes reported following radiotherapy due to bone demineralization, while vitamin D, calcium and bisphosphonates help mitigate radiotherapy-induced bone loss.

Sexual dysfunction remains under-addressed due to cultural stigma; structured documentation and role- play-based provider education show promise in improving care.

Social and economic burdens compound the medical challenges. Cancer survivors may experience financial toxicity, occasionally requiring loans or mortgage refinancing, which can strain family relationships.

Persistent fear of recurrence and chronic stress also add to emotional exhaustion, highlighting the need for comprehensive psychosocial support. Based on a review and systemic meta-analysis performed in 2024, 136 randomized control trials with 23,154 participants were identified. Of these interventions, three types: digitally-delivered Cognitive Behavioral Therapy (CBT), health education, and Virtual Reality Therapy (VRT), demonstrated significant reductions in psychological distress compared to non-active controls. These three interventions improved quality of life compared to non-active controls.

Conclusion: Cancer survivorship demands a holistic, multidisciplinary approach. Reducing physical and psychological complications requires coordinated care between oncologists, specialists, and mental health professionals. Technological tools, such as AI systems and digital therapies, along with open communication and tailored education, can empower survivors and significantly enhance their long-term quality of life.

Biography

Liburn Grabovci is a medical doctor and will graduate to be a medical doctor in Kosovo. His interests include surgery and internal medicine, and he aims to pursue postgraduate specialization while remaining dedicated to lifelong learning, professional growth and works in scientific papers. He collaborates with his other colleagues in the cancer research team of Professor Patricia Tai in Canada who serves as a mentor for them all.

Liburn Grabovci[1*], Lorent Sijarina[1], Avi Assouline[2], Evgeny Sadikov[3], Melody Qu[4], Edward Yu[4], Kurian Joseph[5], Patricia Tai[6]

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Update of central nervous system tumors

Background: Central Nervous System (CNS) tumors are categorized as primary or secondary, with metastatic tumors being more common. They contribute significantly to morbidity and mortality. Over the past decade, notable advances have emerged in their management.

Methods: A comprehensive literature review was conducted using PubMed and major conference proceedings from the past 10 years.

Results: Progress has been most evident in systemic therapies.

A. Vorasidenib was FDA-approved for patients with grade 2 astrocytoma or oligodendroglioma harboring IDH1 or IDH2 mutations.
B. Tovorafenib, a type II RAF kinase inhibitor, was approved for patients ≥6 months old with relapsed or refractory pediatric low-grade glioma harboring BRAF fusions, rearrangements, or V600 mutations. In the FIREFLY-1 trial (NCT04775485), involving patients aged 6 months to 25 years, the overall response rate was 51% (95% CI, 40–63), with a median duration of response of 13.8 months (95% CI, 11.3–not estimable).

In radiotherapy:

A. The QUARTZ trial (n=538) found that Whole-Brain Radiotherapy (WBRT) did not improve survival versus dexamethasone alone, except in patients under 60 or with favorable Graded Prognostic Assessment (GPA≥2.5), while increasing side effects such as drowsiness, hair loss, nausea, and scalp irritation.
B. The Brain Metastases Velocity (BMV) score defined as the number of new brain metastases after initial Stereotactic Radiosurgery (SRS) divided by time (years) was found to predict survival: 12.4, 8.2, and 4.3 months for BMV≤3, 4–13, and ≥14, respectively. Higher BMV was linked to ≥2 initial metastases (P=.004) and melanoma histology.
C. In the NRG Oncology CC001 Phase III trial, hippocampal avoidance WBRT plus memantine (HA- WBRT+M) preserved neurocognitive function better than WBRT+M (30 Gy in 10 fractions), with patients stratified by RPA class and prior interventions.

D. As immunotherapy evolves, systemic therapy alone may suffice for small, non-eloquent lesions; however, SRS remains essential as initial and salvage treatment.

Two additional innovations include:

A. Tumor treating fields, FDA-approved for glioblastoma, inhibit tumor cell division.
B. The PuMP trial investigates MVR-C5252, an oncolytic HSV-1 virus encoding IL-12 and anti-PD-1, delivered via Convection-Enhanced Delivery (CED). A novel implanted pump enables repeated intratumoral dosing, aiming to convert immunologically "cold" gliomas into "hot" tumors, overcoming key challenges in glioblastoma therapy.

Conclusions: Substantial advances in systemic and radiation therapies have improved CNS tumor care. Ongoing research into earlier diagnosis, personalized treatments, and quality of life optimization remains crucial.

Biography

Liburn Grabovci is a medical doctor and will graduate to be a medical doctor in Kosovo. His interests include surgery and internal medicine, and he aims to pursue postgraduate specialization while remaining dedicated to lifelong learning, professional growth and works in scientific papers. He collaborates with his other colleagues in the cancer research team of Professor Patricia Tai in Canada who serves as a mentor for them all.

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Applying concepts of “lean management”: Evaluation of a pioneer off-site injection program for androgen deprivation treatment of prostate cancer

Aim: With the rising number of prostate cancer patients needing Androgen Deprivation Therapy (ADT), especially with new monthly Gonadotropin-Releasing Hormone (GnRH) antagonist injections, our province became the first in Canada to implement an off-site injection program. The goal was to decentralize ADT administration from hospital clinics, reduce healthcare workload, and improve patient access (concept of “lean management”). This study evaluates program acceptance, challenges, and outcomes after its implementation.

Methods: Nurses in the Community Oncology Program of Saskatchewan (COPS), designated drug stores, and home injection programs, are trained by nurses from the two tertiary cancer clinics and pharmaceutical company representatives in Saskatchewan. Since 2012, the pharmaceutical companies hired nurses for off-site injection programs. Patients with mobility or travel barriers were offered home injection. Oncologists identified patients and coordinated care through the pharmaceutical company. Initially, patient consent required faxing to off-site programs in cities and COPS in rural areas. In later years, electronic health records and incident reporting were introduced. In 2014, 60 patients were randomly selected from the total 662 in injection programs to evaluate the initiative, based on feedback via telehealth, faxed nursing reports, and electronic health record reviews.

Results: By 2014, 662 patients were enrolled. Many rural patients valued receiving care closer to home, and staff experienced smoother workflows. Some miscommunications led to missed home visits or confusion about medication changes. An increased incident of injection reactions at one rural hospital prompted retraining. Delays in scheduling or drug supply were addressed through better team communication. Patients traveling abroad (“snowbirds”) maintained treatment continuity. Routine PSA monitoring improved as nurses reminded patients about follow-up tests.

Conclusions: The off-site ADT program has proven feasible and beneficial, enhancing patient access and relieving hospital clinics. Improved communication and health record integration are key for continued progress. Decentralizing care has increased efficiency and aligns with lean management principles, improving both service delivery and patient experience.

Biography

Lorent Sijarina, MD, recently graduated from the University of Prishtina, Faculty of Medicine, Prishtina, Kosovo, with wide interests spanning internal medicine, oncology, and public health. Passionate about academic research and evidence-based practice, he actively engages in international collaborations with diverse experts. Mentored by the renowned Professor Patricia Tai, a global leader in oncology, Lorent's dedication to clinical research and global health has deepened. Committed to advancing medicine through scientific inquiry and compassionate care, he embraces innovation and interdisciplinary learning. Lorent aims to grow as a physician-researcher focused on improving healthcare outcomes and promoting scientific excellence.

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Is artificial intelligence a possible solution for challenges in healthcare?

Background: Artificial Intelligence (AI) is playing an expanding role in public healthcare because of its greater precision, efficiency, accessibility, and potential to reduce costs. This study investigates how AI can support healthcare systems by improving diagnostic accuracy, optimizing workflows, and expanding access. Post- COVID-19, health systems globally have accelerated digital transformation, including AI integration in strategic planning.

Aim: This study aimed to explore whether AI can help address key healthcare challenges.

Methods: This paper presents a narrative review of recent literature examining the integration of AI in public healthcare, focusing on service delivery, diagnostic innovation, and public health management.

Results: The analysis revealed that many patients remain dissatisfied, especially in tertiary public hospitals. persistent issues such as limited access, diagnostic delays, and communication gaps remain across public healthcare systems. However, AI offers promising interventions:

Diagnosis: AI-powered tools in radiology and pathology improve early detection and diagnostic precision, particularly through machine learning and neural networks.

Triage: While few countries have adopted large-scale AI triage tools, pilot models demonstrate improved patient prioritization and emergency response.

Telehealth: AI-enhanced platforms, such as symptom checkers and virtual health assistants, increase remote access and facilitate patient engagement.

Personalized Treatment: AI contributes to individualized care plans through genomic data analysis and predictive modeling, especially in oncology and chronic disease management

Robotic Procedures: Robotic-assisted surgeries, though still a minority practice, show improved procedural outcomes and reduced recovery times.

Patient Education & Monitoring: Virtual assistants aid in medication adherence, health literacy, and remote follow-up, supported by AI-driven alerts and monitoring systems.

