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# GLOBAL CANCER & VACCINE SUMMIT

December 04-06, 2017 | Dubai





# **Global Cancer & Vaccine Summit**

December 04-06, 2017 | Dubai

## **Keynote - Day 01**





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## Eliminating TKI-induced MSC-mediated drug resistance in BCR-ABL+ ALL

**Xiaoping Sun**

University of Texas MD Anderson Cancer Center, USA



Tyrosine kinase inhibitors (TKIs) are used as a frontline therapy for BCR-ABL-positive (BCR-ABL+) acute lymphoblastic leukemia (ALL). However, resistance to TKI therapy arises rapidly, and its underlying molecular mechanisms are poorly understood. We identified a novel cascade of events initiated by TKIs and traversing through mesenchymal stem cells (MSCs) to leukemic cells, leading to resistance. MSCs exposed to TKIs acquired a new functional status with the expression of genes encoding for chemo-attractants, adhesion molecules, and pro-survival growth factors, and this priming enabled leukemic cells to form clusters underneath the MSCs. This cluster formation was associated with the protection of ALL cells from therapy as leukemic cells switched from BCR-ABL signaling to alternative surviving signaling such as IL-7R/JAK signaling in the MSC milieu.

To eliminate the TKIs' off-target effects on mesenchymal stem/stromal cells (MSCs) and the alternative survival signaling in leukemic cells, we screened a large library of clinically relevant compounds and demonstrated that p38 MAPK inhibitor SB203580 and glucocorticoid receptor agonist dexamethasone could abolish the imatinib-induced MSC-mediated survival support to BCR-ABL-positive ALL cells and prevent BCR-ABL TKI resistance. These findings provide a strong rationale for integrating p38 MAPK inhibitors into current induction and/or maintenance therapy to eliminate TKI resistance and to improve therapeutic outcomes in patients with BCR-ABL-positive ALL.

### Biography

Xiaoping Sun completed his MD at Zhejiang Medical University, Hangzhou, China in 1984, and his PhD at Catholic University of Nijmegen, The Netherlands and Shanghai Institute of Cell Biology, Chinese Academy of Sciences, Shanghai, China in 1994. He received postdoctoral fellowship training at the Salk Institute for Biological Studies, La Jolla, California, USA from 1994 to 1998. His medical residency in anatomical and clinical pathology was completed at Northwestern University Medical School, Chicago, Illinois, USA in 2002 and his hematopathology fellowship at The University of Texas M. D. Anderson Cancer Center, Houston, Texas, USA in 2003. He then became an assistant professor, and subsequently associated professor and professor in the Department of Laboratory Medicine at UT MD Anderson. Besides his patient care clinical service in the core lab at UT MD Anderson, he runs a research lab that works on leukemogenesis, leukemia progression and drug resistance, B-cell acute lymphoblastic leukemia, and B cell development.

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## Biomarkers that have prognostic and therapeutic importance for inflammatory breast cancer

**Yun Gong**

University of Texas MD Anderson Cancer Center, USA



Inflammatory breast cancer (IBC) is rare but the most lethal type of breast cancer. IBC is often associated with early metastasis and resistance to conventional therapies. Understanding biological insights that underlie the aggressive behavior of IBC and identifying novel therapeutic strategies are highly desirable for improvement of clinical outcome in patients with IBC. This presentation will cover the clinic-pathologic significance of some important biomarkers expression in a cohort of IBC that have long-term clinical follow-up and treatment information. Our results indicated that EZH2 and PD-L1 (clone 28-8) expression status may be used to identify a subset of patients who have a relatively worse prognosis. Targeting EZH2 also may provide a novel strategy for improving the clinical outcome of patients with IBC. In addition, Androgen Receptor expression was significantly associated with lymphovascular invasion. Additional information and discussion will be presented.

### Biography

Yun Gong received MD degree in 1984 and then finished her post-graduate Pathology training in 1989 at Zhejiang Medical University in China. She then worked as a post-doctor and Research Associate in the Shanghai Institute of Cell Biology, Chinese Academy of Sciences; Catholic University of Nijmegen, The Netherlands; and The Scripps Research Institute, La Jolla, California. From 1998 to 2002, she received her residency training in Anatomic and Clinical Pathology at Northwestern University Medical School in Chicago, followed by one-year cytopathology fellowship training at MD Anderson Cancer Center. From 2003, she became a faculty member at the Dept. of Pathology, MD Anderson Cancer Center, and currently is a Full Professor. She has numerous publications in the fields of breast cancer research and cytopathology (120 peer-review articles, 18 invited articles, 6 book chapters and 1 book, 118 abstracts). She is an important collaborator of two IBC research projects that were funded by Susan G. Komen Promise Grant. She is a Guest Editor of Breast Diseases: Year Book of Oncology since 2011, a member of the study section of MD Anderson Institutional Research Grant Program, and was a reviewer for NCI/NIH on Business Innovation Research Contract Proposals in 2009 and 2013.

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## Sepin-1, a novel separase inhibitor for the treatment of refractory breast cancers

**Debananda Pati**

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**S**eparase, an enzyme that resolves chromosomal cohesion during cell division, is an oncogene. Separase is overexpressed in multiple human tumors of breast, bone and brain. Separase is overexpressed in >60% of breast cancer (BC) specimens, 50% of triple-negative BC (TNBC) tumors, and >80% of luminal-B BC tumors. Separase overexpression strongly correlates with aneuploidy, a high incidence of relapse, metastasis, and a lower 5-year overall survival rate. In mouse models, Separase overexpression has been shown to induce aneuploidy, genomic instability, mammary tumorigenesis, and intratumor heterogeneity.

Knockdown of Separase inhibits the growth of Separase overexpressing mammary tumor cells but have no effect on cells with normal Separase level. Using a high throughput screen, we have identified a small molecule Separase inhibitor (Sepin-1) which selectively curtails the growth of Separase-overexpressing TNBC tumor cells. Sepin-1 inhibits growth of breast tumor cells with IC50s ranging from 10-30 $\mu$ M, and thus represents a lead candidate to target breast tumors that overexpress Separase. Sepin-1 is well tolerated with no significant toxicity or side effect up to a dose of 80mg/kg in mice. Studies using patient-derived orthotopic xenografts of TNBC render significant survival advantages for Sepin-1 treated mice. Sepin-1 inhibits the growth of Separase-overexpressing human TNBC xenografts in mice in a Separase-dependent manner, and in the same assay, Sepin-1 had no appreciable effect on TNBC tumors with low-Separase expression, suggesting the specificity and efficacy of this compound in targeting tumors addicted to Separase overexpression.

