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Exhibitor

HaploX

Joint Event

3rd European Congress on

HEMATOLOGY AND BLOOD DISORDERS

&

4th European Congress on

CANCER AND ONCOLOGY RESEARCH

October 28-29, 2024 | Rome, Italy

Floor Map

Conference Hall

Wi-Fi Details:

Username: H10PLUS
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Conference Program

Scientific Program

Monday
October 28, 2024

3rd European Congress on **Hematology and Blood Disorders**

&

4th European Congress on **Cancer and Oncology Research**

Day 1 - October 28, 2024	
Meeting Hall: Trevi	
08:00 - 08:45	Registrations
08:45 - 09:00	Opening Ceremony and Introduction
Keynote Presentations	
09:00 - 09:40	Implementing Strategic Plasma Resource Self-Sufficiency through Unpaid Plasma Donations on the Global Plasma Market
	Jean Mercier Ythier, Panthéon-Assas University, France
09:40 - 10:20	How Oral Infections Link to Cancer
	Jukka Meurman, University of Helsinki and Hospital, Finland
Networking & Refreshments: 10:20 - 10:40 @ Lobby Bar	
10:40 - 11:20	Effect of Curcumin on Bone Marrow Damage in Balb/C Mice in vivo Model
	Zoja Mikniene, Lithuanian University of Health Science, Lithuania
11:20 - 12:00	Changing Therapeutic Paradigm for Patients with Chronic Lymphocytic Leukemia Impact Survival
	Tamar Tadmor, Bnai Zion Medical Center and The Bruce Rappoport Faculty of Medicine, Israel
Oral Presentations	
Session Chair	**Jean Mercier Ythier, Panthéon-Assas University, France**
Session Chair	**Zhiping Liu, UT Southwestern Medical Center, USA**
Session Chair	**Tamar Tadmor, Bnai Zion Medical Center and The Bruce Rappoport Faculty of Medicine, Israel**
Sessions:	Transfusion Medicine | Veterinary Hematology | Leukemia and Blood Cancer | Myelodysplastic and Myeloproliferative Disorders | Hemoglobinopathies | Hematology and Covid-19 | Hemostasis and Thrombosis | Cancer Epidemiology | Genetic Cancer | Breast-cancer | Blood cancer | Cancer Treatment & Therapy | Digital Health in Oncology | Radiation Oncology
12:00 - 12:25	Advancing Oncology Solutions through Cutting-Edge Genetic Technologies
	HaploX Investment Holding (Hong Kong) Limited, Hong Kong
12:25 - 12:50	"Testicular Masquerade" A Case Report of Testicular Malignancy with Persistent Mullerian Duct Syndrome and Transverse Testicular Ectopia
	Darshan Barki, Guy's & St Thomas' NHS Foundation Trust, United Kingdom
Group Photo: 12:50 - 13:00	
Lunch: 13:00 - 14:00 @ Ristorante	
14:00 - 14:25	How Useful is Epoetin Alfa (eprex) in the Management of Symptomatic Anaemia in Low Risk MDS: A Retrospective Analysis
	Mohamed Aboulela, Norfolk and Norwich University Hospital, United Kingdom

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14:25 - 14:50	Home Self-Testing of Complete Blood Count in Patients with Breast Cancer during Chemotherapy
	Niels Henrik Holländer, Zealend University Hospital, Denmark
14:50 - 15:15	Assessing the Safety and Effectiveness of T-AYU-HM Premium in Paediatric Sickle Cell Disease Patients: A Retrospective Case Series
	Hemshree Desai, Dhanvantari Clinic Ayurvedic Healthcare and Research Centre, India
15:15 - 15:40	Covid-19 Related Challenges in Blood Donation Centers: A Referral Center's Experience
	Fatma Sajwani, Emirates Health Services, United Arab Emirates
15:40 - 16:05	Perianal Injury Prevention in Patients with Leukemia
	Cindy Paredes, Houston Methodist Hospital, USA
Networking & Refreshments: 16:05 - 16:30 @ Lobby Bar	
16:30 - 16:55	Inflammation and Coagulation in Covid-19; Role of A-Defensins
	Abd Al-Roof Higazi, Hadassah-Hebrew University, Israel
16:55 - 17:20	Heterologous Platelet-Rich Plasma in the Treatment of Severe Skin Damage
	Francesco Romano, Department of Primary Care, Italy
Poster Presentations	
Poster Judge:	**Natarajan Muthusamy, The Ohio State University, USA**
Poster Judge:	**Rui Wang, Xuzhou Medical University, China**
Poster Judge:	**Tamar Tadmor, Bnai Zion Medical Center and The Bruce Rappoport Faculty of Medicine, Israel**
Poster Judge:	**Zoja Mikniene, Lithuanian University of Health Science, Lithuania**
PP01	Blood-Borne Mycoplasmas in Bovines: Prevalence in Lithuania
	Donata Mikalauskiene, Vytautas Magnus University (VMU), Lithuania
PP02	Unlocking the EGFRvIII-STAT5B Axis: Implications for Glioma Therapy
	Cezary Treda, Medical University of Lodz, Poland
PP03	Thrombotic Antiphospholipid Syndrome (APS), A Contributing Factor for Extensive Venous Thrombosis on Veno-Arterial Extracorporeal Membrane Oxygenation (VA-ECMO): A Case Report and Discussion
	Ahmed Mohammed Eid, Emirate Health Care, United Arab Emirates
PP04	Development of scFv Antibody Targeting EGFRvIII: From Computational Design to Experimental Challenges
	Ewelina Stoczynska-Fidelus, Medical University of Lodz, Poland
PP05	EBV-Negative Primary CNS Lymphoma in a Post-Kidney Transplant Patient: A Case Report
	Vanjelyn Dior V Roque, St Luke's Medical Center Quezon City, Philippines

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PP06	Pretreatment sIL-2R/CRP Level and Cell of Origin Predict the High Risk Group Suitable for Pola-R-CHP Regimen in Diffuse Large B Cell Lymphoma
	Tomohiro Yamakawa, Obihiro Kosei Hospital, Japan
PP07	*In vitro* Electro Assisted Delivery of Natural Substances via Alkali Lignin Based Micro/ Nano Formulations Against Breast Cancer
	Severina Semkova, Bulgarian Academy of Sciences, Bulgaria
PP08	Role of Sclerostin in Mastocytosis Bone Disease - A Preeliminary Study
	Aneta Szudy-Szczyrek, Medical University of Lublin, Poland
PP09	The Ascorbic Acid/ Menadione Redox System Boost Anticancer Effect of Edelfosine, Applied on Leukemia Lymphocytes Cell Line - A Preliminary Study
	Donika Ivanova, Trakia University, Bulgaria
PP10	The Impact of Radiotherapy on the Therapeutic Response of Patients Treated with Car T-Cell Therapy for High-Grade Lymphoma: A Systematic Review
	Maïfa Belghoul, University Hospital Sussex NHS Trust, United Kingdom
PP11	Effects of Pre-Treatment Combined Resistance Training and HIIT in Women Diagnosed with Breast Cancer: A Case Report
	Felipe Cassaro Vechin, University of Sao Paulo, Brazil
PP12	Monocyte Distribution Width (MDW): Study of Normal Values in Blood Donors
	Amal Chaabouni, Sahloul University Hospital, Tunisia
PP13	One-Stop Shop for Sickle Cell
	Amardass Dhami, Sheffield Teaching Trust NHS, United Kingdom
PP14	The Effect of Videogames on the Quality of Life of Individuals Facing Cancer: Meta-Analysis and Systematic Review
	Seba Aljomaa, Semmelweis University, Hungary
PP15	Gene Expression Profiling and Pathway Analysis of Syk-Inhibition Sensitivity in Acute Myeloid Leukemia
	Marte Karen Brattås, Haukeland University Hospital, Norway
PP16	High Altitude Persistent Asymptomatic Hypoxemia in an 8 Year-Child due to Unstable Low-Oxygen-Affinity Hemoglobinopathy (Hemoglobin J-Auckland Variant)
	Ali Alsuheel Asseri, King Khalid University, Saudi Arabia
PP17	Early Delayed Radiation-Induced Brain Injury in Mice: Preliminary Findings using Magnetic Resonance Imaging
	Abdulrahman Qaisi, Security Forces Hospital, Saudi Arabia

Day 1 Concludes followed by Certificate Felicitation

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Day 2 - October 29, 2024

Meeting Hall: Trevi

Keynote Presentations

08:30 - 09:10	cGAS-STING at the Crossroads in Cancer Therapy
	Rui Wang, Xuzhou Medical University, China
09:10 - 09:50	Leukemia Initiating Cells in Chronic Lymphocytic Leukemia- Do they Exist and can we Target Them?
	Natarajan Muthusamy, The Ohio State University, USA
9:50 - 10:30	Revisiting the Treatment of Anemia in the Setting of Chronic Kidney Disease, Hematologic Malignancies and Cancer
	Franco Musio, University of Virginia School of Medicine, USA

Networking & Refreshments: 10:30 - 11:00 @ Lobby Bar

11:00 - 11:40	Black Holes in Antifibrinolytic Therapy. How can we Enhance Hemostatic Effectiveness?
	Abd Al-Roof Higazi, Hadassah-Hebrew University, Israel

Oral Presentations

Session Chair	**Natarajan Muthusamy, The Ohio State University, USA**
Session Chair	**Rui Wang, Xuzhou Medical University, China**
Session Chair	**Zoja Mikniene, Lithuanian University of Health Science, Lithuania**
Sessions:	Immunohematology | Hemoglobin and Iron Metabolism | Blood Disorders Diagnosis and Treatment | Lymphoma | Myeloma | Hemostasis | Veterinary Hematology | Cancer Epidemiology | Ovarian cancer | Cancer Treatment & Therapy | Colorectal Cancer | Head and Neck Cancer
11:40 - 12:05	Diet and Exercise Studies in Lung Cancer
	Marisa A Bittoni, The Ohio State University, USA
12:05 - 12:30	AKAP8 Promotes Ovarian Cancer Progression and Antagonizes PARP Inhibitor Sensitivity through Regulating hnRNPUL1 Transcription
	Youchaou Mobet, Baisheng(Guangzhou) Biological Products Co.,Ltd and Guangzhou Nansha Post Doctoral Program, China
12:30 - 12:55	Development of New Cyclometallated Ir(III) Complexes for a Selective Photodynamic Therapy of Cancer
	Elisenda Zafon, University of Girona, Spain

Lunch: 12:55 - 14:00 @ Ristorante

14:00 - 14:25	Augmented Degradation of Factors VIII and IX in the Intermittent Movement State
	Haim Cohen, Haifa University, Israel
14:25 - 14:50	Large Granular Lymphocytic Leukemia – A Retrospective Study of 319 Cases
	Ning Dong, Moffitt Cancer Center, USA
14:50 - 15:15	Is EGFRvIII an Epiphenomenon? Comparing Oncogenic EGFRvIII and RASG12V Oncogenic Activity
	Piotr Rieske, University of Lodz, Poland

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15:15 - 15:40	Epigenetic Targeting of Castration-Resistant Prostate Cancer Using Small Molecule Inhibitors of KDM4B
	Zhiping Liu, UT Southwestern Medical Center, USA
15:40 - 16:05	Outcomes of Chemotherapy Rechallenge in Third Line and Beyond for Patients (pts) With Metastatic Colorectal Cancer (mCRC)
	Amelia Rees, University of Manchester, United Kingdom
Networks & Refreshments (16:05- 16:30) @ Lobby Bar	
16:30 - 16:55	Survival of Patients with Follicular Lymphoma and Prognostic Factors in a Reference Hospital in Mexico
	Gerardo Santiago Jiménez, Hospital General De Mexico, Mexico
16:55 - 17:20	Inflammatory Ratios: New Tools for Early Diagnosis of Lupus Flares
	Riahi Salma, Sahloul University Hospital, Tunisia
17:20 - 17:45	Assessment of the Medical Leech as a Minimally Invasive Technique for Extracting Blood in Veterinary Medicine
	Indre Mickevičiene, Lithuanian University of Health Science (LUHS), Lithuania
17:45 - 18:10	Myocarditis as a Lupus Challenge: Two Case Reports
	Hiba Ibrahim Khogali, Tawam Hospital, United Arab Emirates
Video Presentation	
VP-01	Pegcetacoplan in Paroxysmal Nocturnal Hemoglobinuria: A Comprehensive Review of Clinical Efficacy and Implications
	Muhammad Subhan, Allama Iqbal Medical College Lahore, Pakistan
E-Poster Presentations	
EP-01	Early Efficacy of an Oral Iron Gluconate in Moderate Iron Deficiency Anemia: Results of the Fast Study
	Cacoub, Innotech International, France
EP-02	Application of Machine Learning on a Panel of Molecular Biomarkers for Oral Cancer Diagnosis
	Sara Haghighat, Shiraz University of Medical Sciences, Iran
EP-03	Platelet Transfusion Practice and Platelet Refractoriness for Critically ill Cancer Patients with Thrombocytopenia
	Xiangqin Lei, Dianjiang People's Hospital of Chong Qing, China
EP-04	Insilco and Invitro Approaches Identify Novel Dual PI3K/AKT Pathway Inhibitors to Control Acute Myeloid Leukemia Cell Proliferations
	Mohammad Abohassan, King Khalid University, Saudi Arabia
EP-05	Adamts13 Testing in Patients with Suspicion of Thrombotic Thrombocytopenic Purpura, "Annunziata" A.H. (Cs, Italy), Years 2020-2023
	Livia Bernardi, Annunziata Hospital Cosenza (Cs), Italy
Day 2 Concludes followed by Vote of thanks and Certificate Felicitaions	

Exhibitor

HaploX

HaploX, a global leader in biotechnology, offers cutting-edge services to life science experts worldwide. With strategically located offices and laboratories across Asia, the United States, and Europe, we provide unparalleled access to state-of-the-art research and clinical solutions. Our Hong Kong lab boasts one of the highest NGS throughputs globally, delivering precision and efficiency to researchers. Adhering to international standards (CAP, CLIA, EMQN), HaploX ensures top-quality results across our comprehensive range of services, including DNA/RNA sequencing, liquid biopsies, and cancer genetic testing. Our innovations have contributed to over 200 peer-reviewed publications. Trust HaploX for reliable, efficient, and groundbreaking solutions that push the boundaries of scientific discovery and improve patient outcomes.

Day-1
Keynote Presentations

IMPLEMENTING STRATEGIC PLASMA RESOURCE SELF-SUFFICIENCY THROUGH UNPAID PLASMA DONATIONS ON THE GLOBAL PLASMA MARKET

Jean Mercier Ythier
Panthéon-Assas University, France

Abstract

The last two decades have seen a considerable increase in the pharmaceutical industry's demand for plasma on a global scale for the production of plasma-derived medicinal products (PDMPs). It is impossible to meet the demand for fractionation plasma from unpaid voluntary donations on a global scale at the present state of manufacturing and biomedical techniques. Nevertheless, we argue that self-sufficiency in strategic plasma resources, properly construed, can be achieved through unpaid plasma donations to appropriately designed *national* blood donation organizations. We proceed in three short steps: (i) by first recalling why and in what sense plasma and PDMPs should be considered strategic commodities; (ii) by secondly explaining why self-sufficiency in strategic plasma products matters and in what practical sense it can be achieved; and (iii) by outlining the main characteristics that a national blood organization must meet to achieve self-sufficiency through unpaid voluntary donations.

Biography

Jean Mercier Ythier is professor of economics at the University of Paris-Panthéon-Assas, France. He graduated from the Institute of Political Studies of Paris (PhD, 1989). He was also a graduate student at Harvard University (1986-87). He went notably through positions of invited research fellow at the University of Montréal (Québec, Canada), assistant professor and associate professor of economics at the University of Paris Panthéon-Sorbonne and professor of economics at the University of Lorraine (France). Prof. Jean Mercier Ythier's research interests include the theory of general competitive equilibrium, microeconomic theory, public economic theory, economic philosophy, altruism, ethics, and topics of economic anthropology.

HOW ORAL INFECTIONS LINK TO CANCER

Jukka H Meurman
Helsinki University Hospital, Finland

Abstract

Oral infections are highly prevalent in populations. For example, 2 billion people of the world population are estimated to suffer from dental caries and 1 billion, respectively, from periodontal disease according to WHO statistics. From the mouth, microorganisms gain access to circulation and thus oral infections spread all over the body. The oral microbiota may consist of 109 bacteria/mg and contain up to 1000 species - even pathogens. Oral infections are associated with a number of systemic diseases like diabetes and cardiovascular diseases. More recently, associations have been found also between oral infections and cancer. The pathogenic mechanisms here involved are the upregulation of chemokines, cytokines and inflammatory markers with subsequent malignant transformation and alterations in DNA repair mechanisms. During treatment of cancer, oral microbiota shifts towards more pathogenic species, which, in turn, may have detrimental systemic effects. Recent study from our group in oral cancer patients who were followed-up from diagnosis to post-treatment phase showed that the microbiome regarding both bacteria and yeasts differed in course of treatment and also when compared with control subjects. Hence, maintaining good oral health is important also with respect to cancer.

Biography

Jukka H Meurman is professor emeritus of oral infectious diseases at the University of Helsinki and head physician at the Department of Oral and Maxillofacial Diseases, Helsinki University Hospital, Finland. He is the author or co-author of hundreds of peer-reviewed original research publications (PubMed 348; Web of Science 449; H-index 54), several textbooks and textbook chapters, mainly focusing on the various aspects of oral health and systemic health and in oral microbiology and cancer. He has supervised 30 doctoral theses and lectured extensively in various international forums. Inter-Academies Partnership (IAP) for Health elected him as Board Member and he is in the Advisory Board of the UNESCO Decade of Sciences and Sustainable Development (2023-).

EFFECT OF CURCUMIN ON BONE MARROW DAMAGE IN BALB/C MICE *IN VIVO* MODEL

Zoja Miknienė
Lithuanian University of Health Science, Lithuania

Abstract

Oxidative stress is a critical factor in the pathogenesis of various diseases, including those affecting the hematopoietic system. Curcumin, a bioactive compound derived from the rhizome of *Curcuma longa* L., has demonstrated potent antioxidant properties and the potential to mitigate oxidative stress-induced in this study, the authors evaluated the impact of a liposomal formulation of *Curcuma longa* L. extract on oxidative stress markers in the bone marrow of mice. The study employed a well-established mouse model to assess the effects of the liposomal curcumin formulation on oxidative stress markers in the bone marrow. The results of this study demonstrated that the liposomal formulation of *Curcuma longa* L. extract was effective in reducing oxidative stress markers in the mouse bone marrow. Specifically, the liposomal curcumin significantly decreased lipid peroxidation, enhanced the activity of antioxidant enzymes, and lowered the levels of reactive oxygen species in the bone marrow. These findings suggest that the liposomal delivery of curcumin may be a promising strategy to mitigate oxidative stress-induced damage in the hematopoietic system. The current study builds upon previous research that has highlighted the potential of curcumin in various therapeutic applications. Curcumin has been shown to exert diverse health benefits, including antioxidant, anti-inflammatory, and neuroprotective effects. The results of this study are particularly relevant for the management of conditions associated with oxidative stress in the bone marrow, such as hematological disorders and certain types of cancer. In conclusion, the present study provides compelling evidence that a liposomal formulation of *Curcuma longa* L. extract can effectively reduce oxidative stress markers in the mouse bone marrow.