Public Health Surveillance: AI assists in tracking disease outbreaks, modeling epidemiological trends, and guiding policy through real-time data analysis.

Research & Support Services: AI accelerates literature synthesis, clinical trial recruitment, and patient referral coordination.

Despite advances, challenges remain: bias in training data, resistance to adoption, ethical concerns, budgetary constraints, and the irreplaceable value of human empathy in care. AI should be viewed as a supportive tool, not a substitute for ethical and compassionate medical practice. Regulatory oversight and clear ethical frameworks are necessary for safe implementation.

Conclusions: AI is increasingly embedded in healthcare, particularly in diagnostics, predictive modeling, and patient- specific treatment. If implemented responsibly and equitably, it can improve outcomes, optimize workflows, and strengthen public health. Ultimately, AI has the potential to alleviate clinician shortages, long wait times, and rising service demands, contributing to more inclusive, efficient, and future-ready healthcare.

Biography

Lorent Sijarina, MD, recently graduated from the University of Prishtina, Faculty of Medicine, Prishtina, Kosovo, with wide interests spanning internal medicine, oncology, and public health. Passionate about academic research and evidence-based practice, he actively engages in international collaborations with diverse experts. Mentored by the renowned Professor Patricia Tai, a global leader in oncology, Lorent's dedication to clinical research and global health has deepened. Committed to advancing medicine through scientific inquiry and compassionate care, he embraces innovation and interdisciplinary learning. Lorent aims to grow as a physician-researcher focused on improving healthcare outcomes and promoting scientific excellence.

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Role of prognostic factor in oral squamous cell carcinoma - A single institute experience

Squamous cell carcinoma is the most common tumor of oral cavity. The outcome of the Patient's treatment depends not only on the stage but also on various prognostic parameters. They are: Stage grouping, Extra nodal spread, Depth of invasion, PNI, Worst pattern of invasion, Margin status etc. It was found in various studies that early-stage oral cancer doesn't always portend good prognosis. Brandwein–Gensler et al, Jakobsson et al, Anneroth et al, Bryne et al, proposed a multiparametric Histologic Risk Assessment Score (HRS) that was reported to predict the survival of patients with T1 to T4 oral SCC and capable of differentiating high-risk and low-risk patients. Thus, early stage may require aggressive treatment if there are risk of adverse outcome present. The eighth edition of AJCC has recommended various changes in calculating the risk assessment. Depth of Invasion (DOI) has been added as a modification to T to enhance the distinction between the superficial or exophytic tumors and those that are more invasive. Worst pattern of invasion (WOPI) plays an important role in the local regional recurrence. The presence of Perineural Invasion (PNI) is associated with poor local disease control, regional control, metastasis to regional lymph nodes and decrease survival. Lymph node involvement is the single most important prognostic factor.

This study was done in Pushpadi cancer care centre, Kota. Only patients of carcinoma oral cavity, who had undergone surgery and followed up for at least 3 years were taken. Total 100 patients were selected. The association of documented prognostic factors and recurrence of the disease were analyzed.

Biography

Dr Manmohan Agrawal (Consultant Oncosurgeon) MBBS MS, DNB Surgical Oncology is working as surgical oncologist in Department of Oncosurgery, Pushpadi cancer care centre, Kota, Rajasthan, India He has obtained his Master of surgery degree from SCB medical College, Utkal University in 2005 and completed his DNB from Dharamshila Cancer hospital, Delhi in 2009. He has more than 15 years of experience in the field of cancer surgery and had performed more than 5000 cancer surgeries. Being in a tyre III city like Kota with limited resources, he has learnt to provide adequate cancer care at a grassroots level. He has done many complicated and difficult surgeries independently like 3 field esophagectomy (25 cases), Whipples procedure (50 cases), pelvic exenteration (10 cases), Breast (>1000 surgery) Oral cancer (>2000 surgeries). His main researches are focused on head and neck cancer, breast cancer and gynaecological malignancy. He has published many articles in national and international journals.

Maryam Khaleghian

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Hybrid deep learning model for breast cancer classification using Kaggle's breast cancer dataset

Breast cancer remains one of the most prevalent and life-threatening diseases, with early detection playing a crucial role in improving patient outcomes. Deep learning techniques have emerged as powerful tools for automating cancer diagnosis, yet challenges persist in optimizing accuracy and interpretability. This study employs a hybrid deep learning model integrating Convolutional Neural Networks (CNNs) and Bidirectional Long Short-Term Memory (BiLSTM) networks for classifying breast cancer histopathological images from the Kaggle dataset. The dataset comprises 277,524 high-resolution images labelled as benign and malignant, requiring extensive preprocessing, including image augmentation and noise reduction, to enhance generalizability. The CNN component extracts spatial features, while BiLSTM captures temporal dependencies across multi-view pathology images. The model is trained using Adam optimizer with a learning rate of 0.0001 and a batch size of 32 for 50 epochs, employing a 5-fold cross-validation strategy. The proposed model achieves an accuracy of 92.7%, surpassing traditional CNNs (86.8%) and ResNet-50 (90.2%), with an AUC-ROC score of 0.91, demonstrating superior feature extraction and classification capabilities. The findings highlight the effectiveness of hybrid architectures in improving breast cancer detection, suggesting the potential for further refinement through Grad-CAM visualizations and expansion to multi-class cancer datasets.

Biography

Ms. Maryam Khaleghian is a researcher in Molecular Genetics at Payame Noor University of Tehran, Kish International Campus, Iran, specializing in the application of artificial intelligence (AI) in biomedical research. Her work focuses on disease classification and prediction using machine learning and deep learning techniques. She has contributed to advancing precision medicine through AI-driven models. Maryam actively participates in international conferences, presenting AI-driven solutions for genetic disorders, disease risk assessment, and predictive analytics in healthcare. She has Under Review Papers in peer-reviewed journals and collaborates on multidisciplinary projects bridging genomics and AI. Her expertise includes bioinformatics, statistical modeling, and deep learning architecture like CNNs, RNNs, and transformer models. Proficient in Python, R, and MATLAB, she applies these tools for genomic data analysis and predictive modeling. Dedicated to innovation in biomedical AI, she continues expanding her research through academic collaborations and advanced training programs.

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Anomalous hepatic artery in liver transplantation for malignancy: Prevalence and surgical implications

Background: Anomalous course of hepatic arteries is common and present important considerations during Liver Transplantation (LT), particularly in patients with hepatic malignancies. Understanding their impact is essential for surgical planning and optimizing outcomes.

Methods: A systematic review was conducted following PRISMA guidelines. Literature was searched across four databases. Search terms included MeSH and keywords such as "hepatic artery,""anatomical variation,""liver transplantation,""malignancy,"and"surgical outcomes." Studies were included if they involved adult patients undergoing LT for malignant indications and reported the presence and impact of hepatic artery anomalies on surgical or oncologic outcomes. Non-transplant studies, cadavers, paediatric populations, and studies lacking relevant outcome data were excluded.

Results: Eligible articles were included after screening by title, abstract and full-text review. Data extraction and risk of bias assessments were independently conducted using validated tools. Replaced right and left hepatic arteries were the most frequently encountered variants. While these anomalies increased intraoperative complexity and vascular complication risk, they did not adversely affect graft or overall survival. Preoperative imaging and surgical planning were critical to mitigating associated risks.

Conclusion: Hepatic artery anomalies are not contraindications to liver transplantation for malignancy but require careful consideration to ensure favourable outcomes. Recognition and management of these variations are essential components of transplant oncology.

Biography

Dr. Mohammed Ahmed is a General Surgery Resident doctor at Kettering General Hospital, UK, where he applies his clinical expertise in acute care and surgical procedures. He earned his MD from the University of Jordan School of Medicine in 2019 and is a Member of the Royal College of Surgeons (MRCS). Passionate about advancing surgical techniques, Dr. Ahmed actively engages in multidisciplinary teamwork to improve patient outcomes. Outside the operating theater, he mentors medical students and contributes to surgical research projects.