These results suggest that inhibition of Separase represents a new line of therapy to treat breast tumors addicted to Separase overexpression. We have recently developed a highly effective Sepin-1 analog with one order magnitude higher activity using medicinal chemistry approaches. Investigational New Drug (IND) enabling studies including the pharmacokinetics, pharmacodynamics and toxicity in animal models are currently in progress to bring Sepin compounds to the clinics for phase-I clinical trial. Blocking the overexpressed Separase activity as a strategy to eliminate and/or sensitize resistant cancer cells to chemotherapy is a new therapeutic approach, and if successful, will significantly impact breast cancer treatment. Furthermore, developing anti-cancer therapeutics that target chromosome instability is a new field of research.

(Supported by the Cancer Prevention and Research Institute of Texas Grant # DP150064, and Department of Defense Award W81XWH-15-1-0122 awarded to D. Pati)

### Biography

Pati is a highly accomplished cancer biologist who is an internationally recognized leader in the field of chromosomal cohesion and Separation and its role in carcinogenesis. He has a highly impressive track record not only in basic biology of chromosomal cohesion and separation, but devising novel and innovative approaches to target the cohesin pathway for treating refractory human cancers. He is widely recognized nationally and internationally as a creative and innovative scientist and is specifically recognized for his identification and targeting of the cohesin-protease, Separase for cancer therapy. Separase, an enzyme important for resolving chromosomal cohesion, is a novel oncogene and promoter of aneuploidy and tumorigenesis that Professor Pati demonstrated is an ideal target for cancer therapy. His laboratory was first to show that Separase is an oncogene and aneuploidy promoter. In a series of publications in high impact journals, Professor Pati and his colleagues demonstrated that overexpression of Separase in mouse models not only induces aneuploidy but also results in tumorigenesis.

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## Accelerating vaccine process development and manufacturing: Innovative approaches and challenges

**Anissa Boumlic-Courtade**  
Merck, France



Preventable diseases vaccines save millions of lives but are not always delivered when needed to a large fraction of the population. In addition, there are a number of infectious diseases that still remain without cure or vaccine. Innovations in process development and manufacturing are unavoidable to enable release of existing and novel vaccines and their delivery where and when they are mostly needed. This presentation will outline where innovative approaches and technologies while developing and/or optimizing the process and at manufacturing scale can accelerate clinical phases and compress the time to market of highly needed vaccines. Furthermore, using case studies like Ebola and influenza outbreaks, challenges will also be highlighted in pandemic situations and approaches will be discussed on how to alleviate roadblocks and be better prepared to manufacture vaccines in urgent situations.

### Biography

Anissa Boumlic-Courtade, PhD is Associate Director for the vaccine initiative in EMEA with Merck. She joined Merck in 2009 (formerly Millipore) after research experience in various institute including Pasteur Institute of Athens and the CNRS (National Center for Research, France). She has held various positions focused on downstream processing, virus safety, and monoclonal antibody and vaccine process development and manufacturing. She holds a M. Sc. in Biotechnology Engineering from the Ecole Supérieure de Biotechnologie(ESBS) de Strasbourg (France) and a PhD in Molecular Biology & Biochemistry specialized in Virology from the University of Strasbourgco-directed with the University of Thessaly (Greece).

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## Therapeutic vaccination: A new and novel therapeutic approach for chronic hepatitis B

**Sheik Mohammad Fazle Akbar**  
Toshiba General Hospital, Japan



There is no curative therapy that can block progression of hepatitis B virus (HBV)-induced liver diseases and their complications although HBV has infected 2 billion people, established chronic infection in about 240-370 million patients, inducing cirrhosis of liver and hepatocellular carcinoma and responsible for about one million annual death. On the basis of studies in benches with HBV transgenic mice (HBV TM), that expressed HBV-related viral particles and antigens, a unique immune therapeutic strategy was developed for patients with chronic hepatitis B (CHB) that used both HBsAg and HBcAg (NASVAC) in higher doses (200-400 micrograms) for 15 times via nasal and injection routes in CHB patients. The safety and efficacy of NASVAC were compared with those of pegylated interferon (Peg-IFN), the gold standard of HBV therapy, in a phase III clinical trial in 160 patients with CHB. At end of treatment (EOT) and during follow up, it appears that NASVAC is better than Peg-IFN regarding antiviral, liver protection, and arrest of fibrosis in CHB patients. NASVAC induced both HBsAg and HBcAg-specific immunities in CHB patients and HBcAg-specific immunity played a cardinal role for therapeutic effect of NASVAC. Based on our studies for treatment of CHB patients, an inference was developed that support that antigen-specific immunity may be safe and effective for broad range of patients and this exposed an area of tackling liver diseases due to HCV, liver cirrhosis, autoimmunity, and HCC by using antigen-specific immune therapy. Also, its use may be expanded to cancer therapy.

### Biography

Sheikh Mohammad Fazle Akbar has graduated in Medicine and Surgery from Bangladesh in 1980 and received his PhD in Medical Sciences from Japan in 1993. Being a post-graduate fellow from 1994-1996, he worked as full Faculty Member at the Graduate School of Medicine, Ehime University, Japan from 1996-2008. In 2008, he joined Toshiba General Hospital, Tokyo, Japan as Principal Investigator. He has worked to elucidate pathogenesis of chronic liver diseases and hepatocellular carcinoma; subsequently developed therapeutic vaccine for HBV transgenic mice and presently he has been conducting pilot studies and clinical trials in patients with CHB with Therapeutic Vaccines for last one decade to optimize a safe, effective and clinical viable regimen of this approach in CHB patients. He has authored more than one hundred scientific articles in peer-reviewed journals.

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## High therapeutic efficacy of a new cancer vaccine against the tumor associated antigen survivin

**Ahmed Bouzidi**

CEO Of Vaxeal Group, Switzerland



### Purpose

The tumor antigen survivin is an ideal target for therapeutic vaccine, as it is over-expressed in almost all type of tumors but undetectable in normal tissues. To optimize vaccination efficiency, we design a new survivin (SVX-1) vaccine composed of three long synthetic peptides containing several CD4 and CD8 T-cell epitopes.

### Experimental design

The immunogenicity of the SVX-1 vaccine was assessed in humans and the therapeutic efficacy was tested in relevant mouse tumor models.