Biography

Zoja Mikniene a veterinary haematologist and toxicologist. My research career (the haematologist) started during my studies (from 2002) at Kaunas Zoo (birds, saddle carriages), then during my internship I did research with Canadian mink. Doctoral studies (2009) on Lithuanian Heritage - physiology of Žemaitukai horses, blood tests during long distance and studies to justify the use of this breed of horses for endurance sports. Currently various in vivo studies with mice model, studies on blood from different animal species (horses, bison, ruminants, fish, lab animals, etc.), detection of cancer from blood cytology. Practical work as a veterinarian started at Kaunas Zoo, then at the small animal clinic and then to the Veterinary Academy Large Animal Clinic (Equine part). In the Large animal Clinic, the first inhalation anaesthesia in horses using sevoflurane since 2009, treatment of bronchitis in horses without antibiotics, improvement of the diagnostic algorithm for equine colic, and other works in clinical laboratory's diagnostic areas. Work with students, residents, PhD students.

CHANGING THERAPEUTIC PARADIGM FOR PATIENTS WITH CHRONIC LYMPHOCYTIC LEUKEMIA IMPACT SURVIVAL

Tamar Tadmor

Bnai Zion Medical Center and The Bruce Rappoport Faculty of Medicine, Israel

Abstract

Background: Chronic lymphocytic leukemia (CLL) represents the most frequent leukemia in the western world. Based on the International Workshop on Chronic Lymphocytic Leukemia (IWCLL) guidelines, only symptomatic patients, with advance stage are recommended to receive therapy. Treatment for chronic lymphocytic leukemia (CLL) has changed dramatically during the last two decades.

Aim: The current study aimed to investigate the impact on overall survival (OS) and time to next treatment (TTT) among CLL patients from 1998 to2022. Patients and Methods: The cohort is based on data obtained from electronic medical records from Maccabi, the second largest healthcare organization in Israel. All included patients were diagnosed with CLL based on the IWCLL criteria and complete clinical, laboratory, and therapy data were available. During the study period, 3,964 patients with CLL were included.

Results: Patients with CLL who required therapy were divided into three eras based on the dominant treatment approach: chemotherapy alone before 2010, therapy with chemotherapy and anti-CD20 between 2010 and 2017, and therapy with targeted agents between 2017 and 2022. Median OS was 4.1 years, 7.5 years, and not reached, respectively. The six-year OS rates were 40%, 55%, and 69%, respectively, (p=0.0001). The median time to the next treatment improved from 5.5 years before 2010, to 8.3 between 2010-2017, to not reached after 2017 (p=0.0021).

Conclusion: We found marked improvements in survival subsequently to fundamental changes in first-line therapy in patients with CLL from before 2010 to after 2017.

Biography

Tamar Tadmor, MD, Director of the division of Hematology and Blood Bank, at Bnai Zion Medical Center, Haifa- Israel. Associate Professor at the Ruth and Bruce Rappaport Faculty of Medicine, Technion in Haifa. Prof Tadmor, completed her medical studies in Milan, Italy in 1994.She specialized in internal medicine and completed her residency in Hemato-Oncology at the Ben-Zion Medical Center, where she received an outstanding internship from the Israel Cancer association at 2004.From 2006 to 2008, she was involved in basic research in the Department of Microbiology and Immunology in Miami, Florida as part of post-doctoral studies. Her main interests: chronic Lymphocytic leukemia (CLL), machine learning and artificial intelligence in CLL, and Hairy cell leukemia. She is an active member in the Hairy cell leukemia foundation, ERIC, and IWCLL. She leads clinical studies in these and other fields and act as Principal investigator in international studies, and act as an active reviewer for numerous leading journals in the field. She has published over 170 articles in professional per review journals.

Day-1
Oral Presentations

"TESTICULAR MASQUERADE" A CASE REPORT OF TESTICULAR MALIGNANCY WITH PERSISTENT MULLERIAN DUCT SYNDROME AND TRANSVERSE TESTICULAR ECTOPIA

Darshan Barki, Nithya Manayath, Babu Sree Vatsa, Venkatanarasimhan NS, Vishnuvardhana GV, Srinivas Achar and Balachandra Bhat

Guy's & St Thomas' NHS Foundation Trust, United Kingdom

Abstract

Introduction: Persistent Mullerian Duct Syndrome (PMDS) is a rare sexual development disorder and even more rarely associated with Transverse testicular ectopia (TTE). TTE is a rare form of testicular ectopia, in which both testes descend through a single inguinal canal and will be present in the same hemi-scrotum. PMDS with TTE is associated with 18 - 33% malignant transformation.

Case Presentation: Here we report a case of a 48-year-old male patient who presented with a large right inguinoscrotal swelling and on evaluation was found to have a large right testicular mass with complete right inguinal hernia, undescended left testis and a central abdominal mass. On evaluation with CECT abdomen and pelvis and image guided biopsy was diagnosed with mixed germ cell tumor of the right testis [predominantly a seminoma] with retroperitoneal nodal mass and absent left testis, for which he received chemotherapy. Post-chemotherapy he underwent surgery and intraoperatively he was diagnosed to have PMDS along with TTE and testicular malignancy arising from the ectopic left testis. Post operative recovery and follow up of the patient was uneventful.

Clinical Discussion: Most cases of PMDS are diagnosed early in life. They clinically present with uni-lateral or bilateral undescended testis with inguinal hernia. In adults, it is usually associated with male infertility. However, TTE is associated with an increased risk of testicular tumors, if undiagnosed till adulthood.

Conclusion: PMDS with TTE in adults is usually an intra-operative finding and is commonly associated with malignancy in the ectopic/undescended testis in adults.

Biography

Darshan Barki is a dedicated medical professional from Bengaluru, India, currently registered with the General Medical Council (GMC No. 7970836). He holds an MBBS from the Vydehi Institute of Medical Sciences and has gained extensive clinical experience through roles at Guy's and St Thomas' NHS Foundation Trust, St. George's University Hospitals NHS Foundation Trust, University Hospitals Plymouth NHS Trust, and Bangalore Baptist Hospital. Dr. Barki has demonstrated a consistent commitment to medical excellence and patient care, excelling in various surgical specialties and contributing to medical education by teaching healthcare workers. He is starting his surgical training in the UK soon and intends to focus on surgical oncology as his specialty. Dr. Darshan Barki continues to pursue excellence in his medical career, with a focus on both clinical practice and medical education, aspiring to contribute significantly to the healthcare field.

HOW USEFUL IS EPOETIN ALFA (EPREX) IN THE MANAGEMENT OF SYMPTOMATIC ANAEMIA IN LOW RISK MDS: A RETROSPECTIVE ANALYSIS

Mohamed Aboulela

Norfolk and Norwich University Hospital, United Kingdom

Abstract

Background: Myelodysplastic syndromes (MDS) encompass a spectrum of clonal disorders characterised by bone marrow failure and dysplastic changes in cell lineages. Erythropoiesis stimulating agents (ESA), particularly epoetin alfa (eprex), stand as first-line interventions for management of symptomatic anaemia in low-risk MDS patients with low serum erythropoietin (EPO) levels (≤ 500 IU/L), as recommended by British Society of Haematology (BSH) guidelines..

Objective: This audit aims to evaluate adherence to BSH guidelines in initiating eprex therapy, assess response patterns, and explore correlations between baseline EPO levels and treatment outcomes.

Methods: A retrospective analysis of 56 low-risk MDS patients (41 Male, 15 Female; average age 77years) initiating eprex therapy between 2018 and 2023 was conducted. Data, including patient demographics, MDS type, baseline EPO levels, transfusion history, and treatment response, was collected from electronic health records and patient notes.

Results: Baseline EPO levels were assessed in 96.4% (n=54/56) of patients. 98.2% (n=55/56) of patients received an 8-week trial of 30,000 units of eprex as per current BSH guidelines. The response was as follows: 23 of the patients exhibited improved hemoglobin (Hb) levels; 23 remained stable and 10 experienced a decline. Subsequently, treatment was escalated to 60,000 units in those with declining Hb levels and a select number of patients with stable Hb levels. Amongst those patients who demonstrated a poor initial response, only 1 responded to the higher dose of 60,000 units, whilst 15 of the patients with stable Hb demonstrated improvement. Furthermore, 67.9% of patients achieved transfusion independence for over three months, with an average duration of 8 months. Conversely, 32.1% were transfusion dependent in less than 3 months. Analysis revealed a statistical correlation between higher baseline EPO levels (> 250 units) and reduced treatment response.

Conclusion: This retrospective analysis emphasises the importance of adherence to clinical guidelines in managing MDS-associated anaemia with Eprex. Patients exhibiting poor initial response to standard dose of eprex, may not benefit from further escalation of treatment. However, those with stable Hblevels, on lower doses may benefit from the higher dose. Noteworthy is the consideration for discontinuation in non-responsive cases and the potential predictive value of baseline EPO levels. Further studies are warranted to elucidate these findings and refine treatment strategies for MDSassociated anaemia.

Biography

Mohamed Aboulela serves as a clinical fellow at the esteemed Royal Marsden Hospital in London. He completed his medical training at St George's University of London, where he earned both his Bachelor of Science (BSc) degree in Biomedical Science and his degree in Medicine (MBBS). His keen interest in haemato-oncology developed during his tenure with the haematology department at Norfolk and Norwich University Hospital, where he actively engaged in various projects, audits, and Quality Improvement Projects (QIPs) alongside his clinical responsibilities. His dedication to advancing haemato-oncological research led him to a prestigious clinical fellowship at the Royal Marsden Hospital in London. Over the past 8 months, Aboulela has been contributing significantly to research focused on immune checkpoint inhibitor therapies and their associated toxicities, in addition to his clinical duties.

HOME SELF-TESTING OF COMPLETE BLOOD COUNT IN PATIENTS WITH BREAST CANCER DURING CHEMOTHERAPY

Lennart Friis-Hansen, Pippi Jonassen Bjørck, Ditte Hartvig, Susanne Andresen, Berit Rasmussen, Christina Hansen, Anne Nistrup, Keld Hundewadt and Niels Henrik Holländer

Zealand University Hospital, Denmark

Abstract

Background: Before administration of myelosuppressive chemotherapy complete blood counts (CBC) collected at the hospital/nursing stations are evaluated to avoid severe bone marrow suppression. This maintains disease fixation which often reduces their quality of life. This mixed-method study examined at home self-testing of complete blood count (CBC), the test quality, and the effects on patients' mental well-being.

Objective: We therefore examined if the blood tests, which are a central part of monitoring the treatment effects, could be performed by the patients themselves in their own homes.

Methods: Patients with breast cancer receiving chemotherapy were recruited and trained to perform capillary finger prick CBC testing at home using the HemoScreen Point-of-Care instrument and to upload the test results to the hospitals IT system subsequently. A venous reference CBC sample was taken and tested at the hospital on the day of self-testing. Semi-structured interviews with open-ended components were performed to investigate the user experience and the impact of self-testing on the patients' everyday lives.

Results: Thirty-nine patients completed the self-testing education using the HemoScreen instrument. Eight patients withdrew, while the remaining 31 patients performed 161 home tests (2-11 tests per patient) over a four-month period. The test results compared well with the venous reference CBCs except for platelet counts (correlation coefficient 0.26). Qualitative interviews with 9 of the 31 patients emphasized that the patients were comfortable using the self-testing instrument and becoming an active partner in their own treatment.

Conclusion: Complete blood count self-testing at home produced clinically valid hemoglobin and white blood cell counts with the added benefit that the patients became active partners in their own treatment course, which was of great importance for the patients and increased their wellbeing.

Biography

Niels Henrik Holländer is a senior oncologist, and his expertise is in innovation of e-health care for Cancer Patients. He has been the leader of several international cross boarder projects with the focus on Home self-testing of complete blood count in patients with cancer during chemotherapy. He is the leader of Advanced Modeling of Baltic cancer e-caRe (Amber).

ASSESSING THE SAFETY AND EFFECTIVENESS OF T-AYU-HM PREMIUM IN PAEDIATRIC SICKLE CELL DISEASE PATIENTS: A RETROSPECTIVE CASE SERIES

Hemshree Desai

Dhanvantari Clinic Ayurvedic Healthcare and Research Centre, India

Abstract

Background: Sickle cell disease (SCD), a genetic disorder caused by a mutation in the beta-globin chain, has a significant impact on global public health. In India, this condition is particularly prevalent among various tribal and underdeveloped communities. This study aims to evaluate the effectiveness and safety of the alternative medicine T- AYU-HM Premium in paediatric SCD patients.

Methodology: A single-arm, retrospective observational case series was conducted with 10 paediatric patients diagnosed with sickle cell disease. The study focused on clinically assessing the safety and efficacy of the T-AYU-HM Premium Tablet (300 mg) in these patients. Clinical and vital data were collected, analysed, and reported using SPSS software, adhering to predefined inclusion and exclusion criteria.

Results: The study cohort consisted predominantly of male patients (80%) with a mean age of 3.20 ± 1.23 years. Consanguinity was observed among the participants. The analysis revealed a non-significant increase in weight from the baseline (11.64 ± 2.46 kg) to the follow-up (12.04 ± 2.45 kg) and a non-significant reduction in pulse rate. Haematological parameters showed no significant changes from baseline. However, there was a notable reduction in pain-related clinical parameters among the paediatric patients.

Conclusion: The retrospective analysis suggests that T-AYU-HM Premium treatment leads to significant improvements in paediatric patients with SCD, particularly in pain management, demonstrating both its efficacy and safety. However, further prospective studies are necessary to provide more substantial evidence supporting the use of herbal-mineral formulations for managing sickle cell anaemia in paediatric patients.

Biography

Hemshree Desai, based in Glasgow, UK, is a dedicated healthcare professional with a strong focus on sickle cell anemia research. With an MBBS and a master's in public health, she has led impactful studies on alternative treatments for sickle cell disease, particularly evaluating the efficacy of T-AYU-HM Premium. Her work at Dhanvantari Clinic in India has significantly contributed to the understanding of this condition. Hemshree is also an award-winning researcher, recognized with the Excellence Award for Women Researcher at the National Education Brilliance Awards 2022. Currently, Hemshree is driving innovation in precision medicine as a Project Management Officer at the University of Glasgow, integrating her research expertise to improve healthcare outcomes.

COVID-19 RELATED CHALLENGES IN BLOOD DONATION CENTERS: A REFERRAL CENTER'S EXPERIENCE

Fatma Sajwani

Emirates Health Services, United Arab Emirates

Abstract

Background: COVID-19 pandemic affected healthcare systems and blood donation was among the severely disrupted. Different mitigation measures were taken on national and international levels to minimize its impact.

Aim: This study aimed at comparing the effect of COVID-19 on blood donation services and the effectiveness of the response of the blood donation center to overcome these effects.

Methods: A retrospective observational study conducted in a blood donation center in United Arab Emirates to compare the effect of COVID-19 in 2020 to 2019 on donation services including number and location of donations, number of blood and platelets units issued to hospitals and characteristics of blood donors (n=82619). The degree of COVID-19 impact on the variables was calculated using Pearson's chi-square test and P-value≤ 0.05 considered significant. Services recovery was examined by comparing data of the years 2021 and 2022 to 2019.

Results: COVID-19 significantly affected number of donors, location of blood donation and number of blood and platelets issued to hospitals (P-value≤ 0.001). Median annual number of donors was 19,121 males and 1,393 females. In 2020, male donors increased by 1.6%, while female donors decreased by 22.3%. Despite a drop to 18,977 donors compared to 19,035 in 2019, numbers rose to 22,542 in 2021 and 22,065 in 2022. Similarly, whole blood collections decreased by 0.3% in 2020, but surged by 18.0% in 2021 and 13.6% in 2022.

Conclusion: Crisis management in blood donation centers requires proactive measures, proper infrastructure, flexibility in responses, in-place emergency plan and close coordination among national authorities.

Biography

Fatma Sajwani Currently working as the head of Policies and Standards in laboratories at the Emirates Health Services-United Arab Emirates. Also, a member of the National Supreme Blood Transfusion Committee in UAE. Holding an MPhil degree in cellular and molecular haematology from Queen Mary University of London (UK-2007) and a PhD holder in biomedical sciences-cancer biology (UAEU-2017). She is been in clinical practice in the field of haematology and blood transfusion over 18 years and very much interested in research. Worked as Head of haematology/blood transfusion lab at Al Qassimi Hospital (a tertiary hospital in UAE) for 6 years and as the medical director of Sharjah blood transfusion and research centre/Blood donation centre for 3 years. She is a believer in the importance of innovation in healthcare. Knowing the importance of research in influencing medical practice specially research investigating disease aetiology, pathophysiology and drug discovery has motivated her early in her carrier to participate in researches exploring the prevalence of rare blood groups in UAE, effect of infectious diseases on blood donation practices, the epidemiology of haematological disease in UAE, leukaemia prognostic factors and leukaemia drug discovery. She has been the primary investigator in multiple researches participating in the study design, experiment performance, data collection and analysis as well as preparing the manuscripts for publication. She has multiple publications in the field of haematology and blood transfusion.

PERIANAL INJURY PREVENTION IN PATIENTS WITH LEUKEMIA

Cindy Paredes

Houston Methodist Hospital, USA

Abstract

Background: In adults with hematologic malignancies, perianal injuries are serious concerns resulting in sepsis or even death. An increase in perianal injuries was found on a 36-bed acute care oncology unit. A chart review from 2018-2021 revealed 24 patients with hematologic malignancies developed rectal injuries. Of the 24 patients, all had received cytarabine. A literature review found that cytarabine can cause rectal inflammation, which in combination with constipation, high caffeine intake, neutropenia, and thrombocytopenia are risks for perianal injury.

Objectives: This study examined whether a nurse education intervention would decrease perianal injuries.

Methods: A survey examined baseline nurse knowledge on perianal injuries. Nurses received a 10-minute in-service at change of shift huddles highlighting the problem of perianal injuries, identification, predisposing factors, and prevention strategies followed by a post-survey to test their knowledge. Twenty nurses completed both the pre and post surveys; staff knowledge increased by 33.15% post-educational intervention.