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Extracellular vesicles and immune escape: A new frontier in breast cancer immunotherapy

Breast cancer is the most common malignancy in women worldwide and remains a leading cause of câncer related mortality. While the immune system plays key role in controlling tumor progression, it is often suppressed in breast cancer. Dendritic Cells (DCs), which connect innate and adaptive immunity, frequently show impaired function in this context. Extracellular Vesicles (EVs) have been recognized for their role in modulating the immune microenvironment, as they can carry bioactive molecules such as proteins, lipids, and microRNAs that influence immune system. The purpose of this stydy is to explore the role of EVs in DC modulation and their impact on immune regulation and cancer progression. EVs were isolated from plasma of breast cancer patients and healthy donors using ultracentrifugation and characterized through Western blot, transmission electron microscopy and nanoparticle tracking analysis. Monocyte-derived DCs (Mo-DCs) from healthy donors were differentiated in the presence of either Breast Cancer Exosomes (BC-EVs) or Healthy Donor Exosomes (HD-EVs). Phenotypic and functional analyses were conducted using flow cytometry, cytokine quantification, and mixed lymphocyte reactions. miR-181b expression and its target GSK3-Interacting Protein (GSKIP) were assessed by qPCR and Western blot and miR-181b inhibition was used to evaluate its role in DC modulation. Findings: BC-EV-exposed Mo-DCs exhibited maturation arrest with decreased HLA-DR, CD80, CD86, CD11c expression, and increased PD-L1. These cells impaired T cell proliferation and cytokine production. BC-EVs enriched in miR-181b-5p inhibited GSKIP expression, preventing GSK3 inactivation and mTOR activation, key processes for DC maturation. Inhibition of miR-181b restored pro-inflammatory phenotype in Mo-DCs. High miR-181b expression in patients correlated with poor prognosis, while higher GSKIP levels were linked to better outcomes. BC-EVs enriched in miR-181b induce tolerogenic DC phenotype, promoting immune evasion and cancer progression. Targeting miR-181b represents a promising strategy to restore DC functionality and improve immunotherapeutic outcomes in breast cancer. Our findings provide important insights into the physiopathology of cancer and immune evasion, which could have implications for cancer prognosis and the development of effective immunotherapy approaches for breast cancer.

Biography

Nayara is associated professor in Federal University of Sao Joao del Rei, Brazil, since 2012 and have expertise in cancer, non-coding RNAs, exosomes, dendritic cells, glycobiology, tumoral evasion and immunotherapy. Nayara studied at the State University of Londrina, where she obtained a degree in Biochemistry and a specialist title in Applied Health Science. The field of oncology was what really motivated her formation in Biochemistry (PhD from FMRP/USP in 2008) and Tumor Immunology (postdoctoral degree from the New University of Lisbon in 2019) fields that allow her to pursue her scientific research career with a special focus on Cancer Immunotherapy.

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Post bone marrow transplant colitis- Histopathological clues to differentiate primary GVHD from CMV Colitis

Introduction: Histopathology has played a major role in understanding the pathophysiology and aiding in the diagnosis and management of Graft-Versus-Host Disease (GVHD). For all the cases undergoing transplant the post-transplant recovery depends on a multitude of factors and one of the common problems that may impede recovery is acquiring infections like CMV or drug induced injuries (mycophenolate mofetil) etc. GVHD reactions affect almost all the organ systems. The department received biopsy samples of 2 cases of Colitis post bone marrow transplant, suffering from thalassemia and aplastic anemia. We aimed this study in highlighting the histopathological findings which differentiate cases of primary GVHD Colitis Versus CMV colitis.

Cases: Case 1: Patient was 10-year male, case of aplastic anemia who underwent a bone marrow transplant and presented with diarrhea. A histopathological biopsy sample from duodenum was sent to the department. Microscopic examination of the biopsy tissue showed biopsy fragment with large areas showing crypt drop out, focal ulceration, crypt destruction with apoptotic bodies and regenerative atypia focally. This was accompanied by fair number of eosinophils in Lamina propria, lymphocytes and neutrophils. Occasional intranuclear inclusion mimicking CMV inclusion was also seen. A diagnosis of CMV colitis with GVHD was rendered and IHC advised for confirmation.

Case 2: 8year male case of Thalassemia post BMT suffering from persistent diarrhea. Biopsy sent twice from rectal and colonic mucosa showed variable degree of crypt dropout, apoptotic debris and reactive atypia. Lamina propria showed inflammation comprising of lymphocytes, plasma cells and few eosinophils. No viral inclusions were noted in both the biopsy specimens. IHC for CMV was negative in both the cases. The first biopsy specimen from colon was Modified Lenner Sale Grade 1, Myersons Grade 1 while the follow up biopsy was Modified Lenner Sale Grade 1, Myersons Grade 2, indicating persistent GVHD features on histopathology.

Results: On comparing the histopathological features of the 2 cases it is clear that while features like crypt loss, crypt destruction, reactive atypia can occur in both CMV and GVHD inflammation comprising of neutrophils and viral inclusions are seen with CMV infection per se while absence

of neutrophils favours GVHD. IHC is confirmatory for CMV infection. Presence of eosinophils may be there in GVHD as well as drug induced injury as in case with Mycophenolate mofetil.

Conclusion: Histopathological clues on biopsy specimen are extremely useful diagnostic tool with specific features which can help a histopathologists in diagnosing GVHD from CMV colitis in patients post bone marrow transplant.

Biography

Neema Tiwari did her MBBS and MD in Pathology in Pathology from Eras Lucknow Medical college and Hospital, she is has worked as Senior Resident, Pathology in department of clinical hematology and hemato-oncology, King George Medical University, India and Post Graduate Institute of Child Health Noida, UP and has 4 years post PG experience. She is currently working as Assistant Professor in Post Graduate Institute of Child Health, Noida. She has done numerous intramural and extramural (ICMR, DST) research projects and has many national and international publications in indexed and peer reviewed journals (>40) to her credit. She is a reviewer for 3 journals to of which are pubmed indexed. She has presented papers in IAP, ICC and CAP conferences. She has recently presented a poster on MDS in the ISHBT-EHS TUTORIAL-2018 held in India. She is an ICO Fellow from Barcelona Spain in Molecular pathology/hematology. She has co-authored several books, including Analysis of Various Patterns of Leukemia in the Indian Population (Neema Tiwari and Sunita Tiwari, Lambert Publications, 2018), Manual of Hematology (Ahuja Publishers, 2021), and Hematology Made Easy (Questvision Publication, 2024), and contributed chapters to three upcoming books. She also runs a YouTube channel focused on teaching pathology to postgraduate residents, which has over 1,500 followers. Currently, she serves as an International Ambassador for the College of American Pathologists in India and was an International Observer in Pathology at Memorial Sloan Kettering Cancer Center under Dr. Travis and Dr. Antenescou. Her professional memberships include the European Hematology Association, Junior Member of CAP, ISHBT, and the Europea.

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Skin graft failure in skin cancer patients on anticoagulation: A single centre retrospective study

Skin grafting is a key reconstructive technique following skin cancer excision. Many patients are on anticoagulation or antiplatelet therapy, raising concerns about skin graft failure due to bleeding and impaired wound healing. This study evaluated the failure rates of Full-Thickness (FTSG) and Split-Thickness Skin Grafts (SSG) in patients on anticoagulants/antiplatelets versus those not on anticoagulation and assessed the impact of various factors that may affect the graft outcomes. A retrospective review of 88 patients who underwent FTSG or SSG from July to September 2024 was conducted. Data on demographics, social history, co-morbidities, anticoagulant/antiplatelet use, graft type, donor site, cancer type, and outcomes were analysed.

The overall graft failure rate was 26.1%, with higher but non-significant rates in patients on anticoagulants (37.5% vs. 19.6%, p=0.114). FTSG had higher failure rates than SSG (35.7% vs. 17.4%, p=0.087). Graft failure varied significantly by cancer type, with squamous cell carcinoma (30.8%) showing higher rates than basal cell carcinoma (16.2%, p=0.048). The use of chloramphenicol 1% ointment significantly reduced failure rates (7.7% vs. 33.9%, p=0.022).

In conclusion, patients on anticoagulants have increased but non-significant risks of graft failure. FTSG and SCC are associated with higher failure rates, while chloramphenicol ointment significantly improves outcomes. Recommendations include optimising pre-operative assessment including maintaining perioperative anticoagulation for low-risk cases, enhance intra-operative factors such as ensuring haemostasis and using chloramphenicol ointment, and ensure follow up for graft check. A re-audit is planned to achieve a graft failure rate below 33%.

Biography

Dr. Nehal Singhania obtained a dual degree in Medicine and Medical Sciences (MBBS/BMedSci) from the University of Nottingham, UK, and is a Member of the Royal College of Surgeons of Edinburgh. She is currently a Core Surgical Resident in Leicester, with clinical interests in Plastic Surgery and Otolaryngology. Her research experience spans a wide range of topics, including ovarian cancer, artificial intelligence in oculoplastics, and the development of machine learning models to predict outcomes of skin grafts. Beyond clinical work, Dr Singhania has a strong interest in healthcare management, public policy, and emerging technologies, with a focus on developing and scaling innovative healthtech solutions.

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Immune stimulating outcome of chrysin and γ-irradiation via apoptotic activation against solid ehrlich carcinoma bearing mice

The rising interest in innovative methods of cancer immunotherapy has prompted research into the immunomodulatory mechanisms of natural and synthetic substances.

Aim: The goal of this study was to assess chrysin immune-stimulating and pro-apoptotic effects on tumor growth and cell susceptibility to ionizing radiation in order to improve cancer therapy.