### Results

Studies in healthy individuals predicted a high T-cell immunogenicity of SVX-1 vaccine in human, irrespective of the individual's HLA types. We then demonstrated the high therapeutic efficacy of the SVX-1 vaccine against various established murine tumor models, associated with its capacity to generate both specific cytotoxic CD8+ and multifunctional Th1 CD4+ T-cell responses but also effective memory T-cell responses for long-term protection against relapses. Treatment with SVX-1 vaccine also strongly increased the tumor infiltration of both CD4+ and CD8+ T cells over Treg cells therefore tipping the balance toward a strong immune response. Additionally, high frequencies of spontaneous T cell precursors specific to SVX peptides, which could be potentially boosted by the SVX-1 vaccine, were found in the peripheral blood of various cancer patients.

### Conclusion

This new SVX-1 vaccine showed great promise in our preclinical studies. In humans, the immunogenicity of the SVX-1 vaccine, irrespective of their HLA types, and the high frequencies of spontaneous T cell precursors observed in various cancer patients strongly support its development in clinical trials.

### Clinical Relevance

The choice of the antigen to incorporate in a cancer vaccine is crucial and as such survivin appears an ideal candidate because it is a near universally over-expressed tumor antigen in human cancers. Vaccine strategy targeting survivin showed encouraging effects that need to be optimized. We developed a new survivin (SVX-1)-based vaccine strategy composed of three long peptides containing both promiscuous CD4+ and CD8+ T cell epitopes. This vaccine allowed to generate both CD4+ and CD8+ specific T cell responses leading to strong therapeutic efficacy in various tumor models. Importantly, the SVX-1 vaccine was immunogenic in healthy donors irrespective of HLA types. Additionally, high frequency of spontaneous T-cell precursors specific to SVX-1 vaccine was observed in the peripheral blood of various cancer patients, demonstrating the absence of tolerance against survivin epitopes. This new SVX-1 vaccine thus holds great promise as a future candidate for clinical trials.



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## Biography

AHMED BOUZIDI is the Chief Executive Officer Of Vaxeal Group, Vevey, Switzerland. He is also a Board Member of vaccines Europe - Brussels, Belgium. Ahmed Bouzidi is the founder of Vaxeal. He founded and managed SEDAC-Therapeutics inc., a leading biotech pioneer in peptide-based therapeutic vaccines (exit by Leveraged Buy Out), and Biophysiomics inc. (acquired by Chengdu Kuachang Science & Technology, China). He is a board member of Vaccines Europe and of the European Biopharmaceutical Enterprises (EBE-biopharma), and is a Senior Associate of the Royal Society of Medicine. He held previously senior advisory positions with Chinese pharmaceutical companies and public institutions, and worked 10 years as senior researcher at the LFB. He holds a Master degree in Animal Biology (University of Lille, France), a PhD in Cellular Biology, and a MBA in Finance (University of New Hampshire, USA)

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# **Global Cancer & Vaccine Summit**

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## **Abstracts - Day 01**



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## Current Status of Cancer Screening in Korea

**Won-Chul Lee**

The Catholic University of Korea, South Korea

Cancer is the leading cause of death in Korea. So Cancer control is one of the most important issues. 10-year plan for cancer control was started in 1996 in Korea. Now the Third Term Comprehensive Plan for Cancer Control (2016-2020) at the national level is being implemented. Cancer screening is actively being performed for cancer control. In Korea, Cancer screening is provided by two tracks. One is National Cancer Screening Program and the other is screening from private sector. National cancer screening program was started in 1999. The Program provides targeted population for five cancers- stomach, liver, colorectal, breast and cervix. Stomach cancer screening is provided for over 40 yrs old, every 2 yrs using endoscopy or UGIS. For Breast, over 40 yrs old, every 2 yrs using Mammography. For Cervix, over 20 yrs old, every 2 yrs using Pap Smear. For colorectal cancer screening, over 50 yrs old, every 1 yr using immunochemical FOBT. Liver Cancer screening is provided only for high risk group using Sonography and AFP every 6 months for over 40 yrs old. The clinical guideline for cancer screening was revised using GRADE by National Cancer Center in 2015. For the subjects below 50% of income, the cost for screening is free. And For the subjects over 50% of income, the cost is subsidized by 90% from the National Health Insurance, so subjects only pay for 10% of the cost. The average lifetime screening rate of the five major cancers by survey in 2016 was 79.7%, and the average cancer screening rates with recommendation was 63.5%. The screening rate for all cancers increased 1.64 times from 2004 to 2016. To promote the quality control of national cancer screening program, several efforts are being performed. The Basic Medical Screening Law was enacted from 2009. The National Screening Advisory Board was established based on this Law. Cancer stage shift is now appearing from 5 targeted cancers. Especially for colorectal cancer, 5-yr survival rate of Korea is estimated to 72.8%, which is the highest on among OECD countries. The trends in 2006-2015 of age-standardized mortality rate of stomach and liver cancers have shown the largest decrease compared to other cancers in Korea. Colon and rectum cancers also have shown a decrease in mortality. Since 1999, the incidence of cervix began to decrease and the incidences of colorectal cancer began to decrease since 2011. The National Screening Program has several strengths; 1) All the related data are gathered in one system, the National Health Insurance Corporation, 2) National Cancer Registry is collecting cancer incidence data, 3) every subject has own unique ID, 4) So all the data related can be linked using the unique ID. Private sector of the cancer screening is prevalent although data collection from private sector is almost impossible. The benefit and harm of the screening from private sector will be discussed.

## Biography

Won-Chul Lee did his BM, Ms and Doctor of medicine from Catholic university of Korea. He is currently working as an adviser committee, Quality control of national cancer screening program at National Cancer Center of Korea. Previously, he worked as a Dean of Graduate School of Public Health at The Catholic University of Korea. He was also a Chairman, Board of Directors at The Korean Society for Preventive Medicine and also played the role of a Representative of Korea, ICSN (International Cancer Screening Network)

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## How much does preclinical data contribute to decisions to do vaccine trials?

**Rufaro Kashangura**

Ministry of Health, Swaziland

### Background

The existing Bacillus Calmette–Guerin (BCG) vaccination provides partial protection against tuberculosis (TB). The modified vaccinia Ankara virus-expressing antigen85A (MVA85A) aims to boost BCG immunity. We evaluated the animal evidence supporting the testing of MVA85A in humans.

### Methods

Our protocol included in vivo preclinical studies of the MVA85A booster with BCG compared with BCG alone, followed by a TB challenge. We used standard methods for systematic review of animal studies, and summarized mortality, measures of pathology and lung bacterial load. The comprehensive literature search was to September 2014. Two independent investigators assessed eligibility and performed data extraction. We assessed study quality and pooled bacteria load using random effect meta-analysis.