Findings: One-year post intervention, rectal injuries decreased by more than 50%. Nurses now provide education to patients about perianal injuries. These results indicate that nursing education, and in turn, patient education is vital to decrease rectal injuries in patients with leukemia.

Biography

Cindy Paredes is a clinical nurse manager for the inpatient oncology and cell and gene therapy units at Houston Methodist Hospital in the Texas Medical Center. Cindy has been a nurse for eight years, all of which have been in oncology specialty. Cindy is currently working on her DNP and enjoys working with interdisciplinary teams to provide the best outcomes for patients.

INFLAMMATION AND COAGULATION IN COVID-19; ROLE OF A-DEFENSINS

Abd Al-Roof Higazi

Hadassah-Hebrew University, Israel

Abstract

Background: Inflammation and coagulation are two essential host defense systems with complementary roles. However, when the delicate balance between these systems is disrupted, it can lead to serious conditions such as coagulopathy and life-threatening situations. This imbalance may occur due to increased procoagulant or anticoagulant activity, or by affecting the process of fibrinolysis. The inflammatory response triggered by COVID-19 infection can is characterized by an exaggerated immune reaction that can lead to the development of coagulopathy and thromboembolic complications. As we previously reported, α-defensins, antimicrobial peptides released from activated neutrophils, are anti-fibrinolytic and prothrombotic in vitro and in mouse models.

Objective: To examine putative role of α-defensins in the COVID-19 induced coagulopathy by measuring the relationship between plasma levels of α-defensins, activation of coagulation, inhibition of fibrinolysis and clinical presentation of the disease.

Methods: In a prospective study of 176 patients with COVID-19 infection, we examined the relationship between plasma α-defensins, activation of coagulation and clinical course in patients with COVID-19.

Results: Plasma levels of α-defensins were elevated in COVID-19 patients, tracked with disease progression/mortality or resolution and with plasma levels of interleukin-6 (IL-6) and D-dimers. Immunohistochemistry revealed intense deposition of α-defensins in lung vasculature and thrombi. Immunohistochemical staining of lung sections from patients dying of COVID-19 showed intense deposition of α-defensins in lung vasculature and extra-vasation of α-defensin from neutrophils to intravascular thrombi and intra-alveolar fibrin. IL-6 stimulated the release of α-defensins from neutrophils, thereby accelerating coagulation and inhibiting fibrinolysis in human blood, imitating the coagulation pattern in COVID-19 patients. The procoagulant effect of IL-6 was inhibited by colchicine, which blocks neutrophil degranulation.

Conclusion: These studies describe a link between inflammation and the risk of thromboembolism, and they identify a potential new approach to mitigate this risk in patients with COVID-19 and potentially in other inflammatory prothrombotic conditions.

Biography

Abd Al-Roof Higazi is a physician researcher, dedicated three decades to researching fibrinolysis and vascular biology. Besides its intensive work on vascular biology, he published over 60 papers on the topic of coagulation and fibrinolysis. Currently, he serves as the Head of the Division of Medical Laboratories at Hadassah University Hospitals in Jerusalem. Additionally, he holds the esteemed position of Full Professor in the Faculty of Medicine. Notably, he also spent more than 20 years as a Research Associate Professor at the University of Pennsylvania in the USA.

HETEROLOGOUS PLATELET-RICH PLASMA IN THE TREATMENT OF SEVERE SKIN DAMAGE

Francesco Romano
Department of Primary Care, Italy

Abstract

Background: Accidental soft tissue injury represents the most common management challenges for hand surgeons. The management of skin and soft tissue damage requires several steps, depending on the specific nature of the lesion. Fibrin seems to be an effective solution consequentially to its role in hemostasis; it acts in the healing process to promote collagen synthesis, angiogenesis, wound contraction, and reepithelization. It is mainly used as a sealant, adhesive, and hemostatic.

Objective: To examine the effect of fibrin membranes as a biologic wound dressing material for coverage of full-thickness soft tissue loss.

Methods: A 37-year-old man presented to our ward of pain medicine for an accidental severe leg injury associated with skin and soft tissue loss (**Figure 1A**).

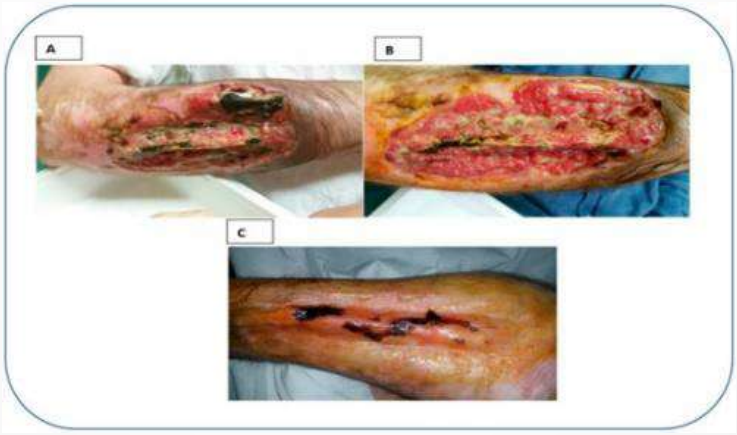

Figure 1. (A) Skin lesion at admission, with consistent tissue damage and bone exposure. (B) Lesion cleansed. (C) Wound after treatment with platelet rich plasma + platelet poor plasma. The patient referred that he refused the plastic surgery for tissue reconstruction and, during the home stay, he used acetaminophen and NSAIDs (ketoprofen, ketorolac, ibuprofen) for pain management without clinical improvement. The skin of the forearm was red with signs and symptoms of infection (fever 38.2°C); the bone, tendons, and muscle were exposed. Interphalangeal joint flexion and extension of the last three fingers was not possible. Blood pressure was 120/78 mmHg, heart rate was 85 beats/min, and oxygen pressure saturation at room temperature was 99%. Plain radiographs excluded the presence of bone fracture but revealed a severe soft tissue edema.

Results: The patient consented to heterologous fibrin membrane treatment, and 9 mL of heterologous blood obtained from the parents of the patient was analyzed for compatibility and sterility. About 1 week later, when the safety was shown, blood samples were taken from the parents to obtain PRP, in agreement with our previous study. The skin was cleaned (**Figure 1B**), cefepime was topically applied for 30 min, and then both fraction 2 (fibrin rich gel) and fraction 1 (platelet poor plasma) were applied. Finally, the wound was protected with an occlusive dressing. During the follow-up (1 week later), the

patient was pain-free without signs of infection (body temperature: 36.2°C; heart rate 62 b/min), with a satisfactory effect after 2 months.

Conclusion: In the present case, the coadministration of PPP and PRP rich in CGFs represented an efficacy and safety treatment for soft tissue wounds or damages.

Biography

Francesco Romano general practitioner since 1979 and for about twenty years is a medical doctor with a high skill in cell regeneration and medicine reconstructive.

Day-1
Poster Presentations

BLOOD-BORNE MYCOPLASMAS IN BOVINES: PREVALENCE IN LITHUANIA

Donata Mikalauskienė
Vytautas Magnus University (VMU), Lithuania

Abstract

Background: Candidatus M. haematobovis and M. wenyonii are hemotropic mycoplasmas associated with bovine hemoplasmosis, transmitted by blood-sucking arthropods. C. M. haematobovis can cause hemolytic anemia, jaundice, and hemoglobinuria, while M. wenyonii is linked to symptoms such as lethargy, reduced milk production, and anemia. Lithuania is a region not historically associated with such diseases due to its temperate climate.

Objective: The study aims to contribute localized insights into the prevalence, molecular characteristics, and hematological implications of Mycoplasma spp. in Lithuania.

Methods: The polymerase chain reaction (PCR) analysis, applied to a test group of 60 cows. Molecular analysis allows for the precise investigation of the prevalence and characteristics of hemotropic mycoplasmas.

Results: The prevalence and characteristics of Mycoplasma wenyonii and Candidatus Mycoplasma haematobovis in the Lithuanian cow population is being investigated. The ongoing study revealed insights into the molecular diversity of these mycoplasmas and their hematological implications, shedding light on the clinical manifestations within the cohort.

Conclusion: This research underscores the importance of understanding the epidemiology and clinical impact of emerging vector-borne diseases, providing valuable information for veterinary practices and contributing to the broader knowledge of infectious diseases in changing climates.

Biography

Donata Mikalauskienė is Ph.D. student at Vytautas Magnus University (VMU) and an Assistant Lecturer at Lithuanian University of Health Sciences (LUHS). With a focus on Veterinary Hematology and Clinical Pathology, she specializes in the care of large, wild, and exotic animals. Donata's academic journey includes a Veterinary Medicine degree from LUHS (2013-2019) and a Residency in Veterinary Hematology-Toxicology at LUHS (2021-2023). Formerly a Small Animal Veterinary Practitioner, she now contributes her expertise to the LUHS Large Animal Clinic, excelling in laboratory diagnostics and clinical pathology. Donata's research interests underscore her commitment to advancing veterinary medicine.

UNLOCKING THE EGFRVIII-STAT5B AXIS: IMPLICATIONS FOR GLIOMA THERAPY

Cezary Tręda, Aneta Włodarczyk, Ewelina Stoczyńska-Fidelus and Piotr Rieske

Department of Tumor Biology, Medical University of Lodz, Poland

Abstract

Background: EGFRvIII is recognised as one of the markers determining poor prognosis in patients with gliomas. Therefore, it is being considered as one of the main markers in anti-cancer therapies under development. However, due to the still incompletely known mechanism of action, finding an effective treatment is fraught with problems. It was suggested that one of the mechanisms of action of EGFRvIII may be directly related to the STAT5B transcription factor, which may significantly change the strategy for treating gliomas with EGFRvIII.

Objective: Analysis of the EGFRvIII-STAT5B axis and its effect on tumor survivability.

Methods: DK-MG glioblastoma multiforme sublines were obtained by clonal selection and characterized by different levels of EGFRvIII. STAT5B activity was assayed by a reporter gene. Western Blot, immunocytochemistry and flow cytometry techniques were involved in analysis of the degree of phosphorylation of STAT5B and other effector proteins in individual sublines. Proliferation rate and a possible direct interaction between EGFRvIII and STAT5B were assessed.

Results: Based on the results, there was a correlation between high EGFRvIII expression, STAT5B activity and the rate of cell proliferation. EGFRvIII-STAT5B axes were also influenced by TKIs (tyrosine kinase inhibitors) against EGFR. However, we observed no differences in the degree of phosphorylation of other effector proteins between the sublines. Interestingly, the DK-MG with the highest and homogeneous EGFRvIII expression (DK-MG^{extrahigh}) was found to have STAT5B^{positive} and STAT5B^{negative} subpopulations, which, among other things, differed in doubling times.

Conclusion: These results suggest that the interaction between EGFRvIII and STAT5B may play a very important role in the development and pathogenesis of glioma. This may provide a basis for the development of new therapeutic approaches focusing more on blocking the interaction of EGFRvIII with STAT5B, not only on a receptor located in the cell membrane

Biography

Cezary Treda, PhD, is a molecular biologist / anti-cancer researcher. Graduated from IFE at Technical University of Lodz (MSc), Master Thesis in the field of human CMV was done in the Institute of Medical Biology of the Polish Academy of Sciences in Lodz. Spent 5 years at Faculty of Medicine, Tohoku University in Japan, what resulted in PhD degree. Since 2012, he worked for Celther Polska Sp. z o.o. as a Specialist for in vitro culture. Since 2016, he has been an investigator in the Department of Tumor Biology at the Medical University of Lodz. He is part of team developing anti-cancer therapies. Personally, strong enthusiast of rock and mountain climbing targeting all Seven Summits (4 continents done).

THROMBOTIC ANTIPHOSPHOLIPID SYNDROME (APS), A CONTRIBUTING FACTOR FOR EXTENSIVE VENOUS THROMBOSIS ON VENO-ARTERIAL EXTRACORPOREAL MEMBRANE OXYGENATION (VA-ECMO): A CASE REPORT AND DISCUSSION

Ahmed Mohammed Eid

Emirate Health Care, United Arab Emirates

Abstract

Background: (VA-ECMO) is the most effective treatment for patients with severe heart or respiratory failure, but it has many complications, including bleeding (33%), hemolysis (18%), and venous thrombosis (10%). Antiphospholipid syndrome (APS) is a rare, immune-mediated, acquired hypercoagulable disorder characterised by persistent antiphospholipid antibodies (aPL) in combination with clinical events of thrombosis in the venous, arterial, or microvascular system, and/or certain adverse pregnancy outcomes. ECMO initiates a prothrombotic state that could be aggravated by undiagnosed ASP, leading to deep venous and arterial thrombosis despite of systemic anticoagulation intravenous infusion.

Case Report: A 26-year-old female patient presented with cardiac arrest due to tricyclic antidepressants toxicity. After return of spontaneous circulation, bedside echocardiography revealed severe cardiomyopathy. The decision was extracorporeal life support (ECLS) and (VA-ECMO) was instituted. During her course on the VA ECMO, the patient developed right leg swelling with weak peripheral pulsation. Doppler Ultrasound showed right ilio-femoral vein and inferior vena caval thrombosis which was confirmed by Computerized Tomography angiography. Development of extensive venous thrombosis in a patient on VA ECMO despite of non-stopped continuous unfractionated heparin IVI would necessitate investigation. Hence, all thrombophilia screening was sent and revealed thrombotic antiphospholipid syndrome with positive anti beta 2 glycoprotein IgG for which she discharged on oral anticoagulant, warfarin, with target International Normalised Ratio 2:3.

Discussion: The 'two hit' pathogenic model of APS may explain our case, as ECMO acting as a secondary stimulus could provoke thrombosis whereby antiphospholipid antibodies are already present.

Conclusion: Venous and/or arterial thrombosis on ECMO patient should warrant investigation for APS, especially in younger patients, in unusual sites e.g IVC, thrombosis unexplained by subtherapeutic anticoagulation and combined venous and arterial thrombosis. In this situation, anticoagulant-refractory APS, defined as thrombotic APS breakthrough thrombosis on therapeutic anticoagulation couldn't be excluded.

Biography

Ahmed Mohammed Eid lecturer of anaesthesia and intensive care in Ain Shams University Hospitals, PhD in anaesthesia and intensive care, ESAIC. Currently working as ICU specialist in Emirates Health Care, in an ECMO specialized center. My fields of interest are teaching medical students in residency programs as being a coordinator in the Arab Board of Anaesthesia and Intensive care, and medical research as a part of a medical research publication center in UAE, Al Qassimi Hospital.

Joint Event
3rd European Congress on
HEMATOLOGY AND BLOOD DISORDERS
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4th European Congress on
CANCER AND ONCOLOGY RESEARCH
October 28-29, 2024 | H10 Roma Città, Rome, Italy

DEVELOPMENT OF SCFV ANTIBODY TARGETING EGFRVIII: FROM COMPUTATIONAL DESIGN TO EXPERIMENTAL CHALLENGES

Tadeusz Strózik[1], Marcin Pacholczyk[1,2], Piotr Rieske[1,2], Krystyna Jędrychowska-Dańska[1], Alicja Zamerska[1], Amelia Kierasińska[1,2], Aneta Włodarczyk[1,2], Cezary Tręda[1,2], Adrianna Rutkowska[1,2], Weronika Goślińska[1], Natalia Szczepaniak[1], Damian Ciunowicz[1,2], Tomasz Wasiak[1] and Ewelina Stoczyńska-Fidelus[1,2]

[1]Medical University of Lodz, Poland
[2]Celther Polska Ltd, Poland

Abstract

Background: EGFRvIII is the most common mutation of the epidermal growth factor receptor (EGFR) implicated in glioblastoma (GB), the most aggressive form of primary central nervous system tumors. The biological role of this mutant receptor is still unclear, with many contradictory data. However, due to the characteristics of the mutation (deletion of exons 2-7 encoding extracellular domain) EGFRvIII is considered as a neo-antigen and a desirable target in immunotherapy, e.g. CAR-T.

Objective: This study was aimed to develop a single-chain variable fragment (scFv) antibody with high affinity and specificity to EGFRvIII, potentially serving as a diagnostic and therapeutic tool for EGFRvIII-positive GB treatment.

Methods: Firstly, computational optimization of the EGFRvIII structure and antibody modeling was conducted using Bio Luminate and ZDOCK. Mutant antibodies were designed, and docking simulations were performed to select the most promising candidates. Secondly, plasmid synthesis based on optimized sequences of heavy and light IgG1 chains constituting the scFv construct was carried out. Finally, experimental validation was performed, involving the transfection and lentiviral transduction in HEK293T cells, followed by the isolation of the antibody from the culture medium. The obtained antibody underwent molecular analyses, including Western Blotting and immunocytochemistry on DK-MG and primary glioblastoma cells with varying expression of EGFRvIII protein.

Results: Computational simulations revealed potential scFv with increased affinity to EGFRvIII compared to Egret. Despite challenges associated with antibody synthesis, experiments using a plasmid-based antibody showed promising results in the detection of EGFRvIII protein in glioblastoma cells. However, to obtain a high affinity binding as well as high specificity for a target, further studies are planned.

Conclusion: The project represents a comprehensive approach from computational design to experimental validation of an scFv antibody targeting EGFRvIII. While facing setbacks in synthesis, the study provides valuable insights into antibody engineering and lays the groundwork for future research in GB immunotherapy.

This research was financially supported by the Polish National Science Centre, grant number: 2021/05/X/NZ7/01079 and the Medical University of Lodz as part of the 'UMed Grants' program for students in the academic year 2022/23.

Biography

Ewelina Stoczyńska-Fidelus graduated from Molecular Genetics at the University of Lodz, Poland and gained her PhD at the Medical University of Lodz, where she held the position of professor and Head of the Department of Molecular Biology. In 2008 she took part in a fellowship Programme at Temple University in Philadelphia (USA), where she conducted research on leukemic cells. In 2015, she co-founded Personather Ltd., biotech company, where she is currently a Project Scientific Manager. Since 2009 she has been holding the position of PI/ Deputy CTO in Celther Polska LTD. She has 10 years of experience in cellular engineering and stem cells biotechnology (development of dozen R&D products including GE modified cells). She specializes in molecular oncology, especially glioblastoma (development of dozen GB models for in vitro testing) and has broad experience in molecular diagnostics and pharmacogenomic platform. Ewelina is the author of 32 scientific publications, several patent applications, 5 grants and 4 patents.

EBV-NEGATIVE PRIMARY CNS LYMPHOMA IN A POST-KIDNEY TRANSPLANT PATIENT: A CASE REPORT

Vanjelyn Dior V Roque
St Luke's Medical Center Quezon City, Philippines

Abstract

Background: Post-transplant lymphoproliferative disorder (PTLD) is one of the most feared complications of kidney transplant, affecting 5% of transplanted patients. It may manifest as early as six weeks after transplantation and it rarely affects the central nervous system (CNS). Despite the strong association between Epstein-Barr virus (EBV) and PTLD, 33-48% of PTLD cases are not EBV-associated.