Methods: Chrysin (20 mg/kg/day) was intraperitoneally injected to mice bearing 1 cm 3 solid tumor of Ehrlich Ascites Carcinoma (EAC) for 21 consecutive days. Mice were whole body exposed to 1 Gy of gamma radiation (2 fractionated dose 0.5 Gy each).

Result: Treatment with chrysin dramatically reduces tumor proliferation in EAC mice; furthermore, IFN-γ activity is significantly reduced when compared to EAC mice. When compared to EAC mice, the expression of TNF-α, free radicals, and Nitric Oxide (NO) levels were considerably reduced, along with improvements in apoptotic regulators (caspase-3 activity).

Moreover, the histopathological investigation confirms the improvement exerted by chrysin even in the EAC mice group or the EAC+R group. What is more, exposure to gamma radiation sustained the modulatory effect of chrysin on tumor when compared with EAC+Ch mice.

Conclusion: Hence, chrysin might represent a potential therapeutic strategy for increasing the radiation response of solid tumor.

Keywords: Chrysin, Gamma Radiation, Tnf-A, Ifnγ, Apoptosis, Caspase-3, Histopathology.

Biography

Nermeen Mohamed Elbakary worked as Associate professor of Biochemistry at National Center for Radiation Research & Technology, Atomic Energy Authority, Cairo, Egypt. She earned her PhD degree in Biochemistry from the Faculty of Science at Ain Shams University in Cairo, Egypt. Her research work is focusing on cancer biology and the effect of radiation on the human body with these responsibilities, Planning and conducting experiments. She managed to author and co-author several articles in high profile journals such as discover oncology, life science, integrative Cancer Therapies, Technology of Cancer Research &Treatment, etc.; She supervised on many master and PhD scientific thesis in different universitie in Egypt.

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A narrative review on the roles of nursing in sexual dysfunction among oncological patients with updated recommendations

Background: Sexual dysfunction is a prevalent yet often overlooked issue among cancer patients, significantly affecting their quality of life, emotional well-being, and intimate relationships. Despite the high prevalence (87%) of sexual dysfunction among cancer survivors, it remains underdiagnosed and undertreated in oncology care. Nurses play a pivotal role in addressing these concerns; however, multiple barriers (lack of training, cultural stigma, and institutional limitations) hinder effective intervention.

Methods: A comprehensive literature review was conducted using peer-reviewed articles from major databases. The review focused on the prevalence, impact, and management of sexual dysfunction in cancer patients, as well as the role of oncology nurses in addressing this issue.

Results: Integrating sexual health care into oncology nursing practice is essential for improving the well-being of cancer patients. Addressing barriers through education, policy reforms, and multidisciplinary collaboration can empower nurses to provide comprehensive sexual health support. The BETTER (Bring up, Explain, Tell, Timing, Educate, and Record) sexual health discussion program functions effectively to help nurses conduct sensitive educational sessions on sexual wellness with their patients. The effective implementation of PLISSIT (Permission, Limited Information, Specific Suggestions, and Intensive Therapy) enables oncology nursing practitioners to conduct meaningful sexual health discussions. The Enhancing Research Impact in Child Health (ENRICH) program offers specialized fertility and sexuality training to oncology nurses.

In Canada, the TrueNTH (True North) sexual health and rehabilitation etraining program for prostate cancer care providers was evaluated in a multi-center study, showing significant improvement in knowledge and self-efficacy post-intervention, with 98.2% of participants reporting satisfaction with the training [90]. Similarly, a multidisciplinary oncology sexual health clinic in Alberta, Canada reported that, among 130 referrals over two years, 64 patients received consultations for common sexual concerns such as dyspareunia, low desire and vaginal

dryness. Data showed that 100% of female patients and 80% of male patients had diagnosable sexual dysfunctions. In the U.S., the iSHARE (Improving Sexual Health and Augmenting Relationships through Education) intervention was developed at Fox Chase Cancer Center to train breast cancer clinicians in sexual health communication.

Several national and international guidelines now recommend sexual rehabilitation as a critical component of comprehensive cancer care for adult patients. The American Society of Clinical Oncology (ASCO), in partnership with Cancer Care Ontario (CCO), published a clinical practice guideline. Similarly, the National Comprehensive Cancer Network (NCCN) advises routine screening for sexual problems during follow-up visits and recommends early referrals to specialists in sexual health when dysfunction is identified.

Conclusion: Future efforts should focus on institutional changes that prioritize sexual health as a fundamental component of cancer care, ensuring better patient outcomes and quality of life.

Biography

Mr. Omar Al-Qaisi from Al-Zaytoonah University is a nursing expert in oncology and emergency medicine. He holds a master's degree in emergency and disaster medicine from Al-Zaytoonah University. He currently works as a part-time clinical instructor at Al-Zaytoonah University and also at the Military Oncology Center. He has experience using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and the Mixed Methods Appraisal Tool (MMAT) for research. His recent research focuses on sexual healthcare, selenium, orthopedics, sleep quality, pain management and patient satisfaction in oncology patients.

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Oncology nurses' attitudes, knowledge and practices in providing sexuality care to cancer patients: A scoping review

Sexual health in cancer care is often overlooked. This study examines oncology nurses' knowledge and practices regarding sexuality care, identifying barriers and facilitators. A Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)-guided search of Scopus, ScienceDirect, PubMed, and EBSCO focused on studies from 2014 to 2024. Of 1735 identified studies, only 11 met inclusion criteria. Findings revealed a lack of knowledge among nurses and dissatisfaction with sexual healthcare. Barriers include time constraints, cultural factors, and personal reservations. Routine discussions are often absent due to inadequate training. Education- and system-based strategies are needed to enhance nurses' competence in addressing sexual concerns. Implementing training programs, structured records, evaluation tools, concept maps, and system support would improve patient care and oncology nursing practices. Addressing these gaps with practical measures can enhance communication, patient satisfaction, and quality of life. This unique analysis was conducted by two experienced advanced nurses in the Middle East, were discussions about sex are often regarded as taboo.

Biography

Mr. Omar Al-Qaisi from Al-Zaytoonah University is a nursing expert in oncology and emergency medicine. He holds a master's degree in emergency and disaster medicine from Al-Zaytoonah University. He currently works as a part-time clinical instructor at Al-Zaytoonah University and also at the Military Oncology Center. He has experience using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and the Mixed Methods Appraisal Tool (MMAT) for research. His recent research focuses on sexual healthcare, selenium, orthopedics, sleep quality, pain management and patient satisfaction in oncology patients.

Tai P*, Assouline A, Quan T, Sadikov E, Souied O, Wong K, Lian J, Yu E, Joseph K, Thachuthara AJ, Carlisle S

UpToDate, Canada

Photodynamic therapy: First Canadian report of healing radiation-induced skin ulcers and implication for dentists, oncologists, family doctors and nurse practitioners

Introduction: Photodynamic Therapy (PDT) had been used for benign and malignant skin lesions for some time. It can disinfect caries dentin before restoration or oral tissues before or during surgical procedures, treat denture stomatitis, and oral candidiasis in immunocompromised patients, etc. Radiation-induced ulcers are difficult to treat. PDT promotes wound healing while its clinical use is not investigated in human for radiation-induced skin ulcers.

Methods and Materials: We documented the first Canadian in-human case and searched the PubMed literature using “PDT" AND "radiation" AND "ulcer" terms.

Results: PDT has been used by our team to treat a chest wall ulcer of 5-year duration, which developed after mastectomy and adjuvant radiotherapy. There are 6 laboratory literature reports (total 95 rats) of radiation-induced skin ulcers with an overall efficacy of 90%. Topically applied 5-Aminolevulinic Acid (5-ALA) was activated by red light (wavelength 630 nm) after incubation for 5 hours. Our regimen was three 30-minute treatments at months 0, 1, 5; and regimen can vary depending on response. Comparing with Hyperbaric Oxygen Therapy (HBOT), PDT is non-invasive with fewer complications: skin irritation/swelling (rarely requiring steroid treatment), photosensitivity and retinal damage. PDT is much cheaper: 5-ALA costs only CAN$500/session for Metvix (methyl 5-ALA, currently approved by Health Canada) vs HBOT requiring 30 sessions (about CAN$15,000). PDT procedure is an innovative emerging therapeutic modality for dentists, oncologists, family doctors and nurse practitioners as it is simple and easy to use.

Conclusions: Laboratory publications substantiate the efficacy of PDT on radiation-induced skin ulcer healing. The first Canadian clinical case was documented by us. It is cost-effective, with growing applications in different medical fields. Further clinical studies are warranted to evaluate the optimal treatment schema and effects on quality of life. Hopefully it can be widely available with costs covered by the Canadian government.

Biography

Prof. Patricia Tai, a gold medal graduate from University of Hong Kong (ranked 35/100 globally), trained under renowned experts Prof. John Ho (nasopharyngeal cancer), Prof. David McDonald (brain tumor response: McDonald's criteria), and Mr. Jake Van Dyk (medical physics). As an international skin cancer specialist, she has authored five UpToDate chapters (Wolters Kluwer, United States). She is also the Clinical Professor of University of Saskatchewan in Western Canada. She has 149 full publications, 135 conference abstracts, and 182 presentations. With 13 academic awards, her h-index is currently 29.