### Findings

We included eight studies in 192 animals. Three experiments were in mice, two in guinea pigs, two in macaques and one in calves. Overall, study quality was low with no randomization, baseline comparability was not described and blinding not reported. For animal death (including euthanasia due to severe morbidity), studies were underpowered, and overall no benefit demonstrated. No difference was shown for lung pathology measured on an ordinal scale or bacterial load. The largest mortality trial carried out in macaques had more deaths in the MVA85A vaccine group, and was published after a trial in South Africa had started recruiting children.

### Conclusions

This independent assessment of the animal data does not provide evidence to support efficacy of MVA85A as a BCG booster. More rigorous conduct and reporting of preclinical research are warranted, and we believe the results of studies should be publicly available before embarking on trials in humans, irrespective of the findings.

### Biography

Rufaro Kashangura is a 33 year old female doctor currently working in Swaziland under the ministry of health. She graduated with a bachelor of medicine and Bachelor of surgery (MBChB) in 2005 at the University of Zimbabwe. In 2011, she enrolled for a Masters in Clinical Epidemiology which she graduated in December 2013 with Cum Laude. Her thesis was a systematic review of animal studies on the efficacy of MVA85A vaccine against Tuberculosis challenge in animals; a vaccine that was recently tried in infants in South Africa. It was later published in 2015 in the International Journal of epidemiology in 2015. She is currently working on a systematic review on the efficacy of the same vaccine in humans. When she is not glued to the computer she likes cooking and fundraising for the less privileged.

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## **Ebola: Actual situation, and development of a novel preventive vaccine against multiple Ebola virus strains**

**Ahmed Bouzidi**

CEO Of Vaxeal Group, Switzerland

**E**bola virus (EBOV) is a member of Filoviridae family of viruses, which have been associated with large outbreaks of hemorrhagic fever in human and nonhuman primates with high case fatality. Since 1976, when the virus was first discovered, five Ebola virus species have been isolated, differing by as much as 40% in amino acid sequence: Zaire (ZEBOV), Sudan (SEBOV), Reston (REBOV), Cote d'Ivoire (CIEBOV) and the newly discovered Bundibugyo Ebola virus (BEBOV) <sup>1</sup>. All of the viruses in the family except for REBOV are highly pathogenic for humans. The recent Ebola outbreak in West Africa has reached historic proportions and underscores the vulnerability of populations worldwide to pathogens. Outbreaks of Ebola virus disease have occurred in Africa in the past <sup>2</sup>, however the current epidemic caused by ZEBOV [Guinea-Zaire ebolavirus H.sapiens-tc/GIN/2014/Gueckedou-C] <sup>3</sup>, has been characterized by greater breadth and rapid spread (reported cases and geographically). Currently, there are no vaccines or antiviral drugs approved for prevention or treatment of Ebola infections in humans. However, the severity of the recent Ebola outbreak and failure of the health care system to contain the infection rates in West Africa underscore the need for the rapid development of a safe and effective pan-Ebola vaccine. Such a vaccine, rapidly inducing strong and long-lasting protective immune responses against all main Ebola strains and that can be readily produce and deployed in the field, is needed to protect people in endemic regions in an event of an outbreak but also to protect healthcare workers caring for Ebola patients, who are at the highest risk of infection even before an outbreak can be identified.

A handful of EBOV vaccine candidates are under development, most of them being monovalent vector-based vaccines targeting the ZEBOV glycoprotein (GP). Some of them have been demonstrated to be effective in preclinical trials using small animal and non-human primates (NHP) models, showing that protection against EBOV infection is achievable by vaccination. To date, three main vector-based vaccine candidates have undergone phase 1 clinical trials, demonstrating their safety and immunogenicity, and the preliminary results of a Phase 3 trial for a Vesicular Stomatitis Virus-based vaccine (rVSV-EBOV – Merck Vaccines USA) suggest that this vaccine might be “highly efficacious and safe” in preventing Ebola virus disease <sup>4,5</sup>.

However, these 1st generations of Ebola virus vector-based vaccines, primarily developed to fight bioterrorism, are not adapted for large-scale vaccination in Sub-Saharan countries and some major obstacles may limit their human application and their deployment in endemic regions. One significant downside is their need for storage at -80°C to ensure their long-term stability and biological activity. The viral vector constructs may not be safe or effective in producing long-term protection against Ebola. Moreover, pre-existing immunity to the vectors, such as adenoviruses, has been already found to counteract the action of vector-based vaccines and to favour infection. Finally, while most of the T cell responses mounted in Ebola patients have been found to target the nucleoprotein (NP), the Ebola vaccine candidates only focus on the Ebola GP <sup>6</sup>. Hence, the challenge lies in producing non-viral vector-based Ebola vaccines, safe and effective, allowing readily deployment in an event of an outbreak and harnessing both specific, strong and long-term humoral immune responses and the right balance of CD4<sup>+</sup> and CD8<sup>+</sup> T-cell responses, which are both fundamental to protect against the virus.

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PEVIA consortium aims to develop a new 2<sup>nd</sup> generation of vaccines, comprising two complementary and synergistic approaches for the design of safe and effective preventive vaccines against multiple Ebola virus strains, ease to produce and to deploy in the endemic regions. These approaches, based on the Ebola surface glycoprotein and nucleoprotein, include: 1/ Creation of a recombinant native Ebola GP based vaccine to generate robust anti-EBOV neutralizing antibodies and long-term humoral responses, and 2/ Development of a long synthetic peptides (LSP) based vaccine containing multiple overlapping CD4<sup>+</sup> and CD8<sup>+</sup> T-cell epitopes but also linear and structured B-cell epitopes, all derived from the Ebola GP or NP and highly conserved between all main Ebola strains, to generate specific, multiple, strong and long-lasting cellular responses. The prime-boost combination of the recombinant protein and LSP-based vaccines will focus on the optimization of B and T-cell antigens with the objective to generate both strong B and T-cell memory responses against various EBOV strains. This strategy will improve vaccine efficacy against various strains of a mutating virus to give a long lasting protection against multiple exposures to Ebola virus. In addition, our vaccine will not require storage at low temperatures (+4 to +8°C), overcoming the problems of stability, and storage in endemic regions, and allowing for ready deployment in the field.