Case Presentation: I present a case of a 53-year-old female who underwent a kidney transplant 3 months ago with progressive left-sided weakness. Imaging revealed lesions in the right frontoparietal and right inferior frontal lobes, with perilesional edema and leftward midline shift. She had a mini-craniotomy and stereotactic needle biopsy for definitive diagnosis. Pathology examination revealed EBV-negative, dual expressor, diffuse large B-cell lymphoma, with a non-germinal center profile. Her treatment regimen is high-dose intravenous methotrexate monotherapy, with noted complete response and intact renal allograft function.

Conclusion: EBV-negative PTLD is a rare disease entity whose pathogenesis is still not clearly understood. Currently, the management of immunodeficiency-associated CNS lymphoma is similar to management in immunocompetent patients. There is also currently no evidence that treatment of EBV-negative and EBV-positive PTLD should be different. Moreover, the optimal dose for immunosuppressants to balance the risk for lymphoma versus the risk for transplant rejection is not yet established.

Biography

Vanjelyn Dior V Roque is a level II resident of Internal Medicine in the Philippines. She is interested in contributing to research in medicine. She has presented a meta-analysis in various local conferences. Moving forward, she wishes to delve into more research in different subspecialties of internal medicine.

PRETREATMENT SIL-2R/CRP LEVEL AND CELL OF ORIGIN PREDICT THE HIGH RISK GROUP SUITABLE FOR POLA-R-CHP REGIMEN IN DIFFUSE LARGE B CELL LYMPHOMA

Tomohiro Yamakawa
Obihiro Kosei Hospital, Japan

Abstract

Background: R-CHOP have been the gold standard for diffuse large B cell lymphoma (DLBCL) first line chemotherapy. Recently Polatuzumab vedotin containing regimen; Pola-R-CHP showed superior progression free survival (PFS) than R-CHOP, many guidelines recommend Pola-R-CHP for advanced stage and high risk group (stage3-4 and international prognostic index (IPI) 2-5). A review showed Pola-R-CHP superiority in ABC type cell of origin (COO) whereas those guidelines did not refer to COO. We thought guidelines were insufficient to find Pola-R-CHP candidates and analyzed multiple clinical factors to search better prognosis prediction model.

Method: Retrospectively reviewed clinical records of DLBCL patients in our center since 2009 to 2018, assessed the relationship between clinical parameters and PFS, overall survival (OS), overall response rate (ORR), relapse rate and so on.

Result: 360 patients were included in this study. All patients received first line Rituximab plus chemotherapy, no one received Polatuzumab vedtin containing regimen. The median age was 71 (20-92), 156 females and 204 males. ORR was 93.0%, 10 year PFS 49.8% (95% confidence interval (CI), 38.8-59.9), OS was 46.4% (95% CI, 19.0-70.1). Stage3-4/IPI 2-5, and/or ABC-type had significantly inferior PFS (NA vs 44.3% (95% CI, 27.1-60.2), P=0.001) and OS (NA vs 52.5% (95% CI, 34.4-67.9), P=0.003). High level of sIL-2R and CRP had significantly inferior PFS (64.4% (95% CI, 48.3-76.6) vs 27.7% (95% CI, 13.3-44.2), P<0.001) and OS (53.8% (95% CI, 10.2-84.5) vs 37.2% (95% CI, 19.1-55.5), P<0.001). This group had significantly inferior ORR (P<0.001) and had multiple extranodal sites (P<0.001).

Conclusion: Stage3-4/IPI2-5, ABC type, high sIL-2R/CRP level were related to inferior PFS and OS, Pola-R-CHP was recommended for those groups.

Biography

Tomohiro Yamakawa graduated from doctoral program in Hokkaido University. He majored in chronic graft versus host disease. His paper "Vitamin A-coupled liposomes containing siRNA against HSP47 ameliorate skin fibrosis in chronic graft-versus-host disease" has published in Blood (Blood. 2018 Mar 29;131(13):1476-1485. doi: 10.1182/blood-2017-04-779934. Epub 2018 Jan 23.).

IN VITRO ELECTRO ASSISTED DELIVERY OF NATURAL SUBSTANCES VIA ALKALI LIGNIN BASED MICRO/NANO FORMULATIONS AGAINST BREAST CANCER

Severina Semkova[1], Radina Deneva[1], Georgi Antov[1], Donika Ivanova[2], Zvezdelina Yaneva[2] and Biliana Nikolova[1]

[1]Bulgarian Academy of Sciences, Bulgaria
[2]Trakia University, Bulgaria

Abstract

Background: Overcoming multidrug resistance and chemotherapeutics' side effects are still the main challenge in the anticancer research and therapies. Nowadays, an increasing number of studies are reporting anticancer activity of substances with natural origin. On other hand, electrochemotherapy is assumed as a commonly used technique for increasing concentrations of substances and drugs into cancer cells. The procedure is based on well-known fact for poration of cellular membranes after applying electrical pulses, which affected cell viability in a dose-dependent manner and usually increase the cytotoxic/cytostatic effectiveness. As attempt to overcome the above-mentioned shortcomings, we conducted new combination therapies based on alkali lignin matrices loaded with biologically active substances for electro-induced delivery.

Objective: Our study aimed to investigate the possibility of electro-assisted internalization of natural substances via novel micro-/nano-formulations based on Alkali Lignin.

Methods: All in vitro experiments were conducted on panel of breast cell lines: non-tumorigenic breast epithelial cells (MCF-10A) and cancer breast epithelial cells (MCF7 – luminal adenocarcinoma, low metastatic; MDA-MB-231 – triple-negative adenocarcinoma, high metastatic). Dynamic light scattering and electrophoretic light scattering techniques were used for the size and ζ-potential determination of all tested formulations. To avoid negative influence on cell vitality in this study we proposed optimized procedure for size-dependent separation of micro-/nano- formulations via using low-spin centrifugation. Formulation's shape was analyzed via microscopy. Cytotoxicity assessments in combination with electroporation/or not were investigated via conventional MTS cell viability assay.

Results: For all tested formulations were estimated dose- and time- dependent cell viability difference, which is correspond to distinct characteristics of the cell lines. Electroporation support internalization process.

Conclusion: All data suggest that tested alkali lignin formulations have great potential for electro-assisted natural substance's delivery in breast cancer cell lines.

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Biography

Severina Semkova is Associate Professor in the Institute of Biophysics and Biomedical Engineering, Bulgarian Academy of Sciences in Bulgaria. She obtained her BSc degree in Molecular Biology from Sofia University in 2011, followed by an MSc degree in Biophysics from

Sofia University in 2013. She obtained her PhD degree in Biophysics from Bulgarian academy of sciences (2017), and later (2018 – 2019) specialized as a JSPS postdoc fellow at the Department of Molecular Imaging and Theranostics, Institute for Quantum Life Science, National Institutes for Quantum and Radiological Science and Technology (QST - NIRS) in Japan. Assoc. prof. Semkova is a part time lecturer at the Department of Physics, Biophysics, and Radiology at Medical Faculty at the Sofia University from 2011. Currently, she focuses her research on the development of drug carriers with natural origin; drug repurposing; theranostics and investigation on redox-active substances with anticancer activities.

ROLE OF SCLEROSTIN IN MASTOCYTOSIS BONE DISEASE - A PREELIMINARY STUDY

Aneta Szudy-Szczyrek
Medical University of Lublin, Poland

Abstract

Introduction: Mastocytosis is a heterogeneous group of disorders, characterized by the accumulation of clonal mast cells which can infiltrate several organs and tissues, such as the skin, bone marrow, spleen, liver, lymph nodes and the gastrointestinal tract. The skeleton is the most frequent localization of systemic mastocytosis (SM). Bone involvement occurs in approximately 70% of SM patients and can be either lytic, sclerotic or mixed. The pathogenesis of mastocytosis bone disease is still poorly understood. Sclerostin is a recently discovered bone tissue protein that is of key role in the process of inhibiting bone formation via the Wnt pathway.

Objectives: To investigate whether neoplastic mast cells may be the source sclerostin and whether there is a potential association between sklerostin and bone remodeling markers with mastocytosis bone disease.

Patients and Methods: A total of 39 adult patients with mastocytosis, divided into 5 groups according to their clinical variants: aggressive systemic mastocytosis (ASM, n=13), systemic mastocytosis with an associated hematological neoplasms (SM-AHN, n=1), smouldering systemic mastocytosis (SMM, n=4), indolent systemic mastocytosis (ISM, n=18), and cutaneous mastocytosis (CM, n=3). The control group consisted of 30 healthy individuals. We assessed the concentration of sclerostin, bioactive sclerostin and the expression of the SOST gene in plasma and HMC-1.2 human mast cell culture supernatants. The enzyme-linked immunosorbent assay test (ELISA) was used to determine the level of sclerostin and bioactive form. The real-time polymerase chain reaction (Real-Time PCR) method was used to evaluate the SOST gene expression. The obtained results were correlated with selected clinical and laboratory findings and radiological parameters detected using low-dose computed tomography.

Results: We observed significantly higher levels of sclerostin in patients diagnosed with more advanced disease, i.e. ASM, SM-AHN and SSM, compared to patients with ISM and CM. We also showed that unstimulated, HMC-1.2 human mast cells are able to secrete sclerostin, and as a result of their stimulation with IL-6, there is a significant increase in SOST gene expression. We observed a statistically significant negative correlation between sclerostin and its bioactive form and the concentration of alkaline phosphatase (ALP) and a positive correlation between sclerostin and interleukin-6 (IL-6). We observed that in patients with increased sclerosis of the spongy bone, significantly higher sclerostin concentrations is present.

Conclusion: Our results suggest the potential impact of sclerostin on the complex process of bone remodeling in patients with mastocytosis.

Biography

Aneta Szudy-Szczyrek, MD, PhD, Hematologist, Associate Professor, Lecturer in the Department of Hematooncology and Bone Marrow Transplantation at the Medical University of Lublin, Poland. Member of the Polish Society of Hematology and Transfusion Medicine and the European Hematology Association. Author and co-author of multiple papers in the field of hematooncology. Principal investigator and sub-investigator in multiple research projects related to biology of hematological neoplasms.

THE ASCORBIC ACID/ MENADIONE REDOX SYSTEM BOOST ANTICANCER EFFECT OF EDELFOSINE, APPLIED ON LEUKEMIA LYMPHOCYTES CELL LINE - A PRELIMINARY STUDY

Donika Ivanova[1], Severina Semkova[2], Zvezdelina Yaneva[1], Ana Georgieva[1], Zhivko Zhelev[1] and Rumiana Bakalova[3]

[1]Trakia University, Bulgaria
[2]Bulgarian Academy of Sciences, Bulgaria
[3]Sofia University, Bulgaria

Abstract

Background: Despite the significant progress in surgical oncology techniques as well as systemic treatment, the achieve of therapeutic selectivity in cancer diseases is still one of the main challenges for the scientific community. The elaboration of new generation anticancer drugs is focused on increasing of sensitivity of cancer cells without acting on the DNA level. Edelfosine is a synthetic lipid member of alkyl-lysophospholipids family with potent anti-tumor effects, based on influence on lipid metabolism, mitochondria redox homeostasis, and their relationship with tumor cell death signaling. However, the exact mechanism by which these synthetic lipids provoke anticancer effectiveness is still not fully understood.

Objective: The main goal of this study was to elucidate the ability of Edelfosine to potentiate the anticancer effect of Menadione/Ascorbic acid (M/A) as well as to investigate the possibility of redox-related mechanism of action on leukemia lymphocytes.

Methods: In our study we analyzed cell proliferation and viability of acute leukemia cell line (Juurkat) after exposure to Edelfosine in lower concentration, applied alone and in combination with power redox system M/A. Proliferation and viability assessments were investigated via conventional cell viability and Trypan Blue assays. Cell morphology changes were analyzed via microscopy.

Results: Edelfosine in combination with redox system M/A show an influence on cell proliferation and viability as well as morphology of leukemia lymphocytes, compared to the controls.

Conclusion: Our previous studies have demonstrated that the apoptotic mechanism, involved into induced by the M/A cancer cell death includes changes in the redox-homeostasis. Obviously the triple combination Edelfosine/Menadione/Ascorbic acid has shown synergistic cytotoxic effect on leukemia lymphocytes. All data suggest that Edelfosine show great potential for induction of vulnerability of leukemic lymphocytes to Menadione/Ascorbic acid-induced oxidative stress.

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Biography

Donika Ivanova is Associate Professor (permanent staff), Department of Pharmacology, Animal Physiology of Animal, Biochemistry and Chemistry, Faculty of Veterinary Medicine, Trakia University, Bulgaria as well as Department of Medicinal Chemistry & Biochemistry, Medical Faculty, Trakia University, Bulgaria. She obtained her BSc and MSc degrees in Analysis and control of food technology from University of Food Technologies (2007), Plovdiv and MSc degree in Medical Biology from University of Plovdiv Paisii Hilendarski (2018). She obtained her PhD degree in Bioorganic chemistry, chemistry of natural and biologically active substances from Trakia University, Medical Faculty, Stara Zagoora, Bulgaria. Research area: Oxidative stress, Redox-homeostasis, Natural sciences and natural bioactive

substances, Biochemistry, Chemistry and Biologic sciences; Technic and technology, Engineering chemistry; Medical and health sciences, Other medicinal sciences. Scientific interests: biochemistry, cell metabolism, apoptosis, redox-metabolism, mitochondrial function, reactive oxygen species, oxidative stress, natural products with anticancer activity, polymers drug-delivery systems.

THE IMPACT OF RADIOTHERAPY ON THE THERAPEUTIC RESPONSE OF PATIENTS TREATED WITH CAR T-CELL THERAPY FOR HIGH-GRADE LYMPHOMA: A SYSTEMATIC REVIEW

Maïfa Belghoul

University Hospital Sussex NHS Trust, United Kingdom

Abstract

Background: Chimeric antigen receptor T (CAR-T) cell therapy is a promising new intervention in cancer treatment which has already proven to be highly effective in relapsed/refractory lymphoma. However, despite this, there are limitations to therapeutic efficacy and application, including toxicity, failure to achieve immunological memory, and possible immune evasion. There is a rationale to administer radiotherapy (RT) prior to CAR-T cell infusion to enhance efficacy, particularly in relation to antigen exposure and immune activation. Additionally, RT has been increasingly used as a bridging strategy prior to CAR-T therapy, to provide disease control. Several recent studies investigating the combination of both therapies in solid tumours as well as haematological malignancies have suggested that potential synergy of CAR-T and RT could be associated with better therapeutic outcomes. In this systematic review, we determined the current evidence for RT use in patients with high grade lymphoma treated with CD19 CAR-T cell therapy, compared to patients treated with CAR-T alone.

Methods: A systematic search of various databases was conducted to find relevant literature. Randomised control trials, case series, and retrospective studies published in English over the last 10 years that met the inclusion criteria were included. The outcomes of interest included progression free survival (PFS) at 1-year, overall survival (OS) at 1-year, complete response (CR) rate, rate of cytokine release syndrome (CRS), and rate of immune mediated neurotoxicity (ICANS). Due the heterogeneity and small size of the studies included; a narrative synthesis of the outcome data presented in tabular form was performed. Results After eligibility assessment, four retrospective studies with a total of 271 participants were included. Complete response rates ranged from 60% to 82% in the RT cohorts vs 38% to 48% for patients who did not receive bridging RT (non-RT). PFS at 1 year ranged from 20% to 51% for RT patients and 38% to 67% for non-RT patients. OS at 1 year ranged from 63% to 91% for the RT patients vs 65% to 83% for non-RT participants. Severe forms of CRS and ICANS were more frequent among patients who did not receive RT.

Conclusion: The results suggest that the synergy of RT and CAR-T cell therapy could potentially enhance CR rates, as well as reduce the chances of developing severe forms of either CRS or ICANS.However, the impact of RT on OS and PFS at 1 year was more ambiguous. This systematic review highlights the necessity of a randomised control trial to confirm the impact of radiotherapy on the therapeutic response and safety outcome in high-grade lymphoma patients treated with CAR-T cell therapy.

Biography

Maifa Belghoul is a Resident Doctor in Internal Medicine at the University Hospital Sussex Foundation Trust. She graduated from Brighton and Sussex Medical School in 2023. With a special interest in immunotherapy and CAR-T cell therapy, her research during medical school focused on the application of CAR-T therapy in high-grade lymphoma, reflecting her dedication to advancing cancer treatment.

EFFECTS OF PRE-TREATMENT COMBINED RESISTANCE TRAINING AND HIIT IN WOMEN DIAGNOSED WITH BREAST CANCER: A CASE REPORT

Felipe Cassaro Vechin[1,2], Guilherme D Telles[1,2], Marina LV Ferreira[2,3], Glenda BB Buzaglo[2,3], Rafaela B Araújo[2,3], Gilmar DS Junior[2,3], Valéria LG Panissa[4], Rodrigo M Jales[4], Geisilene RP Silva[4], Sophie FM Derchain[2,4], Miguel S Conceição[2,3] and Carlos Ugrinowitsch[1]

[1]University of Sao Paulo, Brazil
[2]Centre for studies in exercise oncology, CEEO, Campinas, Brazil
[3]Sao Francisco University, Brazil
[4]University of Campinas (UNICAMP), Brazil

Abstract

Background: Combined Resistance and High-Intensity Interval Training (HIIT) effectively improve aerobic fitness, fatigue resistance, and muscle strength and mass, which are crucial for cancer treatment efficacy and patient well-being. Pre-clinical studies suggest exercise may counteract tumour progression.

Objectives: To enhance physical fitness in breast cancer patients and explore exercise effects on breast tumours.

Methods: A 35-year-sold sedentary, obese woman (BMI=40 kg/m^2) with multifocal breast ductal carcinoma (T1(2)N1M0) Luminal B, with high expression of estrogen (ER) and progesterone receptors (PR), and high proliferation rate (Ki67 expression 60% and 30%) underwent 10 sessions of combined resistance and HIIT training pre-chemotherapy (window-of-opportunity trial – register number: RBR-2pmkjw7). Fitness tests and tumour biopsies were conducted pre- and post-training. Resistance training included five whole-body exercises, 3-4 sets (8-12 repetitions). HIIT comprised 3-4 effort repetitions (2 min) with 2 min rest. Effort and rest intensities were set at delta 50% and 20% of Respiratory Compensation Point (RCP).