Ratan Kumar Sarkar
Independent Researcher, Keota-Hooghly, West Bengal, India

The molecular biology of alpha-fetoprotein-a biomarker of liver cancer

To stop cancer development, the prime target would be intercept of electro-gravitational impulses (0.0107 or 0.0106 unit) entering into the cell system. A difference of 0.0001(1) is natural in directional biology. I shall determine the interplay of lunar time (183 or 0.3477 or 777), lunar gravity (0.1605 or 705) and earth's gravity (0.0734 or 734) in context of histidine (155.1552) where integer and decimal values possesses significant analogical line-up. The influx of 0.0107 or 107 is ompatible to proliferation mechanism where 705–652(i.e. 0.1552) =53 and conversely 55+35(reverse of 53) =190=123+67(beyond 900) where 900–777(183) =123 and 93*0.0019=0.3667 or 967 according to formula T(time) =0.0019*M (integer mass). The biophysical structure works within 900 and the reverse domain 109. Again, 155+28=183 and correspondingly 652+82=734 (earth's gravity) where 734–705=29(i.e. 0.0551) =19+10(the reverse values=193–183=10). Considering '107'(a structural component), 107+48=155 and correspondingly 652–84=568=734*2(suppressed) =900–332(i.e. 166*2, a t-RNA association)) and 705*2=1410 or 510=900-390 (i.e.195*2, a tyr association) where 645 (tyr core values)-255=390 and where 195–166=29(difference of earth-moon gravity) and conversely 195+166=361(limitation) =183*2–6 (including directional values), the lunar time sectioned where 652–645=7=155–148 making a difference of 100 that leads to flow of electro-gravitational impulses. The feature of Alpha-Fetoprotein(AFP) is 591 Amino acids long and contains a single asparagine (132.1184) linked(asn233) carbohydrate chain. It is seen 591 is reverse of time 195 while 233 is reverse of 332 in the structure where 424 (asn core values) +168(tyr neutral point) = 592. The tyrosine (181.1894) neutral point can be determined as 0.1894–0.0181=0.1713 or 813=645 (tyr core values)+168 where the glucose molecular weight (180.1558) shows core values 962 is associated with 169 in reverse. The increased level of AFP biomarker or tyrosinemia type-1 causes increased risk of liver cancer where reversal or transition of time is significant.

The proton-neutron cycle creates a signalling pathways where 109+38(beyond 900) =147 and 39*0.0019=0.0741 and where 147+741=888=183+705 and conversely 741–147=594(core values of glutamic acid, 147.1299) =777–183 and also 705–306=399 or 0.1299 that is why glutamic acid is significant for biosynthesis of protein. The neutron having no electric charge since 109+39=14=900 – 751(reverse of 157) with a directional difference (1) where 157 and 617 are two hotspots molecular or neutral point derived from V617F and V157F. The addition

of 9 sometimes neutralize the system causing activation of electro-gravitational structure to survive where 608(oxy-time) +9=617 and where 754(val core values) *2=1508 or 608 and 900–608=292 and also 292*0.0019=0.5548 or 148=109+39=157-9 that linked to 360+292=652.

The values 79*0.0019=0.1501 or 601(reverse of 106) where 250+79=329(time blocked) and conversely 250–79=171(time gets circular path) where the crucial electro-gravitational structure 900=575+325 and 575–325=250, a neutral point in the structure.

Biography

Ratan Kumar Sarkar graduated with a B.Sc. from the University of Calcutta and has published over twenty research papers in Scientific and Academic Publishing journals.

Kiran Kumar Reddi, Suresh Chava[1], Siva Chander Chabattula[1], Yvonne JK Edwards[1], Kamal Jeet Singh[3], Romi Gupta[1,2*]

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ASAH1 drives TNBC progression and is a potential therapeutic target

Triple-Negative Breast Cancer (TNBC) is a subtype of breast cancer that is prone to metastasis and therapy resistance. Due to its aggressive nature and limited availability of targeted therapies, TNBC is associated with higher mortality compared to other forms of breast cancer. To develop new therapeutic options for TNBC, we characterized the factors involved in its growth and progression. Here, we demonstrated that N-Acylsphingosine Amidohydrolase 1 (ASAH1) is overexpressed in TNBC cells and is regulated by the p53 and PI3K-AKT signaling pathways. Genetic knockdown or pharmacological inhibition of ASAH1 suppressed TNBC growth and progression. Mechanistically, ASAH1 inhibition stimulated Dual-Specificity Phosphatase 5 (DUSP5) expression, suppressing the Mitogen-Activated Protein Kinase (MAPK) pathway.

Furthermore, pharmacological co-targeting of the ASAH1 and MAPK pathways inhibited TNBC growth. Collectively, we uncovered a novel role of ASAH1 in driving TNBC and identified dual targeting of the ASAH1 and MAPK pathways as a potential new therapeutic approach for TNBC treatment.

Biography

Dr. Gupta did her PhD at Max Planck Institute for Molecular Genetics, Berlin, Germany, studying protein translation, leading to the discovery of 70S-scanning initiation. She then worked at Yale University, focusing on cancer therapeutics, resulting in publications in journals like Cancer Discovery, Cell Reports Medicine, PNAS, Cell Reports etc. Currently, she is Associate Professor and Associate scientist at O'Neal Comprehensive Cancer Center at UAB. Her lab focuses on identifying new molecules and pathways and studying their role in tumor initiation and progression. Her long-term goal is to develop novel, more effective and durable cancer therapies.

Dr. Sadaf Haiyat[1*], Shabnana Azad[2], Dr. Shashikant C.U Patne[3], Dr. Zachariah Chowdhury[3], Dr. Ipsita Dhal[4], Dr. Paramita Paul[4]

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High-grade, high-stakes: Decoding the IHC code and HPV-driven prognosis of cervical neuroendocrine carcinomas in a 5-year Indian cohort

Introduction: Cervical cancer is the second most common cancer in Indian women, constituting 22.86% of all female malignancies. Neuroendocrine Carcinoma (NEC) is a rare subtype of cervical cancer, accounting for approximately 1.4% of all cervical malignancies. These tumors are biologically aggressive and portend a poorer prognosis compared to the more common squamous cell carcinoma. Accurate diagnosis is critical due to their aggressive course and limited therapeutic window. Despite their clinical significance, literature on cervical NEC remains sparse, with most reports limited to isolated cases or small series.

Aims and Objectives: This study presents a comprehensive 5-year clinicopathological, immunohistochemical, and HPV-based analysis from a tertiary cancer center in India to evaluate prognostic markers and survival correlations.

Material and Methods: A retrospective study was conducted on 47 patients with cervical NEC diagnosed between 2019 and 2023. Data on clinical features, histology, Immunohistochemistry (IHC), HPV subtypes, treatment, and outcomes were collected. Kaplan–Meier survival curves and Cox proportional hazard models were used to identify significant predictors of Overall Survival (OS) and Disease-Free Survival (DFS).

Results: Among 47 patients with cervical Neuroendocrine Carcinoma (NEC), the median age was 48 years (range: 37–57). Histologic subtypes included small-cell NEC (60%), large-cell NEC (26%), and mixed/other variants (15%). The median tumor size was 4.5 cm. At diagnosis, pelvic lymph node metastases were present in 40%, with additional metastases to the lung

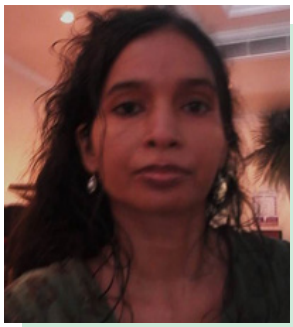
(15%), liver (10%), and bone (8%). Immunohistochemically, synaptophysin was positive in 90%, INSM1 in 75%, and chromogranin was negative in 65% of cases. TTF-1 was absent in 80%, and a high Ki-67 index (>90%) was seen in 70%, indicating strong proliferative activity. Recurrence occurred in 68% of patients, with a median time to recurrence of 6 months, most commonly involving pelvic nodes (50%) and distant organs (30%). Kaplan–Meier analysis showed a median Overall Survival (OS) of 15 months (95% CI: 12–18) and median Disease-Free Survival (DFS) of 8 months (95% CI: 6–10). HPV subtyping revealed HPV-16 as the most prevalent (56%) and strongly associated with better outcomes (median OS: 32 months, DFS: 22 months), while HPV-18 and HPV-negative tumors showed poorer survival (median OS: 24 months, DFS: 16 months). These differences were statistically significant (OS: p=0.01; DFS: p=0.02).