The objectives of the PEVIA's project are: 1/ To manufacture in industrially applicable CHO cells a recombinant Ebola GP variant in its most relevant structure for immunizations in order to determine safety, and the antibody response profile *in vitro* and in animal models, 2/ To manufacture Long Synthetic Peptides containing CD4<sup>+</sup> and CD8<sup>+</sup> T-cell epitopes derived from Ebola GP and NP in order to determine safety, humoral and cellular response profile *in vitro* and in animal models, 3/ To identify the optimal prime-boost vaccination strategies for clinical trials, based on the capacity to induce both strong and long-term cellular and antibody responses against various EBOV strains, 4/ Phase Ia dose-escalation clinical study in Europe of selected vaccine candidates and prime-boost (1 + 2) vaccination strategies to assess their safety and immunological profile, and 5/ Phase Ib clinical trial in endemic region with the most promising formulation.

PEVIA consortium also aims to develop innovative functional analysis tools and *in vitro* methods to accelerate preclinical and clinical development of EBOV vaccine candidates and to determine correlates of immune protection against Ebola virus disease in humans. This includes: 1) Identification of new relevant EBOV GP and NP derived CD4<sup>+</sup> and CD8<sup>+</sup> T-cell epitopes for pre-clinical and clinical immune monitoring, 2) Development of innovative *in vitro* bioassays for characterizing, detecting and quantifying under BSL-2 conditions neutralizing and enhancing antibodies against different subtypes of Ebola and filovirus induce with vaccine candidates (functional analysis), and 3) Validation of relevant chimeric and humanized mouse models for EBOV infection suitable for studies on protection and immunology of vaccine candidates against Ebola virus, or other filovirus, in a 'human' or in a murine context.

## Biography

AHMED BOUZIDI is the Chief Executive Officer Of Vaxeal Group, Vevey, Switzerland. He is also a Board Member of vaccines Europe - Brussels, Belgium. Ahmed Bouzidi is the founder of Vaxeal. He founded and managed SEDAC-Therapeutics inc., a leading biotech pioneer in peptide-based therapeutic vaccines (exit by Leveraged Buy Out), and Biophysiomics inc. (acquired by Chengdu Kuachang Science & Technology, China). He is a board member of Vaccines Europe and of the European Biopharmaceutical Enterprises (EBE-biopharma), and is a Senior Associate of the Royal Society of Medicine. He held previously senior advisory positions with Chinese pharmaceutical companies and public institutions, and worked 10 years as senior researcher at the LFB. He holds a Master degree in Animal Biology (University of Lille, France), a PhD in Cellular Biology, and a MBA in Finance (University of New Hampshire, USA)

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## Abstracts - Day 02



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## **Audit on incidents and knowledge of nurses about chemotherapy extravasations at a day care oncology in a tertiary care hospital in Karachi, Pakistan**

**Arifa Aziz, Zarka Samoon, Mohammad Khurshid, Afsheen Feroz, Nadia Ayoub**

Aga Khan University Hospital, Pakistan

### **Background**

Extravasations of cytotoxic agents after its intravenous administration results in a serious damage to the tissues leading to local injury and tissue necrosis. This audit was conducted to assess the knowledge of nursing staff regarding identification and management of chemotherapy extravasations and teaching to the patients, in addition we also recorded number of incidents reported. Audit was conducted at day care oncology of Aga Khan University Hospital.

### **Method**

Core team was formulated for audit and checklist was developed. Check points were initial assessment of intravenous cannulation site, knowledge about extravasations management and teaching of the patients about signs and symptoms of extravasations. Patient's data was collected from 12th February till 15th June 2016 for incidents of extravasations reported.

### **Results**

Total numbers of twelve nurses were audited; out of twelve, seven nurses (58.33 %) were not observing all the components in terms of proper local examination, assessing areas of last intravenous cannulation site and giving proper teaching to the patient about signs and symptoms of extravasations and has less knowledge about its management. Five (41.67%) out of twelve nurses, have knowledge of extravasations assessment, management and patients teaching.

Nursing staffs teaching material on the assessment and management of extravasations was not available at day care oncology.

Seven (1.28%) incidents of extravasations were reported during the above said time. Total numbers of Cytotoxic drugs administered during this time were five thousands four hundreds and sixty one (5461). Institutional bench mark is 0.7/1000.

### **Conclusion**

Extravasation is not very common.

However, it was reported to be twice as frequent as compared to institutional made bench mark.

Lack of knowledge was reported to be present in >58% of day care nurses.

### **Way forward**

Frequency can be reduced with prevention, prompt identification and early management.

Develop educational material and videos on extravasations identification, patients teaching and management for day care oncology nurses.

To re-audit process of assessment and management of chemotherapy after 12 months.

The second audit was started in August 2017, and is currently in progress.

### **Biography**

Arifa Aziz, working as a staff medical officer and supervisor Day Care Oncology at Aga Khan University Hospital Karachi, Pakistan. Day care oncology is a fifty four bed unit which runs in two shifts and accommodate eighty five to ninety patients daily for chemotherapy administration, blood transfusions, intrathecal chemotherapy bone marrow biopsy and lumbar puncture. She has over nineteen years of experience in adult oncology, written a book by name "Hematology and Oncology Hand Book of Cancer Chemotherapy Protocols" This is a registered book with ISBN:978-969-8073-30-5, is the only chemotherapy protocols book which was written and introduced in Pakistan, first edition was in 2013 and second edition in May 2017.

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## Biography

Hidayat Ullah completed his M.B.B.S followed by M.C.P.S in Medicine and about to complete my F.C.P.S in Medical Oncology at the Aga Khan University Hospital Karachi by December this year. He worked in the department as Chief Resident, leading a team of many residents, engaging in various residency and educational activities besides clinical work. He was a coordinator for one of the largest Multidisciplinary tumor board meetings, innovating and enhancing its quality to improve patient care. To improve his knowledge, he did preceptor ship programs with Icon oncologist Prof. Ion Tannock, Professor Emeritus Princess Margaret Hospital Toronto on two occasions and have rotated in one of the other largest cancer institutes of the country, the Shoukat Khanum Memorial Hospital and research center Lahore.

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## Metaplastic Breast Carcinoma: A single center experience in Pakistan

Zarka Samoon, Madiha Beg, Romana Idrees, Adnan Abdul Jabbar

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### Introduction

Metaplastic breast carcinoma (MBC) is a rare disease with an incidence of <1%. In comparison to invasive ductal carcinomas (IDC), MBC present with a larger tumor size, few nodes involved, mostly high grade and triple negative, and with a shorter overall survival.

### Objectives

To determine the progression free, and overall survival of patients with MBC.

### Methods

From July 2006 till June 2013, 42 patients with MBC treated at Aga Khan University Hospital, Karachi were identified and retrospectively reviewed. Kaplan-Meier method was used for survival analysis.