Results: Training improved aerobic fitness (20% increase in VO2max; 14 to 16.8 mL·kg·min), fatigue resistance (9.5% increase in maximal time test; from 7'56'' to 8'41'', and 14% increase in RCP; from 70W to 80W), and muscle strength (67% increase in 1-repetition maximum test; 60kg to 100kg). Tumour expression of Ki67 decreased in both tumours from 60% to 40% (-33%) and from 30% to 10% (-67%), while ER and PR expression remained unchanged.

Conclusion: Pre-treatment combined resistance and HIIT training (window-of-opportunity model) significantly improved physical fitness in a breast cancer patient. Reductions in Ki67 levels suggest exercise may reduce tumour aggressiveness. These findings emphasize the importance of exercise in cancer care, warranting further research to confirm its effects and elucidate underlying mechanisms.

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Biography

Felipe Cassaro Vechin is an expert in exercise science, specializing in physical fitness and muscle hypertrophy. Through extensive research and expertise in evaluation, testing, and exercise training in healthcare settings, Felipe has made significant contributions to the field. His studies explore the relationship between exercise training and health outcomes, particularly in breast cancer care. His works include

investigations into resistance training volume's impact on muscle hypertrophy in older individuals and the acute changes in serum and skeletal muscle steroids in resistance-trained men. Felipe's research sheds light on optimal exercise protocols for enhancing muscle growth and performance, contributing to the future of exercise physiology.

MONOCYTE DISTRIBUTION WIDTH (MDW): STUDY OF NORMAL VALUES IN BLOOD DONORS

Sana Cherif, Donia Mbarki, Salma Riahi, Amal Chaabouni, Yosra Dhaha and Amina Bouattay

Sahloul University Hospital, Tunisia

Abstract

Background: MDW (monocyte distribution width), a parameter that assesses the dispersion around the mean of the monocyte population in whole blood, has recently been suggested as a biomarker for the early detection of sepsis. This parameter can be easily measured as it is deduced from the haemogram.

Objective: Our study aimed to establish the reference range for this biological parameter in a population of healthy donors.

Methods: We conducted a retrospective descriptive and analytical study of 100 donors. Patients were selected from healthy donors presenting to the blood bank of Sahloul University Hospital, after prior consent, over two months (April and May 2024). The health status of the blood donors was assessed using a questionnaire covering their medical history and lifestyle, supplemented by a physical examination. Samples were analyzed using a Beckman Coulter DxH 900 automated system. Statistical analysis was performed using the 20th version of Statistical Package for Social Sciences (SPSS). The statistical tests used were the Student's t-test and the ANOVA test to compare the means. As the distribution of haemogram parameters was normal according to the Kolmogorov-Smirnov test, the results were expressed with mean and standard deviation.

Results: A total of 100 donors were included, 93 men (93%) and 7 women (7%). The mean age was 33.9 years with extremes ranging from 19 to 51 years. The mean level of haemogram parameters was 6687/mm3 for leukocytes (±1.65), 14.38 g/dL for hemoglobin (±1.31), and 224420/mm3 for platelets (±59.13). The mean MDW was 18.36 (±2.07). The mean MDW was comparable between the two genders (18.28 ± 2.11 vs 19.34 ± 1.16) and between the different age categories with a statistically non-significant difference (p=0.1 and 0.7 respectively).

Conclusion: A standardized reference interval for MDW facilitates interpretation of the results and their application in clinical practice.

Biography

Amal Chaabouni is an intern and aspiring biologist who has gained practical experience through various internships in renowned laboratories. Over two semesters, Amal Chaabouni honed her skills in Virology at both the prestigious Pasteur Institute in Tunis and the Laboratory of Virology in Monastir. Following this, Amal Chaabouni dedicated a semester to the Biochemistry Laboratory at the Children's Hospital in Tunis, where she contributed to vital biochemical analyses and pediatric research. Her passion for medical sciences led her to the Laboratory of Microbiology at Kassab Institute of Tunis, focusing on microbial studies and infectious disease research. Most recently Amal Chaabouni completed a semester at the Laboratory of Hematology and Blood Bank in Sahloul Sousse, where she spent one semester working on crucial blood research and Blood banking processes. Throughout these diverse experiences, Amal Chaabouni has developed a comprehensive understanding of various biological disciplines, making her a well-rounded candidate in biology.

ONE-STOP SHOP FOR SICKLE CELL

Amardass Dhami

Sheffield Teaching Trust NHS, United Kingdom

Abstract

Background: Sickle cell disease (SCD) it is a debilitating, multisystem disease, associated with episodes of acute illness, progressive organ damage and reduced life expectancy. It has been estimated to affect over 15,000 people in the UK with its incidence expected to grow {1}, with the South Yorkshire area expected to one of the highest areas of SCD {2}. It is due to an autosomal recessive disorder, which involves alteration of the structure of haemoglobin. This morphological change results in the defective haemoglobin forming rigid polymers in low oxygen conditions, resulting in aggregation of red blood cells into the classical 'sickled' shape. These aggregates lead to Vaso-occlusion and haemolysis-related endothelial dysfunction, resulting in tissue death in vulnerable tissue, such as the retina. Retinal involvement in SCD can be either be proliferative or non- proliferative, with the former being the most common. This can result in significant morbidity to patients with reduction visual loss and increase in their care needs. Hence the need for regular monitoring of these patients. All of these appointments and clinics can often be financially, mentally and physically taxing for patients who are ofttern unable to attend these clinics, and classified as 'Did not attend'. In Sheffield, Haematology & opthalmology departments we observed this phenomenon, with an estimated DNA rate over >40% for the years 2017-2018. In order to understand and reduce this high rate, we hoped that a combined clinic of ophthalmology and haematology would reduce this burden and improvement patient satisfaction.

Aim: To reduce the non-attendance at haematology and ophthalmology by combining them to form a 'one-stop shop clinic' and understand any underlying factors for our cohort haemoglobinopathy patients to improve patient care.

Method: The number of 'did not attend' clinics for the years 2017-2018 were initially recorded as 137 for 419 total clinics. A dedicated haem-ophthalmology clinic was implemented from 2019 onwards and data was collected for 2020-2021 was recorded as 804 clinics. The study was then repeated and compared to the pre-combined clinic. 2019 was excluded as this year was a transition year to allow introduction of the service.

Results: The initial study revealed a 'did-not-attend' rate of 32%; slightly occurring more in females compared to males (females, 51.6%; males, 48.5.%.). The 'did-not-attend' rate was more prevalent in the 30-41 age range compared to others. HbSS was the most common haemoglobinopathy subtype in our cohort 66 out of 166. Most DNA clinics occurred on Monday's compared to others. We observed frequency of DNA changed throughout the years occurring more in January-February and in June-August. Following introduction of Monday ophthalmology clinic total number of clinics increased to 804, with a DNA rate of 44%; Given the COVID pandemic this cycle was repeated to include 2022-2023. Data from 2022-2023 included 2495 with DNA 948 was 38.8%. In order to understand the factors which influence patient DNA rate were considered distance to hospital, access to public transport, deprivation level, underlying co-mobidities and number of other speciality clinics were considered.

Biography

Amardass Dhami, I am currently an ST3 working at Doncaster and Bassetlaw Hospital with ongoing projects at Sheffield Teaching Hospital, United Kingdom; I studied at Charles university of Prague faculty of medicine in Hradec Kralove, graduating in 2015. Since then, I have been based in Yorkshire and Humber region. Current projects focused on red cell disorders particularly Sickle cell anemia and its relationship with poverty and access to health care.

THE EFFECT OF VIDEOGAMES ON THE QUALITY OF LIFE OF INDIVIDUALS FACING CANCER: META-ANALYSIS AND SYSTEMATIC REVIEW

Seba Aljomaa, Márk Hernádfői, Miklós Bartok, Reka Toth, Tamas Koi and Miklós Garami

Semmelweis University, Hungary

Abstract

Background: Playing videogames is an emerging approach in oncological care with the potential to improve health outcomes, according to recent studies. Videogames interventions focus on learning to improve coping strategies and strengthen treatment compliance through increased motivation. Exergaming, a new trend of exercising through video games, can replicate light- to moderate-intensity physical activity by incorporating whole-body movements.

Objective: This study aimed to investigate the effect of gaming on quality of life (QoL) and fatigue in cancer patients during active treatment by reviewing current published research.

Methods: A comprehensive literature search was performed to identify peer-reviewed journal articles that included the use of digital health interventions, including videogames, among patients undergoing cancer treatment. The search was conducted using PubMed, EMBASE, and the Cochrane Library.

Results: Changes in quality of life in intervention groups compared to controls across three eligible studies reflect the potential for games to improve QoL (SMD=0.69, CI [-0.10, 1.49]). Assessing fatigue score changes after gaming interventions in five eligible studies suggests a tendency for exergames to reduce fatigue (SMD=0.72, CI [0.27, 1.17]).

Conclusion: Videogames are promising tools to improve quality of life and reduce fatigue in oncological care.

Biography

Seba Aljomaa is a pharmacist with a master's degree in immunology, focusing on breast cancer. Currently, she is a PhD student in pathological sciences, exploring digital health as a cutting-edge approach in oncological care. Her research is driven by a passion for clinical trials aimed at improving the lives of cancer patients and addressing the limitations of standard care. With a robust background in both clinical and research settings, Seba is dedicated to integrating innovative digital health solutions to enhance patient outcomes in oncology. Her work represents a convergence of pharmacological expertise and advanced digital methodologies, paving the way for transformative advancements in cancer treatment

GENE EXPRESSION PROFILING AND PATHWAY ANALYSIS OF SYK-INHIBITION SENSITIVITY IN ACUTE MYELOID LEUKEMIA

Marte Karen Brattås
Haukeland University Hospital, Norway

Abstract

Background: Spleen tyrosine kinase (SYK) is emerging as a promising therapeutic target of acute myeloid leukemia (AML). Gene expression profiling in AML patients can unveil transcriptional profiles and signaling pathways crucial for determining sensitivity to SYK inhibition.

Objective: Examine if AML patient traits could predict sensitivity to SYK inhibition. Find associations between sensitivity to SYK inhibition and clinical and biological patient characteristics.

Methods: Leukemic blasts from 47 AML patient samples were used for in vitro experiments. Five SYK inhibitors; fostamatinib, entospletinib, cerdulatinib, TAK-659, and RO9021 were cultured with the AML cells before measuring the AML cell proliferation. RNA was extracted immediately after thawing and were sequenced as paired-end on Illumina NovaSeq6000. Deseq2 (R package) was used for data preprocessing and differential gene expression (DEG) analysis, DAVID softtool for GO-term analysis and GSEA software for gene set enrichment analysis.

Results: Two cohorts of patients with high (n=26) or low (n=21) sensitivity to SYK inhibition were identified. 97 significantly DEGs was found, including 47 genes with higher expression level in high SYK-sensitivity cohort and 50 genes with higher expression level in low SYK-sensitivity cohort (log-2FC >0.5, and BH-padjs <0.05). SYK expression was high in all 47 AML patient samples, and a statistically significant association between SYK-expression level and CD34 negative and age >65 (p=0.0158, p=0.0100, Fisher's exact test) was found. GSEA revealed significant enrichment of gene sets involving oxidative phosphorylation and KRAS signaling (FDR <0.25) in high SYK-sensitivity cohort KRAS signaling (FDR <0.25) in low SYK-sensitivity cohort. Significantly enrichment was found in GO-terms involving protein binding, plasma membrane and Golgi apparatus (FDR <0.05) in high SYK-sensitive cohort.

Conclusion: AML patients are heterogenous in their response to SYK inhibitors. RNA-seq can be used to identify genes and enriched gene classes crucial for effects of SYK inhibition in AML patients.

Biography

Marte Karen Brattås has experience as junior doctor in internal medicine with a special interest in cancer, infectious diseases, hematology and palliative medicine. Now PhD-student in the Leukemia Research Group based at Haukeland University Hospital and UiB, Bergen.

HIGH ALTITUDE PERSISTENT ASYMPTOMATIC HYPOXEMIA IN AN 8 YEAR-CHILD DUE TO UNSTABLE LOW-OXYGEN-AFFINITY HEMOGLOBINOPATHY (HEMOGLOBIN J-AUCKLAND VARIANT)

Ali Alsuheel Asseri
King Khalid University, Saudi Arabia

Abstract

Background: Inherited hemoglobin disorders are commonly encountered in clinical practice. While qualitative (i.e. sickle cell disease), and quantitative (thalassemia) hemoglobinopathies are easily suspected clinically and confirmed easily by simple lab methods, altered oxygen variants hemoglobin disorders are usually missed due to frequently silent clinical presentation. Here, we report a clinically evident case of previously undiagnosed Hb J-Auckland in an 8-year-old girl who presented with unexplained hypoxemia at high altitude that was corrected when lived at low altitude.

Case: An 8-year-old girl with asthma history lived in a high-altitude region (2300 meters). Despite no asthma symptoms, she had consistently low oxygen saturation (85-89%). She experienced one severe hypoxemia episode at age 7. Evaluations, including brain scans, blood tests, and chest scans, found no abnormalities except low oxygen levels. Further investigation revealed similar low oxygen levels in her mother. Overnight oxygen monitoring showed significant oxygen desaturation at high altitude but normal levels at low altitude. Blood tests suggested a possible hemoglobinopathy. Hemoglobin analysis identified an abnormal hemoglobin variant (Hb variant) in both the patient and her mother. Genetic testing confirmed a mutation in the HBB gene (a heterozygous mutation in the HBB gene (c.77G>A; p. Gly25Asp), consistent with the diagnosis of Hemoglobin J-Auckland, leading to decreased oxygen affinity. Due to improved oxygen levels at lower altitudes, doctors recommended relocation to a lower area to optimize oxygen delivery. This approach avoids unnecessary future workup for chronic hypoxemia.

Conclusion: Individuals with otherwise benign low oxygen affinity hemoglobin variants can present with hypoxemia upon exposure to lower barometric pressure like when living at high altitude. Clinicians should be aware about this possibility when evaluating asymptomatic person with unexplained hypoxemia. P50 as derived from the standard, widely available blood gases anlyzers can provide a hint toward the presence of altered oxygen affinity hemoglobin. Standard hemoglobin analysis methods are vital for evaluation of suspected altered affinity hemoglobinopathy, but they are not without limitations. Genetic testing is usually required in order to confirm the diagnosis.

Biography

Ali Alsuheel Asseri is a distinguished academic and clinician specializing in pediatrics and pediatric pulmonology. His expertise encompasses a broad range of pediatric pulmonary diseases, including childhood asthma, primary ciliary dyskinesia, high-altitude pediatric diseases, and rare interstitial lung diseases. Following the completion of his fellowship at the University of Arizona, Dr. Asseri is currently a practicing pulmonologist in the southwestern region of Saudi Arabia, where he contributes significantly to the care of pediatric patients with respiratory conditions.

EARLY DELAYED RADIATION-INDUCED BRAIN INJURY IN MICE: PRELIMINARY FINDINGS USING MAGNETIC RESONANCE IMAGING

Abdulrahman Qaisi and William Holmes
Security Forces Hospital, Saudi Arabia

Abstract

Radiotherapy has improved survival outcomes for central nervous system (CNS) malignancies. However, the negative impact of radiotherapy on the healthy tissue surrounding these malignancies, is increasingly becoming a concern. We aimed to investigate whether the employment of magnetic resonance imaging (MRI) techniques could be used to detect crucial aspects of the time-dependent effects resulting from the exposure of the CNS to ionizing radiation (IR). We hereby report preliminary MRI findings of a study examining the early delayed IR-induced CNS injury in adult CD-1 nude mice that had their right brain hemisphere exposed to a 20 Gy single IR dose by a Small Animal Radiation Research Platform (SARRP). T2 mapping and multiple b value diffusion weighted imaging (DWI) with a range of observation times of the whole brain were acquired with a 7T small animal preclinical MRI scanner at 6 time-points: before irradiation and then at 1, 10, 17, 60 and 80 days post irradiation. The acquired T2 mapping data indicated no significant change in actual T2 values and revealed no significant deviation from normal mono-exponential decay. Similarly, DWI data with short observation times (20–80 ms) showed no significant deviation from Gaussian behaviour, suggesting the existence of no CNS mi- crostructural changes due to IR. However, multiple b value DWI with a 200 ms observation time showed deviations from Gaussian behaviour, suggesting that the assessment of diffusion kurtosis imaging (DKI) could be informative for identifying early delayed radiation-induced brain injury in mice. Our promising MRI findings are examined in parallel with neuropathological observations in the brain tissue of these mice (obtained at 80 days post irradiation), resulting from the assessment of haematoxylin-eosin, cresyl violet, glial fibrillary acidic protein (GFAP) and Luxol fast blue staining in CNS structures of relevance (such as the hippocampus, fimbria, external capsule, thalamus and selected cor-tical regions).

Day-2
Keynote Presentations

CGAS-STING AT THE CROSSROADS IN CANCER THERAPY

Rui Wang
Xuzhou Medical University, China

Abstract

DNA is highly immunogenic, both exogenous and endogenous DNA can activate the pathogen-associated molecular pattern (PAMP) and danger-associated molecular pattern (DAMP), respectively, and hence activate the evolutionarily conserved cGAS-STING pathway for inflammatory responses. The cGAS-STING signaling pathway plays a very important role in the pathogenesis and progression of neoplastic diseases. For cancer therapy, there are some discrepancies on whether cGAS-STING should be inhibited or activated. Deregulated cGAS-STING signaling pathway might be the origin and pathogenesis of tumor, understanding and modulating cGAS-STING signaling holds great promise for cancer therapy. In this review article, we discuss the molecular mechanisms underlying cGAS–STING deregulation, highlighting the tumor inhibiting and promoting roles and challenges with cGAS–STING agonists in the context of cancer therapies.

Biography

Rui Wang is a consultant oncologist, and a physician-scientist in Suqian Affiliated Hospital of Xuzhou Medical University and Cancer Science Institute of Singapore. She has more than 10 years of clinic working experience with tumor patients. She holds an M.D and has research interest in cancer chromosome instability and immunology. Her research has been focused on tumor genome instability and how innate immune signaling and metabolic pathways orchestrate with overall aim of identifying innovative therapeutic targets. Rui Wang has gained international research experience working at esteemed institutions in Yale University School of Medicine and Cancer Science Institute of Singapore, has a distinguished publication record as the first/corresponding author on highly impacted journals like Cell Reports, Critical Reviews in Oncology/ Hematology, Steroids, International Journal of Oncology, featuring research articles, reviews, and conference contributions.

LEUKEMIA INITIATING CELLS IN CHRONIC LYMPHOCYTIC LEUKEMIA- DO THEY EXIST AND CAN WE TARGET THEM?