Conclusions: This study represents one of the largest recent single-institution cohorts on cervical Neuroendocrine Carcinoma (NEC) in India. Cervical NECs demonstrate aggressive clinical behavior with early recurrence and limited survival. Tumor size and a high Ki-67 index (>90%) are key independent predictors of poor prognosis, while HPV-16 positivity is associated with improved outcomes. Traditional neuroendocrine markers such as Synaptophysin and INSM1 were not independently prognostic. These findings highlight the importance of early diagnosis, HPV subtyping, and risk-adapted multimodal treatment, particularly for high-risk HPV-18 and highly proliferative tumors.

Keywords: Cervical Neuroendocrine Carcinoma, Ki-67, HPV-16, HPV-18; Synaptophysin, INSM1, Immunohistochemistry, Prognosis, Recurrence, Survival Analysis, India.

Biography

Dr Sadaf Haiyat (MBBS, MD, IFCAP) is currently working as Assistant Professor and Consultant Oncopathologist in the Department of Oncopathology, Mahamana Pandit Madan Mohan Malviya Cancer Centre/ Homi Bhabha Cancer Hospital, Tata Memorial Centre Varanasi. She graduated (MBBS) from Aligarh Muslim university in 2012, and subsequently got MD degree in Pathology in 2016 from the same university. She had a total of 8 years' work experience of both private and academic institutes. Her areas of interest/expertise are oncopathology especially gynecological pathology, breast and thoracic pathology, molecular pathology and soft tissue sarcomas. She has a total of 25 publications in both national and international journals of high repute. Recently she has received the prestigious 2024 Global Pathology Education Award from College of American Pathologists for imparting her clinical and diagnostic skills to serve the cancer patients in her country. She has got many awards for her paper and poster presentation.She has received Young clinician pathology award in 2019 by Venus International foundation. Her paper was selected for WORLD CHAMPIONSHIP 2018 HEMATOLOGY AWARD BY PHOTON JOURNAL . She is currently a member of Association of Molecular Pathology, International society of Gynaecological Pathology and International fellow of College of American Pathologists.She has published books and book chapters at both national and international level.I am also a reviewer of many peer-reviewed journals.



Saumya Pandey

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Human papillomavirus prevalence and genotype distribution among cervical cancer susceptible women of North Indian ethnicity in Gardasil vaccination era: Public health impact

Objectives: Human Papillomavirus (HPV) is the major etiological agent of cervical cancer, a leading cause of morbidity and mortality in women worldwide; screening strategies for reducing the burden of HPV-mediated carcinogenesis are emerging as effective means for cervical cancer control and prevention in developing countries. Cervical cancer control and prevention strategies are being adopted globally to reduce the disproportionate share of HPV-mediated cervical cancer in the Gardasil vaccine era. My innovative evidence-based exploratory study aimed to identify HPV prevalence and genotype distribution among cervical cancer susceptible women, alongwith Gardasil vaccination awareness for cervical cancer prevention in Asian-Indian women during random population screening in genetically susceptible cohorts of North Indian ethnicity.

Material and methods: Cervical/vaginal exfoliated cells and/or Pap smear specimens were collected from 890 women of North Indian ethnicity residing in Lucknow, Uttar Pradesh and adjoining areas, during random population screening. HPV viral loads in clinical specimens were determined by the Hybrid Capture (hc)-2 HPV DNA assay, and subsequently, positive/negative/borderline HPV status was determined with minimal selection-bias, and considerable specificity and sensitivity. Further, a pilot structured questionnaire-based survey was conducted among a stratified subset of HPV-positive women, with bilingual interviews in either Hindi or English; subsequently the awareness of HPV-mediated cervical cancer and knowledge of Gardasil vaccination was assessed in terms of ‘‘yes’’, ‘‘no’’ and ‘‘no response’’.

Results: HPV prevalence in Asian-Indian women of North Indian ethnicity was 11.7%. HPV genotype distribution was accurately evaluated: 751 out of a total of 890 women (84.4%) participating in HPV screening program were HPV negative (HPV-), 104 (11.7%) tested positive (HPV+) while 35 (3.9%) showed borderline (HPV*) infection status. Furthermore, in the HPV + subjects (N=104), 18 (17.3%) showed strong positivity trends. HPV positivity tends to increase with age in North Indian women; higher the viral load with increasing age, higher is the susceptibility to HPV-mediated cervical cancer. Overall, the response of participants was well-defined, with HPV-mediated cervical cancer awareness in terms of ‘‘yes’’, ‘‘no’’ and ‘‘no response’’ among

the study-subjects being 43.7%, 44.7% and 11.6%, respectively. Furthermore, in response to knowledge/awareness of HPV vaccine Gardasil, out of 103 subjects, 28.1% answered ‘‘yes’’ while 37.9% and 34.0% stated ‘‘no’’ and ‘‘no response’’, respectively.

Conclusions: HPV viral load/genotyping may help in identifying women at risk of developing cervical cancer. However, cost-effective HPV screening protocols with a wider population coverage are warranted so as to reduce the burden of cervical cancer in women worldwide in the Gardasil vaccination-era. Therefore, understanding the ecological diversity of HPV prevalence and genotype distribution among genetically susceptible populations in different geographical regions worldwide is essential for optimizing HPV screening, vaccination and maximizing cost-effective public health-oriented strategic efforts for pragmatic evidence-based cervical cancer prevention. Further, bio-specimens viz. HPV-mediated cervical cancer patients’ blood, tissue, DNA, and oocytes may be collected and frozen/stored for long-term usage in individualized pregnancy/family-planning post-cancer chemo-radiotherapy treatment and/or conducting multi-centric public health-gynecologic oncology causal association prevention-epidemiology studies in fertility preservation amongst cervical cancer patients/susceptible women of varying genetic landscapes and socio-cultural exposures.

Biography

Dr. Saumya Pandey, possesses brilliant academic credentials with Post-Doctorate: Biochemistry-Molecular Biology, Graduate-School-of-Biomedical-Sciences, University of Texas Medical Branch (UTMB), Galveston, TX, USA/Visiting Scientist: Urology (Robotic-Prostatectomy), James Buchanan Brady-Foundation,-Lefrak Center of Robotic-Prostatectomy, Department of Urology, New York Presbyterian-Weill Cornell Medical College, New York, NY, USA/Doctorate: Ph.D. Life Sciences, Sanjay Gandhi Post-Graduate Institute of Medical Sciences, Lucknow, UP, India–ChhatrapatiShahujiMaharaj University, Kanpur, UP, India/Doctoral Research Fellowship: Biomedical Sciences, Creighton University, Omaha, Nebraska, USA/M.Sc. Biochemistry, University of Lucknow, Lucknow, India, and recently worked as Faculty-Research, Amity University, Lucknow, India and Head-Clinical Research, IndiraIVF-Hospital, Udaipur-Lucknow, India with 60 senior-lead authorship publications in international journals.

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Risk stratification and prediction of breast cancer locoregional recurrence: Current approaches and gaps

Background: Locoregional Recurrence (LRR) in breast cancer remains a significant concern in breast cancer survivors, impacting their prognosis and guiding subsequent treatment. Accurate risk stratification and prediction tools and models are substantial for personalised care and surveillance planning. This study aims to systematically review and evaluate the currently available evidence on risk assessment tools and prediction models for assessing LRR in breast cancer patients.

Methods: A comprehensive literature search was conducted across four electronic databases: PubMed, Medline (Ovis), Scopus, and Web of Science, identifying 2,702 records. Following the PRISMA 2020 guidelines and TRIPOD+AI checklist criteria for model evaluation, 12 studies were included to constitute the analysis in this study. Studies were screened by two independent reviewers for methodological rigor, model development strategies, validation approaches, and clinical applicability. A third reviewer opinion was sought to reach a consensus.

Results: The included models varied in design, population characteristics, predictors used, and outcome definitions. Most incorporated clinicopathological features such as patient variables, such as tumour size, nodal status and hormone receptor status, and treatment variables. While several models demonstrated moderate-to-good predictive performance (AUCs ranging from 0.70 to 0.85), external validation was limited, and calibration was infrequently reported. Few models were deployed to clinical practice or assessed for impact on decision-making.

Conclusion: Despite numerous attempts at validating LRR risk prediction in breast cancer patients, the majority of models are not well externally validated and implemented in the clinical practice. Future studies are warranted to focus on enhancing predictive performance, transparency of reporting, and external validation of current models in representative cohorts to facilitate personalised risk-based follow-up strategies.

Biography

Dr Seohyun Lee obtained her Doctor of Medicine (MD) degree from the University of Pécs, Hungary, in 2023. In March 2025, she commenced her Foundation Year 2 (F2) post as a Senior House Officer (SHO) in the General Surgery Department at Leicester University Hospitals, NHS. Dr Lee is a member of the Royal College of Surgeons of England and has contributed to multiple clinical audits within the surgical department.