### Results

Prevalence of MBC was 1.92% among breast cancer patients. The median age at tumor diagnosis was 54 years. Thirty nine (92.9%) patients had grade III tumor. The most common histopathology was squamous (69%) followed by spindle (9.5%) and carcinosarcoma (7.1%). Median tumor size was 4.7 cm. Nineteen (45.3%) patients had nodal involvement. Five patients (11.9%) had metastatic disease at presentation. Hormone receptors were positive in 19 (45.2%) patients and negative in 16 (38.1%) patients. Her-2 neu receptor was positive in 9 (19%) patients. Twenty seven (64.3%) patients underwent modified radical mastectomy. Neoadjuvant and adjuvant chemotherapy (anthracycline based in most cases) was received by 10 (23.8%) and 19 (45.2%) patients respectively. Both the median progression free and overall survival was 38 months. Five year progression free and overall survival was 79.5% and 78.9% respectively.

### Conclusion

Our patients had tumors which were mostly high grade, large, with around half of them having nodal and hormonal involvement however with better survival outcomes compared to series described earlier.

### Biography

Zarka Samoon has completed her M.B.B.S, followed by MRCP in medicine. She completed her Medical Oncology fellowship at Aga Khan University Hospital. She passed both MRCP certificate exam and FCPS in Medical Oncology. She is a Medical Oncology faculty at Aga Khan University Hospital with keen interest in breast and female genital tract malignancies. She has published an e-book chapter 'Chemotherapy and targeted agents in triple negative breast cancer' in Avid Science. Her scientific paper titled 'Applying Multinational Association of Supportive Care of Cancer Index Score for Identifying Febrile Neutropenia Patients at High Risk of Complications at Tertiary Care Hospital, Pakistan..' has been published in Open Journal of Epidemiology. She is at present involved in multiple research projects which are in various stages of completion. She is Medical Oncology residency program coordinator and actively involved in teaching undergraduates and postgraduates.

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 Notes:

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## Applying Multinational Association of Supportive Care of Cancer index Score for identifying febrile neutropenia patients at high risk of complications

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**M**ultinational Association of Supportive Care of Cancer (MASCC) index score is a clinical tool to predict outcomes in febrile neutropenia patients. This risk-index score has been authenticated in international trials however local data is deficient. We aimed to determine hospital based incidence rate of serious complications in admitted chemotherapy induced febrile neutropenia patients presenting to a tertiary care hospital. We also aimed to compare proportions of serious medical complications in patients having MASCC score  $<21$  or  $\geq 21$ . A hospital based prospective close cohort study was designed and conducted at Oncology wards of The Aga Khan University from February to August 2014. Total of 88 patients, aged 16 and above, with chemotherapy induced febrile neutropenia were identified and divided on the basis of MASCC Score into low or high risk {exposure} groups. Follow up was done from day of admission (day zero) to discharge. Outcome was assessed in terms of development of serious complications. Hospital based incidence rate was estimated. The associations between outcome and qualitative variables were evaluated by using Pearson Chi-square and Fisher's exact test.

Hospital based incidence rate of febrile neutropenia admission was 5.98%, 95%CI [4.88% - 7.08%]. Out of 88 patients with chemotherapy induced febrile neutropenia 85.2% patients were in the high risk group and 14.8% in the low risk group. Serious complications were found in 21.33% and no patients in high and low risk group respectively. Age  $> 60$  ( $p = 0.039$ ), MASCC score  $< 15$  ( $p = 0.002$ ) and an albumin  $< 2.5$  mg/dl ( $p = 0.046$ ) was associated with higher chance of developing serious complications. Sensitivity, specificity, positive and negative predictive value of MASCC score in predicting risk of serious complications was 21.33%, 100%, 100% and 18.06% respectively. MASCC risk-index score is a useful tool to identify patients at low risk of complications. Hospital based incidence rate of serious complications was 18.2%.

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## Tackling the barriers against Measles Rubella Vaccination in Kerala

**Naseef PP**

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**M** easles is a highly infectious disease and may cause death. It kills nearly 40,000 children every year in India. Rubella may cause birth defects like blindness, deafness, heart defects, mental retardation, liver disorders etc. Government of India has launched a campaign to immunize all children from 9 months up to 15 years of age group with one dose of MR vaccine. Kerala state start MR vaccination campaign in October as a part of national immunization programme.

Addressing the drivers of vaccine hesitancy and the barriers to vaccine acceptance is a complex but important task. While the percentage of hesitant does vary from country to country and in time few, if any, countries are ever free from this problem. Overcoming hesitancy requires detection, diagnosis and tailored intervention as there is no simple strategy that can address all of the barriers to vaccine acceptance. Immunization program managers and health care workers need to become adept at recognizing and tackling hesitancy in all of its incarnations if high levels of vaccine acceptance are to be achieved but must also actively support immunization acceptors in order to build and support vaccine acceptance resiliency.

The vaccination campaign in Kerala include contributions from Government and NGOs. The government conducted awareness classes in schools, worship centers, home visit, announcement vehicle etc. the Non Government Organizations conducted public health meets, women empowerment programme etc. the representatives of UNICEF arranged meeting with the community leaders and media representatives and assured their whole hearted support for the campaign.

Vaccination against Measles and Rubella was perceived as more important than other vaccines, and Government subsidy was regarded as an important public health strategy. The most significant barriers to prescribe MR vaccines consisted of parental refusal due to safety concerns. Public health education on safety and efficacy of vaccination is done, and support by Governmental funding would be an important factor to enhance vaccination rates.

### Biography

Naseef PP is working as an Associate Professor in Jamia Salafiya Pharmacy College. He pursued graduation and post graduation from Calicut University in Pharmacy and completed the PhD open defense under The Tamil Nadu Dr MGR Medical University Chennai. He has 8.5 years of teaching experience. NASEEF is the resource person for Kerala State Pharmacy Council for teaching the working Pharmacist. He has conducted public health and vaccination campaigns. NASEEF has 12 national and international publications and presented papers in various national and international seminars.

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## Abstracts - Day 03





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## Circulating micro RNAs: Novel biomarkers in breast cancer-Breakthroughs in cancer research

**Amal Qattan**

Al-Faisal University, Saudi Arabia

Several genetic, epigenetic and proteinaceous biomarkers have so far been found to be associated with breast cancer, but their robustness as indicators of disease remains uncertain. More significantly, most women in the developing countries present with this cancer only when it has reached an advanced stage. The treatment of advanced stage cancer presents several challenges but most important among them is the frequent development of resistance to chemotherapy and hormonal therapy, which leads to a high mortality rate. This resistance creates a need to identify sensitive biomarkers that could be useful in early detection and in following the progression of the disease; these might help to identify new therapeutic targets.