Natarajan Muthusamy
The Ohio State University, USA

Abstract

The existence of rare 'leukemia initiating cells' (LICs) in chronic lymphocytic leukemia (CLL) remains controversial and understudied due to the difficulty in isolating and identifying the tumor initiating cells. We have developed a novel platform to introduce molecular beacon probes into single live cells that facilitates identification, isolation, imaging and characterization of heterogeneous LICs. Using limited-cell fluorescent activated cell sorter sequencing (LC-FACSeq), we are able to detect, and monitor rare LICs during leukemogenesis and characterize their differential drug sensitivity. Accumulation of disease-associated mutation in developing B lymphoid but not myeloid lineage in CLL patient hematopoietic stem cells (CLL-HSCs), and development of independent clonal CLL-like cells in murine patient-derived xenograft models, suggests the existence of CLL LICs. Furthermore, we identify differential protein ubiquitination and unfolding response gene signatures in GATA2^{high} CLL-HSCs that exhibit differential drug sensitivity responses compared to GATA2^{low}CLL-HSCs. These results highlight the existence of therapeutically targetable disease precursors in CLL and leverage to design strategies to simultaneously target leukemic cells and their precursors simultaneously in CLL.

Biography

Natarajan Muthusamy is a tenured Professor of Medicine and Associate Director of Academic affairs, Division of Hematology, Department of Internal Medicine at College of Medicine, The Ohio State University. His research focus is on the disease biology and biological and targeted therapies in hematological malignancies. He has extensive expertise in the generation and characterization of mouse models to study hematopoietic development, malignancies and therapy evaluation for the past 39 yrs. In addition to serving as PI in several NIH R01 grants and leadership role in programmatic grants, he currently serves on National Institute of Health, American Cancer Society, Department of Defense and American Society of Hematologists Grant review committees. He has extensively involved in trained >50 trainees including junior faculty members, graduate students, medical students, postdoctoral fellows, clinical fellows, undergraduate and high school students and high school teachers. His current trainees includes one postdoctoral fellow, 2 graduate students, three undergraduate students and two junior faculty members. Several of his past trainees have been recipients of National and Local fellowships, trainee and achievement awards. Several of his past trainees are holding academic positions in various capacities, including instructors, assistant professors, associate professors and full professors. He has extensively published >140 peer reviewed manuscripts in high impact journals such as Nature, Cancer Cell, Cell Reports, Immunity, Blood, Leukemia, Naure Communications, Journal of Clinical Investigation etc.

REVISITING THE TREATMENT OF ANEMIA IN THE SETTING OF CHRONIC KIDNEY DISEASE, HEMATOLOGIC MALIGNANCIES, AND CANCER

Franco Musio
University of Virginia School of Medicine, USA

Abstract

Anemia has and will continue to be a central theme in medicine particularly as clinicians are treating a burgeoning population of complex multiorgan processes. As a result of multiple randomized controlled trials (RCA), meta-analyses, and medical societal recommendations overly restrictive paradigms and under-administration of erythropoiesis stimulating agents (ESA) have likely been followed by clinicians among all specialties. A review of anemia in the context of basic and molecular science, chronic kidney disease (CKD), hematologic malignancies, and cancer is presented with focus on the establishment of ESAs as integral in the treatment of anemia. Randomized Controlled Trials and Meta-Analyses studying the use of ESAs are presented with focus upon their application to clinical practice. The establishment of the next-generation Hypoxia Inducible Factor Prolyl Hydroxylase Inhibitors in the evolving treatment of anemia and their role among hematology-oncology patients will be discussed. In addition, the rapidly developing field of stem cell technology in this arena will be addressed. A compendium will be presented describing the evolution, establishment, and implications of ESA administration initially among those with CKD with rapid subsequent application to the hematology-oncology population of patients. Upon evaluation of the risks and benefits of ESAs focused critique is made supporting more liberal use of these agents strongly suggesting that the current underlying 'pendulum' in the management of anemia has perhaps shifted too far to the 'under-treatment' side in many cases.

Biography

Franco Musio earned his undergraduate and medical degrees from Georgetown University (Washington, D.C.) with subsequent training in General Surgery, Internal Medicine, and Nephrology at Brooke Army (San Antonio, Texas) and Walter Reed Army Medical Centers (Washington, D.C.). Dr. Musio has subsequently been in the academic and clinical practice of nephrology for 30 years at Walter Reed and Inova Fairfax Hospital (Falls Church, VA) where he has collaborated with many hematology-oncology colleagues and has developed a specialty in caring for complex patients with microangiopathic hemolytic anemia as well as multiple other types of anemia. Musio enjoys lecturing, writing, and discussing medical and human-interest topics on local and international radio stations and podcasts.

BLACK HOLES IN ANTIFIBRINOLYTIC THERAPY. HOW CAN WE ENHANCE HEMOSTATIC EFFECTIVENESS?

Abd Al-Roof Higazi
Hadassah-Hebrew University, Israel

Abstract

The lysine analog tranexamic acid (TXA) is the most widely used antifibrinolytic agent. TXA is a competitive inhibitor of plasminogen binding to fibrin. By addressing only one step in the multi-step cascade of fibrinolysis, TXA effect is sub-optimal. Under pathophysiological conditions, fibrinolysis is regulated by inhibitors at three different levels: 1) PAI-1 inhibits activation of plasminogen by tPA; 2) α2-antiplasmin inhibits the catalytic activity of plasmin and prevents its binding to fibrin; and 3) Carboxypeptidase inhibits the binding of plasminogen and tPA to fibrin. By inhibiting only one step in fibrinolysis, TXA exhibits several paradoxical effects that are pro-fibrinolytic and anti-coagulant. Increased concentrations of plasmin have been found in the blood of patients treated with TXA and in healthy volunteers who received TXA; this occurs because TXA stimulates the activation of plasminogen by uPA and tPA in plasma, leading to the formation of TXA-plasmin complexes that retain fibrinolytic activity and are relatively resistant to inhibition by α2-antiplasmin. Furthermore, free plasmin-TXA complexes inactivates several coagulation factors, including FV, FVIII, and fibrinogen, and lead to consumption of a2-antiplasmin, which further limits its hemostatic effectiveness, especially in patients receiving anticoagulants. Moreover, TXA acts as a competitive inhibitor, where high concentrations are required to effectively block lysine residues in fibrin at the high plasma concentrations of plasminogen. Thus, use of TXA alone does not taking full advantage of the potential benefits of antifibrinolytic therapy. This is supported by the greater anti-bleeding effectiveness of the plasmin inhibitor aprotinin, both individually and combined with TXA. With the withdrawal of aprotinin from clinical practice, there is space for new alternatives or combined approaches to inhibit fibrinolysis. Several efforts have been made to develop inhibitors of plasmin and direct inhibitors of tPA and uPA, but none have advanced to clinical trials as of the present date.

Biography

Abd Al-Roof Higazi is a physician researcher, dedicated three decades to researching fibrinolysis and vascular biology. Besides its intensive work on vascular biology, he published over 60 papers on the topic of coagulation and fibrinolysis. Currently, he serves as the Head of the Division of Medical Laboratories at Hadassah University Hospitals in Jerusalem. Additionally, he holds the esteemed position of Full Professor in the Faculty of Medicine. Notably, he also spent more than 20 years as a Research Associate Professor at the University of Pennsylvania in the USA.

Day-2
Oral Presentations

DIET AND EXERCISE STUDIES IN LUNG CANCER

Marisa A Bittoni, Zachary Chaplow, Daniel Spakowicz and David P Carbone
The Ohio State University, USA

Abstract

Background/Objective: Diet and exercise have shown to be modifiable risk factors for reducing lung cancer risk. We previously implemented the BEWELL study, which assessed the effects of a black raspberry beverage on bodily inflammation and the microbiome in high-risk smokers. We recently launched the BEFIT study with similar objectives: a) to confirm the feasibility of an exercise intervention in high-risk smokers, and b) to determine the impact on the microbiome and inflammatory biomarkers. These studies provide potential strategies to reduce lung cancer risk in high-risk smokers.

Methods: Consenting enrollees from Ohio State University Lung Cancer Screening Clinic (OSULCSC) were randomized to one of two arms: (a) Exercise/Behavioral Support Intervention – an ACSMapproved 12-week virtual resistance training plus aerobic program, or (b) Standard of Care - an information-only, control condition (e.g. light walking). Eligibility criteria include age 40-80 years, exercise<150 minutes/week, 20 pack-year smoking history and computer/internet access. Blood draws, stool samples, physical activity measures and behavior change predictors will be evaluated at baseline and intervention completion, with 1-year follow-up to assess adherence.

Results: We have enrolled 24 out of 40 individuals to date, recruited through the OSULCSC and social media. Of these, 80% are female, 90% white, and 45% currently smoke. Adherence has been excellent with 99% completion and no adverse events reported. Biospecimen collection and social cognitive intermediates are currently underway and being evaluated.

Discussion: We have successfully launched the BEFIT exercise intervention study for smokers at high risk for lung cancer with high adherence and no adverse events reported. Our BEWELL diet study showed slight changes in inflammation, and several microbes showing statistically significant improvements in gut bacteria. We will assess similar outcomes in the BEFIT study and look forward to reporting these when completed. These lifestyle studies provide unique strategies for lung cancer prevention, which are greatly needed.

Biography

Marisa A Bittoni is a Research Assistant Professor in the Medical Oncology/Thoracic Program at The Ohio State University. Her research focuses on the effects of lifestyle risk factors, including diet, exercise and smoking, on lung cancer prevention and survival. She is also interested in the effects of inflammatory biomarkers (e.g., CRP, IL6) on lung cancer risk and their interrelationships with the microbiome and immune function. She is Principal Investigator for several lifestyle intervention studies, has authored numerous publications and is a renowned international speaker in her field of specialty.

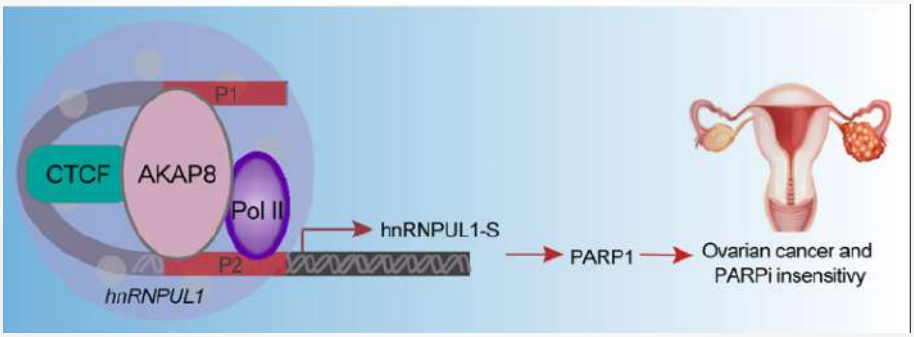
AKAP8 PROMOTES OVARIAN CANCER PROGRESSION AND ANTAGONIZES PARP INHIBITOR SENSITIVITY THROUGH REGULATING HNRNPUL1 TRANSCRIPTION

Youchaou Mobet[1,2], Haocheng Wang[1], Qinglv Wei[1,3], Xiaoyi Liu[1], Dan Yang[1], Hongyan Zhao[1], Yu Yang[1], Rosalie Anne Ngono Ngane[2], Jacob Souopgui[4], Jing Xu[1], Tao Liu[1] and Ping Yi[1]

[1]The Third Affiliated Hospital of Chongqing Medical University, China
[2]University of Douala, Cameroon
[3]Hospital of Chongqing Medical University, China
[4]Universite´ Libre de Bruxelles, Belgium

Abstract

Ovarian cancer (OC) is the highest worldwide cancer mortality cause among gynecologic tumors, but its underlying molecular mechanism remains largely unknown. Here, we report that the RNA binding protein A-kinase anchoring protein 8 (AKAP8) is highly expressed in ovarian cancer and predicts poor prognosis for ovarian cancer patients. AKAP8 promotes ovarian cancer progression through regulating cell proliferation and metastasis. Mechanically, AKAP8 is enriched at chromatin and regulates the transcription of the specific hnRNPUL1 isoform. Moreover, AKAP8 phase separation modulates the hnRNPUL1 short isoform transcription. Ectopic expression of the hnRNPUL1 short isoform could partially rescue the growth inhibition effect of AKAP8 knockdown in ovarian cancer cells. In addition, AKAP8 modulates PARP1 expression through hnRNPUL1, and AKAP8 inhibition enhances PAPR inhibitor cytotoxicity in ovarian cancer. Together, our study uncovers the crucial function of AKAP8 condensation-mediated transcription regulation, and targeting AKAP8 could be potential for improvement of ovarian cancer therapy.



Biography

Youchaou Mobet, a native of the Republic of Cameroon. He currently completed his post-doctoral training at Nansha post-doctoral program in Guangzhou with Molecular oncology field. During his post-doctoral training he has served as a research and development manager at Baisheng biological. In June 2023 he has been awarded Ph. D in Molecular Medicine focusing his research on gynecological tumors at Chongqing Medical University of China. He holds a dual master's degrees in molecular and Cell Biology and Clinical Diagnostic Laboratory respectively at the Faculty of Sciences and the Faculty of Medical and Pharmaceutical Sciences-University of Douala-Cameroon). He completed his academic program through an internship at Stago Diagnostica in Paris, France, and the Clinical Laboratory of the General Hospital of Douala-Cameroon where he gained advanced clinical diagnostic methods. During his Doctoral studies, He completed and intensive training in the Clinical Research Center of The Third Affiliated Hospital of Chongqing Medical University of China and Gynecology and Obstetric center of The Third Affiliated Hospital of Chongqing Medical University of China as Research Assistant and Clinical Trial Project Assistant. Dr. MOBET has achieved many successful research achievements during the past three years.

DEVELOPMENT OF NEW CYCLOMETALLATED IR(III) COMPLEXES FOR A SELECTIVE PHOTODYNAMIC THERAPY OF CANCER

Elisenda Zafon, Francesc Tebar, Juan Sanz, Gustavo Espino, Anna Massaguer and Cristina Bermejo

University of Girona, Spain

Abstract

Background: Cancer is a heterogenous disease with a high incidence around the world. Although there is a wide variety of therapies, they often cause side effects. To overcome this problem, photodynamic therapy (PDT) has emerged as a promising approach. PDT involves the administration of a chemotherapeutic agent, known as photosensitizer (PS), which is only active when exposed to visible light. This strategy allows a selective activity of the PS against the tumor cells upon irradiation, with minimal toxic effects on healthy tissues.

Objective: To study the effectiveness of a new family of Ir(III) cyclometallated complexes as PSs for a PDT against different cancer models.

Methods: The effect of the complexes against cancer cells was assessed using 2D cultures from PC-3 (prostate adenocarcinoma), SK-MEL-28 (melanoma) and A549 (lung adenocarcinoma) cell lines, as well as A549 spheroids. Additionally, their internalization and subcellular distribution were determined by confocal microscopy using specific probes for cellular organelles.

Results: Three Ir(III) complexes demonstrated a very high antitumoral activity upon blue light irradiation, with $IC_{50,light}$ values at the low nanomolar range, and phototoxic indexes (PIs) ($IC_{50,dark}/IC_{50,light}$) ranging from 70 to 201. Moreover, although with lower PIs, they can also be activated with green and red light. Cell viability studies with spheroids also showed good PDT activity, with an $IC_{50,light}$ value of 0.36 ± 0.08μM for complex 1 and a PI of 33. Confocal microscopy studies showed a highly rapid cellular internalization and accumulation both in the mitochondria and the endolysosomal system, significantly affecting its morphology and activity.

Conclusion: The novel Ir(III) complexes analysed demonstrated promising potential as PS candidates for a selective PDT against different types of cancers.

Biography

Elisenda Zafon graduated in Genetics, has focused her pre-graduated and post-graduated investigation on different aspects of basic cancer research. Currently, she is a PhD student at the Department of Biology at the University of Girona. Her research is based on studying different families of photosensitizer for photodynamic therapy and their conjugation to carrier peptides for a targeted drug delivery. These strategies aim to increase the therapy effectiveness and reduce side effects to improve the quality of life of cancer patients.

AUGMENTED DEGRADATION OF FACTORS VIII AND IX IN THE INTERMITTENT MOVEMENT STATE

Haim Cohen

Haifa University, Israel

Abstract

Background: The most common clinical presentation of hemophilia A and hemophilia B is bleeding in large joints and striated muscles. It is unclear why bleeding has a predilection to affect joints and muscles. As muscles and joints are involved in intermittent movement, we explored whether this phenomenon could be associated with an impact on factor VIII and IX levels. In addition, given that calcium ions are known to enhance factor VIII–von Willebrand factor (vWF) interaction, the present study has investigated the role of these ions on factors VIII and IX in the condition of motion.

Objective: To Understand the mechanism that causes bleeding in the muscles and joints and find a solution for it.

Methods: Purified proteins and a mouse model were assessed using coagulation assays, Western blot analysis and immuno-staining. The effects of calcium ions were assessed using purified proteins via Western blot, factor VIII activity, immunocytochemistry, and in Institute of Cancer Research (ICR) mice with no specific genetic background.

Results: Movement caused an increase in thrombin activity and a decrease in factor VIII and factor IX activity. The decrease in factor VIII activity was more significant in the presence of thrombin and during movement. Under movement condition, sodium ions appeared to enhance the activity of thrombin that resulted in decreased factor VIII activity. Unlike factor VIII, the reduction in factor IX levels in the movement condition was thrombin-independent. High factor VIII levels were found to protect factor IX from degradation and vice versa. In mice that were in movement, factor VIII and IX levels decreased in the microcirculation of the muscle tissue compared with other tissues and to the muscle tissue at rest. Movement had no effect on von Willebrand factor levels. Calcium was found to prevent degradation of plasma-derived factor VIII but not that of factor IX, during intermittent motion. Calcium levels in the microcirculation of mouse striated muscles were elevated following movement, enabling prevention of factor VIII degradation in normal physiology. Calcium supplementation in drinking water increased factor VIII levels in blood and striated muscles of ICR mice during movement.

Conclusion: Movement induces reduction in factor VIII and IX levels. It enables an increase in the binding of sodium ions to thrombin leading to enhanced thrombin activity and augmented degradation of factor VIII. calcium ions decrease factor VIII degradation in the condition of motion.

Biography

Haim Cohen researched the disease of hemophilia during his master's degree and PhD, for the purpose of the research he used a variety of methods under the guidance of a senior medicine researcher in the field of coagulation. During his studies, Haim also guided medical students in the hematology laboratories. Haim is now a lecturer in many academic institutions in basic scientific fields in the world of medicine.

LARGE GRANULAR LYMPHOCYTIC LEUKEMIA – A RETROSPECTIVE STUDY OF 319 CASES

Ning Dong
Moffitt Cancer Center, USA

Abstract

Background: Large granular lymphocytic leukemia (LGLL) is a rare hematological malignancy that arises from cytotoxic T lymphocytes (T-LGLL) in 85% of cases and natural killer (NK) cells in the rest. Our knowledge is limited regarding the pathogenesis, treatment choices, and prognostic factors of LGLL.