Shend Kryeziu[1*], Patricia Tai[2], Omar Alqaisi[3], Aoife Jones Thachuthara[4], Lorent Sijarina[5], Kelvin Wong[6], Edward Yu[7], Osama Souied[8], Rashmi Koul [9]

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Challenges of cancer care in war-torn countries

Introduction: War and armed conflict severely disrupt cancer care systems by destabilizing infrastructure, draining financial resources, and displacing healthcare personnel. Hospitals and clinics may become unsafe or inaccessible due to bombardment, military occupation, or evacuation. Essential medical services such as chemotherapy, radiotherapy, surgery, and follow-up care are often interrupted. The breakdown of supply chains affects the availability of medications, blood products, and stem cell donations. Moreover, logistical difficulties and sanctions hinder the safe transport of critical resources from outside regions, leaving cancer patients with limited or no access to life-saving treatments.

Methods: A comprehensive literature and media review was conducted, focusing on publications from the past five years. Researchers from Ireland, Jordan, Lebanon, and Kosovo analyzed their firsthand experiences and data on cancer service delivery in conflict settings in this work.

Results: The impact of war on cancer care is multifaceted. The war on Gaza since 2024 forced Jordan to receive more than 23,000 children for treatment at the King Hussein Cancer Center, which is the only center in Jordan for treating cancer patients. The children are received at intermittent intervals, which increases the consumption of medical equipment, stresses the medical staff, and increases the pressure on the center. Similarly, cancer care in war-torn countries, like Kosovo, faces several significant challenges that are compounded by the impact of conflict, economic instability, and the destruction of healthcare infrastructure. Kosovo, which declared independence from Serbia in 2008 after a long history of political instability, is still in a rebuilding phase, with many of its systems, including healthcare, grappling with the aftermath of war. This includes a lack of adequate medical facilities, limited access to modern treatment

options, and the shortage of specialized medical staff, all of which create barriers to providing essential cancer care. Both regions highlight how conflict severely disrupts cancer treatment, whether by overloading healthcare centers or by undermining the foundations of an already fragile medical system.

Routine vaccinations, such as those needed after splenectomy, may be delayed or missed due to vaccine shortages and staff shortages. Basic medical supplies like masks and gloves often can't be restocked because of damaged transportation or security issues. Sterilization of surgical instruments is compromised when power infrastructure is damaged, and explosions targeting key facilities can halt hospital operations.

Diagnostic services, including imaging and lab testing, may become unavailable due to damaged equipment or the inability to maintain machines without spare parts and trained technicians. Follow-up appointments, critical for monitoring disease progression or response to therapy, may be indefinitely delayed as patients flee conflict zones or as physicians are reassigned, displaced, or injured.

Communication breakdowns and patient record losses further challenge continuity of care. In some conflict areas, cancer treatment regimens are altered, interrupted, or abandoned altogether. High-tech therapies like precision medicine, radiopharmaceuticals, and cellular therapies are rarely feasible due to their dependence on stable infrastructure and international cooperation.

Conclusions: Cancer treatment requires a level of stability, coordination, and access that is difficult to sustain in war-torn regions. While international humanitarian efforts can offer temporary relief, sustained access to safe and effective cancer care is only feasible in times of peace. Every effort must be made by all stakeholders—governments, non-governmental organizations, healthcare providers, and global institutions—to prevent conflict and ensure healthcare continuation during crises. Preserving and restoring cancer services in conflict settings is not only a medical imperative but a humanitarian one, grounded in the principles of equity, dignity, and the right to health.

Biography

Dr. Shend Kryeziu is a medical doctor in Kosovo with a strong interest in cancer research. He collaborates with colleagues on the cancer research team led by Professor Patricia Tai in Canada, who continues to serve as a mentor to the group.

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An observational study of cutaneous Merkel cell carcinoma: Deducing the pattern of spread from an international aggregated database of 949 patients

Background: The progression pathway of Merkel cell carcinomas (MCCs) remains a subject of ongoing debate, particularly regarding whether these tumors tend to metastasize first to lymph nodes or directly to distant organs. Clarifying this pattern is vital for understanding disease progression and refining treatment strategies. In 2023, a trial of adjuvant immunotherapy with nivolumab versus observation in the completely resected MCC (ADMEC-O trial) demonstrated that adjuvant nivolumab increased disease-free survival.

Methods: To explore recurrence patterns and the metastatic trajectory of MCC, data were compiled from a cohort of 303 patients treated across six institutions between March 1982 and February 2015. This institutional data was then supplemented by a systematic search of PubMed for individual patient records, yielding a total study population of 949 patients. The primary objective was to determine the pattern and sequence of metastatic spread, specifically examining the prevalence and timing of Lymph Node Metastases (LNM) and Distant Metastases (DM).

Results: Several key findings emerged from the analysis:(a) At the time of initial diagnosis, a greater proportion of patients presented with LNM (17.9%) compared to those with DM (1.9%), based on the 929 patients with available staging data. (b) Over the course of disease, 310 out of 929 patients (33.4%) developed distant metastases. Of those, 220 patients also experienced lymph node involvement. Notably, 133 patients were documented to have developed lymph node metastases prior to the onset of distant spread. (c) The median time interval from initial diagnosis to LNM was shorter—1.5 months (range: 0–47.0 months)—compared to the median time to DM, which was 8 months (range: 0–107.8 months). This suggests a sequential pattern in which lymphatic dissemination often precedes systemic metastasis. (d) Interestingly, even among patients with primary tumors less than 1 cm in diameter, 2.4% (23 of 949) eventually developed distant metastases. The smallest tumor associated with DM measured just 0.2 cm, highlighting the aggressive nature of MCC even at early stages.

Conclusions: Collectively, these findings support the hypothesis that LNM typically precedes DM in MCC, suggesting that lymphatic spread may act as a precursor or gateway to further

systemic dissemination. This has important clinical implications: patients who present with nodal involvement may represent a high-risk population and could particularly benefit from intensified therapeutic strategies, including adjuvant systemic therapy. The identification of LNM as a potential precursor to DM reinforces the importance of early detection, thorough initial staging and vigilant monitoring. Participation in clinical trials is strongly recommended, both to optimize patient outcomes and to further refine understanding of metastatic progression in Merkel cell carcinoma.

Biography

Dr. Shend Kryeziu is a medical doctor in Kosovo with a strong interest in cancer research. He collaborates with colleagues on the cancer research team led by Professor Patricia Tai in Canada, who continues to serve as a mentor to the group.

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Modelling the effect of doxorubicin on tumor cells within a dynamic model of competition between tumor cells and healthy cells

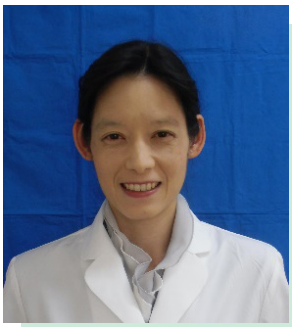
This project engages mathematical models to explore interactions between healthy cells and cancer cells. Another focus of the research is to investigate how competitive interaction among cells can be affected by the application of a chemotherapy agent in a dose-dependent manner. In the model of growth dynamics and competitive interaction between these cells, differences between the cell types in metabolism and acidity lead to degradation of healthy cells that neighbor cancer cells. This aspect of the model allows us to explain the dynamics by which cancer cells can invade the healthy cells and spread. Furthermore, we are extending this model to include the effects of the chemotherapy treatment, in particular application of a DNA Damaging Agent (DDA), such as doxorubicin. The goal is to investigate the effects of the chemotherapy agent in order to characterize its impact. Within a system that models competitive dynamics between cells. A critical first step is development of a quantitative dose response model for the effects of the chemotherapy agent [B] is the important first step.

The integration of these models allows us to examine the effects of varying doses of a chemotherapy agent, such as doxorubicin, within a dynamical system modelling the interaction between invading cancer cells and healthy tissue. In fact, this exploration directly extends our recent model, which quantitative represents the effects of doxorubicin on DU-145 cells as a function of concentration and duration of exposure. The analysis applies a reaction-diffusion model in the system of equations modelling tumor cells (T), healthy cells (C), and hydrogen ions (H), as given in to explore how different levels of chemotherapy affects the completion between these cell populations. This aligns directly with some of our underlying goals of the development of the quantitative models of to accurately represent the dose response-relationship. Among other potential applications of an accurate quantitative dose-response model, this application in a system of partial differential equations is a primary area of interest.

It is an important point that while dose-response data for chemotherapy drugs are usually collected from isolated tumor cells, real treatments happen within a much more complex biological system. This project initiates our goal of model development allowing combination of these issues, and we explore the effects of bringing these models together. We would also like to consider what else needs to be considered and other questions that need to be addressed in the development and application of these models.

Biography

Dr. Eby studied English literature at Duke University and graduated with an AB in 1992. He began studying theoretical mathematics in 1994 and completed MA degree in 1998 and PhD in 2002 at University of Maryland College Park in areas of harmonic analysis, several complex variables, and integral geometry. Dr. Eby began mathematical modelling in biology and medicine in 2008, and he has focused on areas including cellular proliferation, cellular differentiation, and cancer modelling. Dr. Eby has worked in these areas during his work at Cameron University and NJCU also participating in collaborative work with students and publishing some results.