MicroRNAs (miRs) form a class of non-coding RNA that regulates post-transcriptional gene expression and thereby cellular processes. In breast cancers, dysregulation of the miRs' expression can result in the progression of cancers. In addition, miRs have been shown to play a role in the development of resistance to drug therapy by regulating signaling cascades. From a cohort of 100 disease-free individuals and 127 breast cancer patients, the levels of these circulating miRNAs are being verified by qRT-PCR. The results of this part have shown over-expression of some types of miRs in the breast tumor patients, while the level of expression among others remains lower than those in normal individuals. Another interesting pattern has emerged when the relative levels of these circulating miRNAs were compared with their expression levels in breast tissue. In addition to intergroup comparisons, plasma miRNA expression levels of all groups were analyzed against cancerous breast tissue (RNA-Seq data from The Cancer Genome Atlas-TCGA). A differential set of miRNAs were identified in the plasma of breast cancer patients and 10 miRNAs were uniquely identified on the basis of ROC analysis. The most striking findings revealed that some of the tumor suppressor miRs in the plasma of luminal breast cancer patients was elevated, irrespective of subtype, and was elevated also in the plasma of TNBC breast cancer patients. We found also that, while most miRNAs in plasma reflected cellular levels some of them had an inverse pattern, suggesting that they were being selectively secreted into plasma. The circulated miRNA patterns indicate signatures which could serve as biomarkers for detection, and might be used in screening and distinguishing the type of tumor; they could also be used as targets for therapies.

### Biography

Amal Qattan is currently working in the Department of Molecular Oncology at the King Faisal Specialist Hospital and Research Center (KFSHRC) Hospital, Riyadh-SA, and she is also a member in the scientific committee of the Zahra Breast Cancer Association and Assistant Professor in the College of Medicine at Al-Faisal University. She did graduation from the Medical School at UCL-UK and has been working since 2000 in the Oncology Department at King Faisal Specialist Hospital and Research Center at KFSHRC Hospital. Her primary interest is in personalized medicine using the state-of-the-art molecular, cellular, and bioinformatic technologies in support of a systems-biology based research approach to understanding the events that affect the sensitivity, or lack of it, among cancers to chemotherapy and hormonal therapies. She uses gene expression, microarrays, proteomics, and metabolite profiling to combat breast cancer.

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## The TbX2 subfamily of transcription factors: An emerging role in lung carcinogenesis

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**T**BX's are evolutionary conserved genes encoding T-box transcription factors that enhance or repress transcription. In mammals 18 members were described functionally and structurally, of which the TBX2-5 genes were shown to be expressed early on, in the lung bud and tracheae. Little is known however on the role of these genes in lung pathology in humans especially in lung cancer, a smoking-associated disease that is the leading cause of cancer-deaths worldwide. To fill this void our group surveyed the expression of TBX2-5 in various publicly available datasets and found that all four members were preferentially and highly expressed in normal lung, but markedly and consistently suppressed in lung adenocarcinoma (ADC) the most common histological subtype of lung cancer. Using immuno-staining with specific antibodies we confirmed a high expression of TBX2 members in normal adult lungs tissues. Moreover, TBX2-5 transcript and protein expression were assessed by real-time PCR, western blot, and immuno-staining which showed suppression of all the members in different ADC cell lines as compared to the normal immortalized bronchial cells. Transient over-expression of TBX2 members in human ADC cell lines (H1299 and H1944) was found to significantly inhibit lung cancer cell growth and proliferation. RNA-seq and pathways analysis revealed that over expressing TBX2 members in H1299 cells affect different pathways that are important in cell cycle progression and regulation. Our findings point to 1- a tumor suppressor role for TBX2 members in human ADC pathogenesis through regulating various cell cycle genes, and thus possible use of these proteins as potential drugs, and 2- a potential usage of these genes as biomarkers for diagnosis and prognosis in smokers with high risk of developing lung cancer.

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# **Global Cancer & Vaccine Summit**

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## **Poster Abstracts**



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## Data evaluation on variation on setup errors in IMRT for prostate cancer

**Ambreen Muzaffar**

Shifa International Hospitals LTD, Pakistan

### **Aim/ Purpose:**

The aim is to evaluate the mean, median, mode, range and standard deviation of setup errors in IMRT for prostate cancer, by verification of the portal images with the DRRs and then on this data it will be verified that the PTV margins that are using at our department are adequate.

### **Background:**

Intensity-modulated radiation therapy (IMRT) can deliver highly conformal radiation to the target, whilst sparing adjacent critical organs and other normal tissues. An accurate target localization and precise patient positioning is required due to an increasingly sharp dose gradient generated by IMRT. Target coverage and increase the dose to organs at risk can compromise because of small setup errors.

Therefore, correct patient positioning is important since setup errors result in deviations from the planned treatment, to verify the position in all three dimensions i.e. anterior-posterior, superior-inferior and left-right, portal images is recorded during treatment can be compared to Digitally Reconstructed Radiographs (DRRs). DRRs are generated from the treatment planning CT-data.

It is essential to determine the PTV margins to analyze each department's specific setup errors, because setup errors vary according to each immobilization system and patient.

### **Material and Methods:**

Data were obtained from October 2016 to October 2017. More than 15 consecutive patients, treated with IMRT via Linear Accelerator (VARIAN X 6MV Unique Power), at the Radiation Oncology Department, SHIFA Cancer Center, SHIFA International Hospitals Ltd. Islamabad for prostate cancer. More than 100 images were obtained from EPID (electronic portal device imaging device). These images were reviewed using the ARIA v13.5 software. Digitally reconstructed radiographs (DRRs) were generated from the eclipse treatment planning system, and the software then compared these with the corresponding x-ray images obtained from EPID. The shifts were recorded and corrected in three axes: x, y and z in mm, and the best match image was determined after couch movements, prior to radiation delivery.

### **Results:**

The calculating mean in RL (right-left) in +X and -X axes were +1.2mm and -3.4mm, in AP (anterior to posterior) in +Y and -Y axes were +2.2mm and -3.5mm, in SI (superior-inferior) in +Z and -Z axes were +2.6mm and -4.6mm, the standard deviation in RL (right-left) in +X and -X axes were +2.0mm and -1.8mm, in AP (anterior to posterior) in +Y and -Y axes were +1.5mm and -2.6mm, in SI (superior-inferior) in +Z and -Z axes were +5.3mm and -9.0mm.