Objectives: To understand the patient features, clinical course, responses to treatment and outcomes of LGLL patients.

Methods: We conducted a single-center retrospective study of all the LGLL patients who presented to Moffitt Cancer C enter in Florida, USA between 2001 and 2020.

Results: A total of 319 LGLL patients were identified, including 295 patients with T-LGLL and 24 with chronic NK-cell lymphoproliferative disorder (CLPD-NK). The median age was 65 years (range, 17–90 years). Eighty-three patients (26.0%) had autoimmune diseases. A total of 119 patients (37.3%) had coexisting malignancies, 66 (20.7%) had solid tumors, and 59 (18.5%) had hematological malignancies. Most coexisting malignancies were diagnosed before the diagnosis of LGLL. Treatment was needed for 57% of patients. Methotrexate (MTX), cyclophosphamide (Cy), and cyclosporine A (CSA) were most used and had similar response rates between 61.5%–74.4%. Cy produced more complete responses (32.3%) compared to MTX and CSA (15.7% and 23.1%, respectively). Thrombocytopenia, splenomegaly, and female gender (after controlling for autoimmune diseases) were associated with decreased response rates to MTX, CSA, or Cy. Autoimmune diseases were associated with increased response rates. Thrombocytopenia was an independent risk factor for worse survival.

Conclusion: Current treatments for LGLL are unsatisfactory. A minority of patients achieve CR with commonly used immunosuppressive agents and treatments with MTX or CSA usually require lifelong therapy. Research is needed to find better treatment options for LGLL.

Biography

Ning Dong is a lymphoma specialist at Moffitt Cancer Center, Tampa, USA. Her research focuses are aggressive B-cell lymphomas and large granular lymphocytic leukemia (LGLL). She is especially interested in immunotherapy for lymphomas and novel therapy in LGLL. She is the PI of the clinical trial to study siltuximab, an IL-6 mAb, in LGLL. The trial is currently recruiting at Moffitt Cancer Center, Tampa, USA.

IS EGFRVIII AN EPIPHENOMENON? COMPARING ONCOGENIC EGFRVIII AND RASG12V ONCOGENIC ACTIVITY

Piotr Rieske[1,2], Aneta Włodarczyk[1,2], Cezary Tręda[1,2] and Ewelina Stoczyńska-Fidelus[1,2]

[1]Medical University of Lodz, Poland
[2]Department of Research and Development Personather, Poland

Abstract

Background: EGFRvIII and RAS oncogenes were analyzed profoundly for years. However, the role of EGFRvIII is very ambiguous, whereas the role of oncogenic RAS (RASG12V) is better defined. Both oncogenes are considered targets for targeted therapy, including immunotherapies. Our goal was to compare both oncogenes to get better insight into their roles.

Objective: To compare EGFRvIII and RASG12V oncogenic activity in cellular models.

Methods: Preparation of EGFRvIII, RASG12V inserts, lentivirus production, and the transduction procedure were performed. Lentiviruses carrying EGFRvIII and RASG12V were used in DK-mglow (the DK-MG subline deprived of EGFRvIII amplicons) and fibroblasts. Following clonal selection with puromycin, cells with and without exogenous EGFRvIII and RASG12V expression were compared in terms of their viability, proliferation ratio, and kinases activities.

Results: RASG12V caused the senescence of fibroblasts. EGFRvIII did not influence fibroblasts proliferation ability. EGFRvIII introduced into DKMG cells deprived of EGFRvIII amplicons (DKMG low) did not cause the regaining phenotype observed before amplicons elimination. Introducing RASG12V into the DKMG low cells caused a regaining of the DKMG cells phenotype with amplicons. RASG12V caused AKT and ERK activation in both cell types. EGFRvIII did not change those kinases activities.

Conclusion: RASG12V has well-known oncogenic activity. EGFRvIII can be an epiphenomenon. EGFRvIII does not seem to be a proper target for small molecules or immunotherapies such as CAR-T.

Biography

Piotr Rieske obtained MSc in 1996 and PhD in 1998. Between 1999 and 2005, he worked as a postdoctoral fellow at three USA universities: Jefferson, Hahnemann/Drexel, and Temple Philadelphia. Since 2012, he has been a principal investigator in the Department of Tumor Biology at the Medical University of Lodz. He is the leader of teams developing anti-cancer therapies.

EPIGENETIC TARGETING OF CASTRATION-RESISTANT PROSTATE CANCER USING SMALL MOLECULE INHIBITORS OF KDM4B

Lingling Duan, Yu-An Chen, Yanping Liang, Zhenhua Chen, Jun Lu, Yong Fang, Jiazheng Cao, Jian Lu, Hongwei Zhao, Rey-Chen Pong, Elizabeth Hernandez, Payal Kapur, Tram Anh T Tran, Tristan Smith, Elisabeth D. Martinez, Jung-Mo Ahn, Jer-Tsong Hsieh, Jun-hang Luo, and Zhi-Ping Liu

UT Southwestern Medical Center, USA

Abstract

Background: Epigenetic mechanisms play a critical role in tumorigenesis, and targeting epigenetic regulators is becoming an innovative approach for cancer therapy. The potential of epigenetic therapies for prostate cancer (PCa) remains underexplored. Previously, we identified KDM4B as a promising target for castration-resistant prostate cancer (CRPC) and developed the small molecule inhibitors B3 and its water-soluble analog TS4105, which demonstrated anti-PCa activities in vivo.

Objectives: This study aimed to evaluate the synergistic effects of B3/TS4105 in combination with other therapeutic agents for PCa, including AR pathway inhibitors and non-AR pathway inhibitors.

Methods: We used MTT and colony formation assays to assess the in vitro efficacy of B3/TS4105 in combination with the AR antagonist enzalutamide, the mTOR inhibitor rapamycin, the PARP inhibitor olaparib, and the PARG inhibitor PDD00017273. Synergistic effects were evaluated through combination treatments. The in vivo therapeutic efficacy was tested using cell-line derived xenografts in mice. Biochemical analyses were conducted to explore the mechanisms underlying the observed synergy.

Results: Both B3 and TS4105 significantly inhibited prostate xenograft growth in castrated mice. B3 reduced AR-V7 expression in 22Rv1 cells and enhanced the effectiveness of enzalutamide in both in vitro and in vivo models. Additionally, B3 exhibited synergistic effects with rapamycin, leading to increased cell apoptosis. Notable synergistic responses were also observed when B3 was combined with olaparib or PDD00017273, as evidenced by significantly reduced colony formation compared to either agent alone.

Conclusion: Inhibition of KDM4B, either as a monotherapy or in combination with other anti-PCa agents, demonstrates significant potential for the clinical application of epigenetic therapies targeting KDMs in CRPC treatment.

Biography

Zhi-Ping Liu graduated with a BA in Computer Science from the University of Science and Technology of China. She earned her master's degree in Biochemistry from the Shanghai Institute of Biochemistry and a PhD in Biophysics from the University of Texas Southwestern Medical Center. Following her PhD, Dr. Liu completed postdoctoral training in fly genetics with Dr. Steve A. Wasserman and in cardiovascular development in mice with Dr. Eric N. Olson. Dr. Liu began her independent career as an Assistant Professor and is now a tenured Professor in Internal Medicine-Cardiology at UT Southwestern Medical Center. Her research focuses on understanding the transcriptional regulatory mechanisms underlying human diseases, with particular emphasis on cardiovascular diseases and cancer. Her lab aims to identify disease targets and develop small molecule inhibitors for these targets. Dr. Liu's lab employs a multidisciplinary approach that includes molecular and cellular biology, genetics, biochemistry, immunology, and electrophysiology.

OUTCOMES OF CHEMOTHERAPY RECHALLENGE IN THIRD LINE AND BEYOND FOR PATIENTS (PTS) WITH METASTATIC COLORECTAL CANCER (MCRC)

Amelia Rees[1], Kalena Marti[2] and Jamie Weaver[1,2]

[1]*University of Manchester, United Kingdom*
[2]*The Christie NHS Foundaiton Trust, United Kingdom*

Abstract

Background: Despite recent addition of new regimens and personalised options in mCRC, therapeutic options remain limited. For rapidly progressing disease, re-introduction of chemotherapy (CT) might be an appealing strategy. Here we present the outcomes at our institution.

Methods: Using electronic patient records, a retrospective cohort of pts with mCRC treated with several lines of CT and exposed at least twice to the same CT backbone (irinotecan (Ir) or oxaliplatin (Ox)) were identified at The Christie NHS Foundation Trust. Data were curated to identify pts who met rechallenge definition. Disease control was defined as stable disease or any degree of response on imaging. Data on baseline characteristics and treatment were collected.

Results: 150 pts met rechallenge criteria. 1 pt treated with FOLFOXIRI 1st line was rechallenged in 2nd line. 99 pts were rechallenged in 3rd line, 37 in 4th line, 13 in 5th line. At 1st rechallenge, 70 pts and 80 received an Ir- or Ox-based regimen respectively. Of pts who responded to 1st exposure, 54% had disease control; 42% disease progression (DP) and 4% unknown responses. Of patients with SD on 1st exp, 41% had disease control on rechallenge; 55% had DP and 4% were unknown. Of those with DP on 1st exp, 62.5% had disease control and 37.5% had DP. Overall, there was disease control in 53% of patients at rechallenge; 43% had DP and 4% unknown. For pts who responded to 1st exposure to Ir, 63% had disease control on rechallenge and 35% DP. For pts who responded to 1st exp to Ox, 48% had disease control on rechallenge and 47% DP. Time to progression after 1st exp and the line of treatment in which rechallenge was received were assessed.

Conclusion: Our data supports CT rechallenge as a valid therapeutic option for pts with mCRC.

Biography

Amelia Rees is a final-year medical student at the University of Manchester with a keen interest in oncology and ophthalmology. She has completed a research project at The Christie NHS Foundation Trust, where she focused on evaluating rechallenging chemotherapy regimens in metastatic colorectal cancer patients. Amelia's dedication to research is reflected in her passion for improving patient outcomes through evidence-based care. Beyond her academic pursuits, she is the President of the University of Manchester Ophthalmology Society, where she organises educational events and lectures for students. Amelia aims to pursue a career that combines her love for clinical practice and research.

SURVIVAL OF PATIENTS WITH FOLLICULAR LYMPHOMA AND PROGNOSTIC FACTORS IN A REFERENCE HOSPITAL IN MEXICO

Gerardo Santiago Jiménez
Hospital General De Mexico, Mexico

Abstract

Background: Follicular lymphoma (FL) is the most prevalent form of indolent non-Hodgkin lymphoma. In Mexico, approximately 20.1% of non-Hodgkin lymphoma cases annually are diagnosed as FL. There is restricted research on the epidemiology of lymphomas in adults. Additionally, limited data on the prognosis and survival rates of FL patients hampers efforts to manage treatment-related side effects and develop improved therapeutic strategies.

Objective: This study aimed to assess the effectiveness of the Follicular Lymphoma International Prognostic Index (FLIPI) and FLIPI-2 scales in predicting overall survival in patients with FL over a 96-month follow-up period. The study was conducted in a Latin American reference center located in Mexico.

Methods: A retrospective cohort study was conducted using clinical records of FL patients treated at the Hospital de Mexico "Dr. Eduardo Liceaga"; over the past decade. The study included complete clinical records of adult patients diagnosed and treated by the Hematology Department.

Results: The study included 49 clinical records with a median age of 58 years (range 26 – 84 years);53.1% were male. 79.6% received an immunochemotherapy scheme with R-CHOP, and 20.4% received CVP. The overall survival at 96 months was 82.5%, while the overall survival at 50 months according to FLIPI was 59.3%. 96-month survival according to high FLIPI-2 was 45.7%. Considering that a significant number of patients had symptoms at diagnosis and were at an advanced clinical stage.

Conclusion: Treatment failure is often due to the lack of methods capable of effectively representing the biological and clinical heterogeneity of this disease. Prognostic scales are useful and have a significant impact on predicting patient outcomes, as well as access to drugs and socioeconomic factors.

Biography

Gerardo Santiago Jiménez is engaged in clinical, epidemiological and laboratory research in Hematology and related disorders, initial assessment of hematological patients. Primary Appointment: Consultant, Division of Hematology, from Hospital General de Mexico "Dr. Eduardo Liceaga" Mexico City.

INFLAMMATORY RATIOS: NEW TOOLS FOR EARLY DIAGNOSIS OF LUPUS FLARES

Mariem Ajmi, Salma Riahi, Amal Chaabouni, Imen Ben Hassine, Fatma Ben Fredj and Amina Bouattay

Sahloul University Hospital, Tunisia

Abstract

Background: Rapid diagnosis of lupus flares is crucial for optimizing treatments. Inflammatory ratios such as neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), monocyte-to-lymphocyte ratio (MLR), and red cell distribution width (RDW) have emerged as potential markers for earlier diagnosis of lupus flares.

Objective: This study aims to evaluate the diagnostic relevance of NLR, PLR, MLR, and RDW in lupus flares by comparing them with a control group.

Methods: It's a retrospective comparative study conducted over 5 years (2019-2024) at the internal medicine department of Sahloul Hospital. The study included two groups of participants: a group of patients with lupus flares and a control group, matched for age and sex. A descriptive analysis of the demographic and clinical characteristics of the two groups was performed, followed by a statistical analysis.

Results: Forty-four patients were included in the study: 18 with lupus flares and 26 controls. The mean age of patients with lupus flares was 35.2 years (16-63), and 100% were women. At diagnosis, the most frequent clinical manifestations were cutaneous, articular, and hematological. Mean values of different inflammatory ratios were significantly higher in the lupus group compared to the control group ($p<0.05$). The area under the ROC curve (AUC) was 0.85 (95% CI: 0.72-0.98) for RDW, followed by NLR with an AUC of 0.75 (95% CI: 0.6-0.89), then PLR with an AUC of 0.74 (95% CI: 0.58-0.89), and the lowest AUC was for MLR at 0.67 (95% CI: 0.5-0.83). The NLR, PLR, MLR, and RDW ratios showed sensitivities of 72%, 72%, 61%, and 83.3%, respectively, and specificities of 65%, 61%, 69%, and 90%, with cutoff values of 2.12 for NLR, 125.6 for PLR, 0.21 for MLR, and 13.9 for RDW.

Conclusion: Integrating the inflammatory ratios NLR, PLR, MLR, and RDW could revolutionize early diagnosis of lupus flares.

Biography

Riahi Salma is an associate professor and a hemato-biologist, with experience in hemostasis, cytology, and immunohematology. She is interested in studying haemogram markers, ratios, and new biomarkers derived from the haemogram, to exploit their contribution to clinical diagnosis and disease monitoring. The whole team faces a daily challenge to optimize patient care. The work aims to develop practical and effective algorithms.

ASSESSMENT OF THE MEDICAL LEECH AS A MINIMALLY INVASIVE TECHNIQUE FOR EXTRACTING BLOOD IN VETERINARY MEDICINE

Indrė Mickevičienė

Lithuanian University of Health Science (LUHS), Lithuania

Abstract

Objective: The study examined whether leech-collected animal blood might be used for automated blood morphology and smear testing.

Methods: The control group comprised data collected from blood tests conducted through venipuncture on horses. The initial research group consists of data obtained by analyzing the blood extracted by leeches soon after feeding. The second group includes leeches' blood tests 24 hours after feeding, and the third group includes tests 96 hours later. Both the control and first research groups underwent automated blood morphological assessment and blood smears. The study groups two and three underwent blood smears.

Results: The findings demonstrate that there were statistically significant differences ($p < 0.05$) between research groups in the analysis of blood morphological markers for HGB, MCV, and WBC. The following indicators exhibited statistically insignificant differences: RBC, HTC, MCHC, RDW, PLT, PCT, PDW, LYM, MONO, and NEU ($p > 0.05$). The leukocyte formulas of blood from a leech and blood from a vein were analyzed. The study found there is a statistically significant difference in the number of segmented neutrophils ($p < 0.05$) and band neutrophils ($p < 0.05$). No statistically significant differences were seen in the levels of lymphocytes, eosinophils, and monocytes ($p>0.05$). An inverse correlation ($r = -0.859$, $p < 0.01$) was seen between the time of blood feeding of the leech and the quality of the blood smear. As the leech continues to feed on blood, the quality of the smear decreases. At 24 and 96 hours following aspiration, blood smears showed intracellular changes in blood cells.

Conclusion: Blood smears can be assessed using leeches, but they must be viewed immediately after aspirating. The lack of exact indicator variation evaluation and independent normal indicator limit determination makes leech-derived blood unsuitable for automated morphological blood analysis. Thus, comprehensive follow-up investigations are needed.

Biography

Indrė Mickevičienė is currently a resident at the Lithuanian University of Health Sciences (LUHS), where she specializes in veterinary hematology-toxicology. She received her diploma in 2022 after completing her studies in Veterinary Medicine at the Lithuanian University of Health Sciences (LUHS). While she was doing her education at LUHS, she participated in clinical veterinary practice at UAB Žaliakalnis in 2018. Following that, she assisted at UAB Barbosas veterinary clinic in Lithuania from 2020 to 2022. Between the years 2022 and 2023, she worked as a veterinary pharmacist in the UAB VET-1 facility after she graduated. Research interests include Veterinary Hematology, Pathology of Wildlife and Large Animal. Hematology in veterinary medicine, pathology of wildlife, and large animals are some of the areas of research that she is interested in.

MYOCARDITIS AS A LUPUS CHALLENGE: TWO CASE REPORTS

Hiba Ibrahim Khogali
Tawam Hospital, United Arab Emirates

Abstract

Background: Myocarditis is a rare complication of systemic lupus erythematosus (SLE), presenting with a spectrum of severity. We present two cases where myocarditis was the initial presentation of SLE, despite thorough investigations ruling out other causes. Treatment typically involves corticosteroids, immunosuppressive agents, and heart failure medications, tailored to the individual's needs. Mycophenolate mofetil is commonly used for remission induction and maintenance in lupus myocarditis.

Objective: To showcase the effectiveness of managing SLE myocarditis solely with conventional immunosuppressive medications.

Methods: We present two challenging cases of SLE manifestation.

Results: Both Emirati patients met diagnostic criteria for mixed connective tissue disease (predominantly SLE) and SLE. After excluding other causes of myocarditis, treatment commenced with pulsed and oral steroids alongside hydroxychloroquine, mycophenolate mofetil, and heart failure medications as necessary. Significant symptom improvement was observed within the initial weeks.

Conclusion: Timely detection and management of lupus myocarditis are essential for averting severe complications. Conventional immunosuppressive drugs have shown promising results in addressing SLE myocarditis. However, a novel approach to treatment involves a combination of high-dose steroids and biological agents like cyclophosphamide, followed by maintenance immunosuppressive therapy such as azathioprine. Our published cases highlight the successful implementation of a distinct treatment regimen utilizing mycophenolate, resulting in not only the resolution of critical conditions but also the restoration of cardiac function to nearly normal levels.