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Ivabradine for Cancer Therapy-related Cardiovascular Toxicity (CVR-CVT)

Introduction/Purpose: The mortality rate of cancer patients has been decreasing; however, patients often suffer from cardiac disorders due to chemotherapy or other cancer therapies (e.g., Cancer Therapy-Related Cardiovascular Toxicity, CVR-CVT). Therefore, the field of cardio-oncology has drawn more attention in recent years. The first European Society of Cardiology (ESC) guideline on cardio-oncology was established in 2022. However, the treatment for CVR-CVT is sometimes difficult due to the complications such as low blood pressure or kidney dysfunction. Ivabradine, a new therapeutic agent that selectively inhibits If current in the sinoatrial node can be safely used for CVR-CVT patients.

Methods: Six cancer patients were diagnosed with CVR-CVT by the ESC guideline. 5 patients had breast cancer, and 1 patient had colon cancer. All of them presented with HFrEF. Ivabradine was prescribed for these patients following the guideline of the Japanese Circulation Society (JCS). The outcome was compared by evaluating the symptoms, EF, and chest X-ray findings.

Results: All 6 patients tolerated Ivabradine. Four patients died due to the advancement of cancer. The symptoms of heart failure were controlled in all 6 patients, which allowed them to live normal life for at least 7 months. All the patients were able to continue chemotherapy with Ivabradine.

Conclusions: Ivabradine can be used even for advanced cancer patient who wants to continue chemotherapy. Ivabradine may serve as a “key medicine” in treating CVR-CVT.

Biography

Yuko Harada, M.D., received her M.D. degree from Keio University School of Medicine. She is currently Director of General Internal Medicine at Shonan Atsugi Hospital. From 2020 she was Vice Director of Cardiology at Kawasaki Municipal Ida Hospital. From 2018 she was Division Head of General Internal Medicine at Yamato Tokushukai Hospital. From 2014 she was Director of Internal Medicine at Shin-yurigaoka General Hospital. Until 2014 she was Chief of Cardiology at Kawasaki Municipal Ida Hospital, where she also completed her residency. She has authored numerous pioneering research and medical papers in the fields of Internal Medicine, Cardiology, and Radiology.

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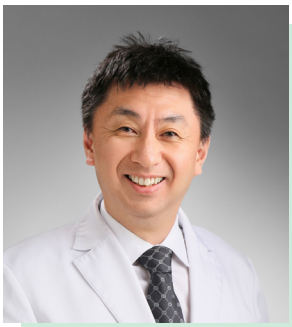

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Treatment strategy for siewert type II/III adenocarcinoma of the esophagogastric junction

Objective: It remains unclear whether the priority of nodal dissection is different depending on Types II and III.

Methods: The priority was evaluated by the therapeutic index, calculated by multiplying of the incidence of metastasis to each station by 5-year survival rate.

Results: A total of 176 patients (95 Type II and 81 Type III) were examined. The stations showing the first to fourth highest index were the right and left paracardial nodes (#1 and #2), lesser curvature node (#3), and the node at the root of the left gastric artery (#7) in the total cohort, as well as in each type. The fifth highest station in type II was the lower thoracic para-esophageal lymph node (#110), followed by the node along the proximal splenic artery (#11p), while that in type III was the node along the proximal splenic artery (#11p) followed by the para-aortic node (#16a2), the node at the celiac artery (#9), and the node around the splenic hilum (#10).

Conclusions: These results suggest that the highest priority nodal stations to be dissected were #1, #2, #3, and #7 regardless of the Siewert subtype, but the subsequent priority was different depending on the subtype.

Biography

Professor Shinichi Hasegawa graduated from Yokohama City University and completed his M.D. degree in 1999, and Ph.D. degree in 2009. He was a Japanese gastrointestinal surgeon, and his research was focused on upper GI cancer, in particular, "Adenocarcinoma of The Esophago-Gastric juntion (AEG)". He conducted some clinical trials as a surgeon in Yokohama City University and Kanagawa Cancer Center. Moreover, he was also board-certified in medical oncology and served the cancer treatment of both surgery and chemotherapy as a medical oncologist. He is currently a director of Hasegawa Medical Clinic, and also an appointed Lecturer as a Professor at Yokohama City University.

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Unveiling the BRCA gene's role in advanced colorectal cancer: A case study

Colorectal Cancer (CRC) is one of the most common malignant tumors in the world. The 2022 China Cancer Statistics Report shows that the incidence and mortality of colorectal cancer in my country ranks second and fourth among all malignant tumors, respectively. Among them, about 15% to 25% of CRC patients have had local and distant metastases at the time of diagnosis, and about 50% of patients with early CRC will have metastases during treatment, and about 80% to 90% of them have lost the opportunity for surgery. The survival rate is less than 10%; the current BRCA gene research is mostly focused on breast, ovarian, and pancreatic cancer, and is relatively rare in colon cancer and other tumors. This article reports a case of advanced colon cancer diagnosed and treated in our department with BRCA gene mutation Cases, hoping to provide clinical reference for BRCA genes in other tumors.

The male patient, 32 years old, was admitted to a local hospital in October 2016 for intestinal perforation. Emergency laparotomy revealed multiple liver surface nodules, and biopsy confirmed invasive metastatic moderately differentiated adenocarcinoma. He was transferred to our hospital's general surgery department, where colonoscopy identified advanced-stage hepatoperitoneal cancer. Upper abdominal MRI showed abnormal signals in the hepatic region of the colon. Considering his medical history, we diagnosed colorectal cancer with multiple hepatic lesions and enlarged lymph nodes near the abdominal aorta. He received five cycles of CapeOX chemotherapy regimen. The treatment achieved PR response. In March 2017, acute intestinal obstruction occurred. Palliative surgery was performed (radical right hemicolectomy with partial hepatic resection, radiofrequency ablation of metastatic liver lesions, and extensive adhesiolysis). Postoperative pathology confirmed right hemicolectomy with mucinous cell carcinoma. AJCC staging: pT3N2bM1a. Immunohistochemistry showed CK (+), CEA (+), CK8/18 (+), MLH1 (+), PMS2 (+), MSH2 (-), and MSH6 (-). Postoperative chemotherapy continued with the CapeOx regimen for three cycles. Due to elevated CEA levels and MRI findings showing increased liver tumors, the treatment was switched to the FOLFOXIRI regimen. After two cycles, disease progression (PD) was observed. In July 2017, MRI revealed increased multiple metastatic lesions in the liver. The treatment was adjusted to targeted therapy combined with chemotherapy: Bevacizumab 300mg IV daily, Istitutimab 200mg IV daily, and Capecitabine 1.5g orally daily for six cycles, achieving progression-free response (PR). Following significant CEA elevation in December 2017, immunotherapy was initiated after consultation with family members: PD-1 monoclonal antibody (Pembrolizumab) 100mg IV 30-minute daily for 12 cycles, maintaining PR. In June 2019, MRI showed markedly enlarged lymph nodes in the

hepatic hilum, mesenteric root, and retroperitoneal region. The treatment was then changed to Bevacizumab plus m-F0LF0X6 chemotherapy for three cycles. Subsequently, due to oxaliplatin allergy, the regimen was modified to Bevacizumab plus simplified bimonthly 5-FU infusion/LV regimen, achieving PR. Following persistent enlargement of cervical lymph nodes, the patient underwent MTD (Multimodal Diagnostic) evaluation. Cervical lymph node biopsy confirmed mucinous cell carcinoma. Immunohistochemical analysis showed: CK7 focal positivity, CK20 positivity, CK8/18 positivity, CDX2 positivity, Villin positivity, TTF negativity, CK5/6 negativity, P63 negativity, focal P53 positivity, S100 negativity, and CD117 negativity, with a Ki-67 index of approximately 80%. Genetic testing was performed. Following guideline recommendations and genetic test results, we initiated Xindiximab 200mg + Regorafenib combined with Oxaliplatin in February 2020. During oxaliplatin infusion, systemic rash developed, leading to discontinuation of the infusion. The treatment regimen was adjusted to Xindiximab + Regorafenib combined with cisplatin for 3 cycles. MRI follow-up demonstrated significant reduction in the hepatic apex lesion, with an efficacy evaluation of SD. Current status: stable, with regular hospital visits for immunotherapy and targeted therapy.

Biography

Yuan Zhang studied oncology at the Forth Military Medical University, Xi'an, shannxi, china and graduated as MS in 2013, I received my Ph.D. degree in 2016.I then worked in Shaanxi Provincial People's Hospital, Xi'an, 710068, Shannxi, as an oncologist from 2018 to now. I had published about seven research articles in SCI journals, my research focus on BC resistance and the Drug resistance mechanism.

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