Biography

Hiba Ibrahim Khogali, a distinguished Rheumatologist at Tawam Hospital's Rheumatology Department, boasts several certifications such as Sc Rheumatology UK, MRCP, MRCPI, and MBBS. Specializing in conditions including SLE, high-risk osteoporosis, systemic sclerosis, and various forms of arthritis, she has authored numerous publications, particularly as the first author in SLE. Hiba has founded specialized clinics at Tawam Hospital, such as the SLE clinic, Joint Rheumatology-OB clinic for high-risk pregnancies, Psoriatic Arthritis Co-joint clinic with Dermatology, and CK-MBD clinic with Nephrology and Endocrinology. Additionally, she is integral to the Tawam Residency program as a core faculty member and serves as a Clinical Examiner for medical students and Internal Medicine residents, significantly contributing to both education and clinical practice.

Day-2
Video Presentation

PEGCETACOPLAN IN PAROXYSMAL NOCTURNAL HEMOGLOBINURIA: A COMPREHENSIVE REVIEW OF CLINICAL EFFICACY AND IMPLICATIONS

Muhammad Subhan[1], Ruqiya Bibi[1], Abdul Hannan Asghar[2] and Atinder Singh[3]

[1]Allama Iqbal Medical College, Pakistan
[2]Quaid E Azam Medical College, Pakistan
[3]Pt Bd Sharma University of Health Sciences, Pakistan

Abstract

Paroxysmal Nocturnal Hemoglobinuria (PNH) is a rare, life-threatening disorder characterized by hemolysis, thrombosis, and bone marrow dysfunction. The advent of Pegcetacoplan, a C3 complement inhibitor, has emerged as a promising therapeutic option for PNH patients, particularly addressing the limitations of C5 inhibitors. This review synthesizes current research, focusing on Pegcetacoplan' s role in managing PNH. Pegcetacoplan' s mechanism of action involves the proximal inhibition of complement at the level of C3, counteracting the persistent anemia from C3-mediated extravascular hemolysis. The absence of GPI-anchored complement regulatory proteins CD55 and CD59 in PNH erythrocytes leads to their vulnerability to complement-mediated intravascular hemolysis. Pegcetacoplan is administered subcutaneously at 1,080 mg twice weekly, with a crossover period recommended for patients transitioning from C5 inhibitors. Clinical trials have demonstrated a significant increase in hemoglobin levels with Pegcetacoplan treatment. Patients exhibited a median increase of 2.4 g/dL in hemoglobin within the first two weeks. The effectiveness was particularly notable in patients unresponsive to C5 inhibitors, with long-term studies affirming its sustained efficacy and safety. The criteria for determining Pegcetacoplan' s effectiveness included improved hemoglobin levels, reduced transfusion dependency, and alleviated symptoms. Long-term treatment spanning 74 to 96 weeks has shown positive outcomes, with patients maintaining increased hemoglobin levels and reduced lactate dehydrogenase (LDH) levels indicative of decreased hemolysis. Pegcetacoplan represents a significant advancement in the care of PNH patients, potentially setting a new standard of treatment. It offers hope by addressing the unmet need in those who remain transfusion-dependent or experience symptomatic anemia despite prior C5 inhibitor treatment. Ongoing research is crucial to fully understand Pegcetacoplan' s long-term effects, cost-effectiveness, and broader therapeutic role in PNH management. Keywords: Paroxysmal Nocturnal Hemoglobinuria, Pegcetacoplan, Hemolysis, Complement Inhibition, C3 Inhibitor, Treatment Efficacy.

Biography

Muhammad Subhan is a dedicated Postgraduate Resident in the Gastroenterology Department at Jinnah Hospital, Lahore, and has been contributing as a remote research assistant at Beth Israel Deaconess Medical Center (BIDMC) Cardiology, USA, since February 2024. He completed his MBBS from Allama Iqbal Medical College, Lahore, where his passion for research was ignited. Subhan has published 15 medical research articles, including publications in prestigious PubMed-indexed journals, and has presented at multiple national and international conferences. He has also volunteered as a peer reviewer for journals indexed in Web of Science, refining his analytical and critical thinking skills. Subhan's academic journey is marked by his distinction in biochemistry during his MBBS, and his successful completion of the USMLE Step 1 and Step 2 exams. His leadership experience extends beyond research, having participated in community-based healthcare training, where he collaborated with diverse teams to deliver patient-centred care. He is passionate about further advancing his research skills and contributing to groundbreaking work within internal medicine and its subspecialties.

Day-2
e-Poster Presentations

EARLY EFFICACY OF AN ORAL IRON GLUCONATE IN MODERATE IRON DEFICIENCY ANEMIA: RESULTS OF THE FAST STUDY

Cacoub

Innotech International, France

Abstract

Background: Oral iron salts are frequently used as a first-line treatment for mild to moderate Iron Deficiency (ID) anemia. For an effective ID management, it is necessary to know the response to treatment at an early stage.

Objective: The FAST study assessed the onset-of-action of an iron gluconate oral liquid solution (Tot'hema®) in adults with moderate ID anemia.

Methods: This prospective, open-label, phase IV study was conducted in France, Bulgaria and Kenya. All patients received 150 mg of oral iron gluconate/day for 12 weeks. Eleven blood samples were taken at day-7 to day-1 (screening) and at days 0, 3, 5, 7, 10, 14, 21, 28, 56 and 84 (on treatment). The primary endpoint was to assess the treatment duration required to observe a +0.5 g/dL hemoglobin level increase. Secondary endpoints included changes in serum iron level and in clinical signs (fatigue [Visual Analogue Scale], quality of life [SF-36]), treatment compliance, as well as safety profile.

Results: 95 patients were included in the final analysis. Hemoglobin increase ≥ 0.5 g/dL was observed before the 10th day of treatment (0.51 g/dL at day10, 95% CI: 0.45 – 0.57, $p<0.0001$). Serum iron increased within the first three days of treatment (mean change from baseline: 67.21 ± 91.57 µg/dL) with a peak reached at day 7 (79.61 ± 100.42 µg/dL). A decrease of fatigue (VAS -2.76 cm ± 2.73) and an improvement of quality of life (physical component mean change: 8.20 ± 7.34; mental component: 6.72 ± 6.67) were reported after 12 weeks of treatment, as well as a good adherence to treatment and an excellent safety profile.

Conclusion: The FAST study demonstrates for the first time the rapid onset-of-action of iron gluconate oral liquid solution and confirms its good tolerability. This should be considered when choosing a route of administration for iron supplementation in patients with moderate ID anemia.

Biography

Cacoub is currently Professor of Medicine at the Sorbonne University and Head of the Department of Internal Medicine and Clinical Immunology, La Pitié-Salpêtrière Hospital, Paris, FRANCE. During his career, Cacoub has conducted research on auto-immune diseases, hepatitis C and B virus, drugs liver toxicity, HIV, peripheral neuropathies, anemia, and vascular medicine. In total, Cacoub has authored more than 860 research publications, 52 publications in books and 120 CME publications (H factor 122). He has been involved in the development of a number of national and international guidelines, clinical trials and initiatives to improve clinical care, particularly in hepatitis C treatment, extrahepatic manifestations associated to HCV, systemic vasculitis, co-infection with HCV and HIV, drugs liver toxicity, peripheral arterial disease, anemia and iron deficiency.

APPLICATION OF MACHINE LEARNING ON A PANEL OF MOLECULAR BIOMARKERS FOR ORAL CANCER DIAGNOSIS

Sara Haghighat[1,2] and Muy-Teck Teh[3]

[1]Shiraz University of Medical Sciences, Iran
[2]Topic Group Dental Diagnostics and Digital Dentistry, ITU/WHO Focus Group AI on Health, Germany
[3]Queen Mary University of London, UK

Abstract

Background: Head and neck cancers are among the most prevalent cancers in both male and female and are estimated to affect more than 300,000 people worldwide every year. Prompt diagnosis of the lesion can significantly determine its prognosis and treatment planning, it is necessary to develop non-invasive methods for its early diagnosis.

Objective: To optimize a machine learning model on a panel of molecular biomarkers for opportunistic screening of oral cancer.

Methods: A UK cohort data was gathered from our previously published international multicohort study, which consisted of 309 samples taken from oral lesions suspicious to oral cancer. Dataset consisted of relative gene expression levels of 14 target genes normalized to 2 reference genes for each tissue sample measured using qPCR method. Data were analysed on Jupyter notebook (Python 3.11.5) using 7 common machine learning algorithms for classification including Logistic Regression, Gaussian Naive Bayes, K-Nearest Neighbors (KNN), Support Vector Machine (SVM), Decision Tree, Random Forest and XGBoost classifier. Each algorithm was tested with 7 different test sizes including 0.1, 0.15, 0.2, 0.25, 0.3, 0.35 and 0.4. The data were normalized using MinMaxScaler and all 14 genes plus samples' quality were included in the analysis. To test the generalizability of the model performance, the model with highest AUC was considered as the final model and were tested on another data set for the external validation.

Results: The model with best performance metrics was XGBoost classifier with test size = 0.35 with AUC = 0.9129, Accuracy = 0.9174, Precision = 0.9062, Recall = 0.9508 and F1 score = 0.9280. Following this, the Random Forest model obtained the next highest AUC scores of 0.9106 and 0.8865 with test sizes of 0.40 and 0.20, respectively.

Conclusion: Machine learning modeling could accurately classify the cancerous and healthy lesions of oral cancer based on gene expression levels.

Biography

Sara Haghighat is a dentist and researcher passionate about harnessing the power of Artificial Intelligence to revolutionize healthcare. Her expertise lies in health data analysis, with a strong foundation in working with large-scale datasets. She leverages her programming skills in Python and her knowledge of machine learning to extract meaningful insights from complex healthcare data. This expertise has been honed through her participation in over 10 research projects, tackling diverse healthcare challenges. Dr.Sara Haghighat actively participates in international initiatives like ITU-WHO's AI in Health Focus Group, Cochrane Collaboration and Global Burden of Disease Study, demonstrating her commitment to advancing global healthcare outcomes.

PLATELET TRANSFUSION PRACTICE AND PLATELET REFRACTORINESS FOR CRITICALLY ILL CANCER PATIENTS WITH THROMBOCYTOPENIA

Xiangqin Lei

Dianjiang People's Hospital of Chong Qing, China

Abstract

Background: Thrombocytopenia is a frequent finding in critically ill cancer patients and causes chemotherapy dose reductions or treatment delays, bleeding, and suboptimal oncological outcomes. However, data are scarce about the management of thrombocytopenia. We herein performed an observational study to describe post-transfusion platelet responses and analyze the determinants of poor post-transfusion increments in critically ill cancer patients with thrombocytopenia.

Methods: The monocenter retrospective study was conducted in Dianjiang general hospital. Adult patients with malignancies and thrombocytopenia, and who had received at least one platelet concentrate from Jan. 2023 to Dec. 2023, were included. Poor platelet transfusion response was defined as body surface-adjusted corrected count increment (CCI) less than 7.5 at 18-24 h after platelet transfusion. Two consecutive ABO-compatible platelet transfusions (within 3 days) resulted in poor platelet increments is deemed as platelet transfusion refractoriness.

Results: 89 patients mainly in oncology department and ICU were included and received a total of 327 platelet transfusions. 133 (40.7%) episodes were performed for prophylactic indications, 66 (20.2%) for invasive surgery, and 128 (39.1%) for therapeutic interventions. Regardless of the indication, 61.5% of transfusion events are associated with CCI < 7.5. The independent factors related to poor post-transfusion increments include body mass index, hemoglobin, splenomegaly, sepsis and storage duration of platelet. Eventually, 15 patients (16.9%) are deemed as platelet transfusion refractoriness.

Conclusion: In this study of critically ill cancer patients, the incidence of poor platelet increment was high. The research results indicate that intervention measures can improve the practice of platelet transfusion.

Biography

Xiangqin Lei, blood transfusion, competent inspection technician, graduated from Shanxi medical college in 2010, served in Chongqing mat jiang county people's hospital of blood transfusion, good at: blood type, cross blood, difficult with blood and other related tests, guide the clinical rational use of blood, the use of various blood components have good insights, the adverse reactions to blood transfusion have good disposal method.

INSILCO AND INVITRO APPROACHES IDENTIFY NOVEL DUAL PI3K/AKT PATHWAY INHIBITORS TO CONTROL ACUTE MYELOID LEUKEMIA CELL PROLIFERATIONS

Mohammad Abohassan
King Khalid University, Abha, Saudi Arabia

Abstract

Background: Acute myeloid leukemia (AML) is characterized by disruption of intracellular signaling due to aberration of extracellular signaling pathways, namely PI3K/AKT cascade, by dysregulating erythropoiesis and myelopoiesis. Therefore, inhibition of PI3K/AKT, either individually, or by dual inhibitors, is shown to be effective in suppression of tumorigenesis.

Objective: To increase the therapeutic viability and decrease adverse effects, including cytotoxicity due to off-target kinase inhibitions, customized targeted pharmacological agents are needed that would have greater treatment potential.

Methods and Results: In this work, using an interdisciplinary approach, we have identified dual inhibitors targeted to PI3K and AKT to significantly repress the cell proliferation in AML cancers. Diversity-based high-throughput virtual screening (D-HTVS) technique followed by conventional docking approach identified small molecules from ChemBridge library, having high binding affinity for PI3KCG subunit. Further computational screening of top identified PI3K-specific lead molecules predicts dual inhibitors with high binding affinity for AKT. To rule out the possibility for cross-reaction/off-target effects of identified small molecules, lead compounds having nil or negligible binding to PI3KCA- and PI3KCB subunits were chosen. Computational screening, enzyme inhibition and cell proliferation assays show compound C16,5-{[(1,3-dioxo-1H-benzo[de]isoquinolin-2(3H)-yl)amino]methylene}-1-phenyl 2,4,6(1H,3H,5H)-pyrimidinetrione has better affinity for PI3KCG, delta, and AKT kinases compared to their respective known/established inhibitors, and has significant anti-cell proliferation activity in AML cells with a GI50 values of 77.25 nM and 49.65 nM in THP-1 and HL-60 cells, respectively.

Conclusion: This work proposes a novel dual inhibitor that selectively targets PI3K/ AKT and suppresses cell proliferation in AML cells as a potential lead molecule for treating AML cancers.

Biography

Mohammed Abohassan, an associate professor of haematology, is a self-motivated and detail-oriented researcher with a strong academic track record. He has actively participated in conferences, and is dedicated to his personal development and build the experience in the clinical laboratories to create new approaches of drugs that targeting the signaling pathways in the haematolgical disorders. Dr. Mohammad also serves as a director for Scientific Journals and Scientific Publishing administration at King Khalid University. With international academic exposure and a focus on projects and programs management.

ADAMTS13 TESTING IN PATIENTS WITH SUSPICION OF THROMBOTIC THROMBOCYTOPENIC PURPURA, "ANNUNZIATA" A.H. (CS, ITALY), YEARS 2020-2023

Francesco Zinno, Dario Terzi, Livia Bernardi, Gessica Medaglia, Simona Rende, Carmen Sansosti, Teresa Bartolillo, Celestina De Rosa, Daniela Mazzuca, Stefania Filice, Giuseppina Furgiuele, Marianna Puzzo, Cinzia Giordano, Ernesto Vigna, Massimo Gentile, Stefania Catalano

Annunziata Hospital Cosenza (Cs), Italy

Abstract

Introduction: Thrombotic thrombocytopenic purpura (TTP) is a rare disorder characterized by thrombocytopenia and microangiopathic hemolytic anemia, and very high-mortality rate (90%) in untreated patients. Severe ADAMTS13 deficiency (activity <10%) leads to accumulation of large von Willebrand Factor multimers, resulting in occlusive microvascular thrombi. TTP occurs either congenitally (cTTP, autosomal recessive), or as an acquired event (aTTP), due to development of anti-ADAMTS13 antibodies. Therapeutic plasma exchange (TPE) remains highly effective therapy; it is often used in conjunction with other therapies including corticosteroids, rituximab, and caplacizumab. We report a retrospective study of individuals admitted between January 2020 and December 2023 to "Annunziata" Hospital (CS, Italy), affected by thrombotic microangiopathy (TMA), with ADAMTS13 activity assessment.

Methods: 57 patients were investigated for ADAMTS13 testing (54% female, mean age at the first acute episode 56.3 ± 21.0 years, range 3-93; 46% male, mean age at the first acute episode 54.3±21.4 years, range 1-84). Diagnosis was performed by integrating clinical information with laboratory results (blood count, schistocytes, elevated LDH, haptoglobin, serum bilirubin etc.). Plasma ADAMTS13 activity was determined using ELISA chromogenic test "Technozym Adamts13 activity" (Technoclone).

Results: Of the 57 analysed patients, 22 (38%), mean age 61.0 ± 17.0 years, range 30-93, 68% female, presented with low ADAMTS13 activity; of those, 54% resulted with ADAMTS13 activity <10% (<0.1 IU/mL) (N=10 females, 83%, age range 30-75; N=2 males, age range 35-39 years). Persistently low plasma ADAMTS13 activity was observed in 50% of the followed up patients (N=16). All subjects with ADAMTS13 activity <10% (TTP diagnosis) were referred for TPE. No deaths were documented from TTP-related mortality.

Conclusion: Availability of ADAMTS13 testing is very effective in supporting a timely diagnosis of TTP and in allowing rapid use of life-saving therapy. Unfortunately, to date, these tests are not achievable in a homogeneous way throughout the national territory. The creation of a TTP registry in Calabria could constitute a valid tool to optimize identification and management of patients with TTP.

Biography

Livia Bernardi has her greatest expertise in Molecular Biology of tumors and neurodegenerative diseases (from the year 2003 to the year 2019). Her publications from the year 2006 to the year 2023 focus on neurodegenerative diseases, such as Alzheimer's disease, Frontotemporal dementia, Prion protein disease, Spinocerebellar ataxias, Cadasil, Parkinson's disease. Very recently, she began to study Hematology and diseases related to coagulation, in particular the Thrombotic microangiopathy, with Thrombotic thrombocytopenic purpura (TTP). Her approach is both biochemical and genetic, aiming to develop in her laboratory the genetic analysis using Next Generation Sequencing (NGS) methodology in patients affected by TTP, to search for ADAMTS13 gene mutations in hereditary TTP.

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Coalesce Research Group
33 Market Point Dr,
Greenville, SC 29607, USA

Contact Us:
Phone: +1-718-543-9362
Whatsapp: +1-864-386-8485
E-Mail: info@coalesceresearchgroup.com