The mode for set-up error correction were zero mm each, while the median for couch movements in 3 axes were; A-P (anterior-posterior), L-R (left-right) and S-I (superior-inferior) directions were 2.0mm, 1.5mm and 1.95 mm respectively.

Out of 514 images obtained from EPID fell <5 mm for couch movements in 3 axes were; A-P (anterior-posterior) 83.85%, L-R (left-right) 88.71% and S-I (superior-inferior) 85.60% and between 5mm to 10mm were A-P (anterior-posterior) 16.14%, L-R (left-right) 11.47% and S-I (superior-inferior) 14.20%.

### **Conclusion:**

The planning target volume (PTV) is the margin, which takes into account all the uncertainties in target position, including daily patient setup and positional changes due to rectal filling, bladder filling, and respiration during treatment.

In this study, we analyzed setup errors for prostate cancer treated with IMRT, PTV margins also calculated based on the measured systematic errors in our institution. Analysis of each institution's specific setup errors is important to determine PTV margins, because setup errors vary according to each immobilization system and patient.

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## Study on environmental factors causing head and neck cancer in Karachi, Pakistan

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Aga Khan University Hospital, Pakistan

### Objective:

Head and neck cancer is one of the most prevalent cancers in South East Asia and its incidence is increasing with time. The objective of this study is to identify the environmental factors and their role in causing head and neck cancers and to bring into notice of government the commonest factors involved in head and neck cancers for their control and prevention.

### Material and method:

Questionnaire form was developed, which includes questions about environmental factors causing head and neck cancer. Forms were filled by patients after explaining the study to them and taking their written consent. This study was conducted at day care Oncology and in Radiation department of Aga Khan University Hospital, after approval from institutional ethical review committee. It is a prospective study with time duration of 6 months from December 2016- June 2017. Inclusion criteria is patients with cancers belonging to head and neck region aged 18 years and above, of any gender whereas; exclusion criteria is patients with cancers belonging to head and neck region but under 18 years of age, of any gender. SPSS ver.19 was used to perform statistical analysis.

### Results:

A total of 132 patients were included. Head and neck cancers are observed to be more common in male 101 (76.5%) as compare to females 29 (22%) and average age is  $50.4 \pm 12.9$  years in both gender. The commonest environmental factor causing head and neck cancer includes pan, mainpuri, supari, gutka and tobacco chewing and out of 132 patients 77 (58.3%) were using them. Among all the head and neck cancers the most common is squamous cell cancer of buccal mucosa 63 (47.72%) and less common is the cancer of orbit 4 (3%).

### Conclusion:

Incidence of Head and neck cancer, specifically squamous cell carcinoma of Buccal mucosa is increasing day by day and after data analysis it is seen that the commonest causes are different forms of smokeless tobacco, pan, gutka, mainpuri and supari which are easily available in the market. The only way to control it now is to increase public awareness programmes and request government to stop their supply in the market.

### Biography

Arifa Aziz, working as a staff medical officer and supervisor Day Care Oncology at Aga Khan University Hospital Karachi, Pakistan. Day care oncology is a fifty four bed unit which runs in two shifts and accommodate eighty five to ninety patients daily for chemotherapy administration, blood transfusions, intrathecal chemotherapy bone marrow biopsy and lumbar puncture. She has over nineteen years of experience in adult oncology, written a book by name "Hematology and Oncology Hand Book of Cancer Chemotherapy Protocols" This is a registered book with ISBN;978-969=8073-30-5., is the only chemotherapy protocols book which was written and introduce in Pakistan, first edition was in 2013 and second edition in May 2017. Papers with title "Innovation in chemotherapy administration process" published in Indian journal of cancer and "Incentives of 5 FU infusions through pump and decrease stay in hospital" published in Innovative Journal of Medical and Health Science. Study on quality of life of breast cancer patients receiving first line chemotherapy in a tertiary care hospital accepted for oral presentation and Audit on incidents of chemotherapy extravasations in day care oncology at a tertiary care hospital in Karachi, Pakistan was accepted for poster presentation, at IARMM 6th World Congress of Clinical Safety 2015 in Rome, Italy 6 – 8 September 2017.

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## Assessment of apparent diffusion coefficient values as predictor of aggressiveness in peripheral zone prostate cancer: Comparison with Gleason score

Madiha Beg, Shayan Sirat Maheen Anwar

The Aga Khan University Hospital

To determine association between apparent diffusion coefficient value on diffusion-weighted imaging and Gleason score in patients with prostate cancer. Methods. This retrospective case series was conducted at Radiology Department of Aga Khan University between June 2009 and June 2011. 28 patients with biopsy-proven prostate cancer were included who underwent ultrasound guided sextant prostate biopsy and MRI. MRI images were analyzed on diagnostic console and regions of interest were drawn. Data were entered and analyzed on SPSS 20.0. ADC values were compared with Gleason score using one-way ANOVA test. Results. In 28 patients, 168 quadrants were biopsied and 106 quadrants were positive for malignancy. 89 lesions with proven malignancy showed diffusion restriction. The mean ADC value for disease with a Gleason score of 6 was  $935\text{mm}^2/\text{s}$  (SD =  $248.4\text{mm}^2/\text{s}$ ); Gleason score of 7 was  $837\text{mm}^2/\text{s}$  (SD =  $208.5\text{mm}^2/\text{s}$ ); Gleason score of 8 was  $614\text{mm}^2/\text{s}$  (SD =  $108\text{mm}^2/\text{s}$ ); and Gleason score of 9 was  $571\text{mm}^2/\text{s}$  (SD =  $82\text{mm}^2/\text{s}$ ). Inverse relationship was observed between Gleason score and mean ADC values. Conclusion. DWI and specifically quantitative ADC values may help differentiate between low-risk (Gleason score, 6), intermediate-risk (Gleason score, 7), and high-risk (Gleason score 8 and 9) prostate cancers, indirectly determining the aggressiveness of the disease.

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## Characteristics and outcome of patients with hematological malignancy admitted to intensive care unit- A single centre experience

Shafaq Maqsood, Farhana Badar, Abdul Hameed

Shaukat Khanum Memorial Cancer hospital and Research, Pakistan

### Background and Purpose

Patients with hematological malignancies admitted to intensive care unit (ICU) have a high mortality rate. The aim of our study is to assess the characteristics and outcome of such patients and to identify factors predicting ICU mortality.

### Material and Methods

This is a retrospective chart review, conducted in the intensive care unit (ICU) of Shaukat Khanum Memorial Cancer Hospital and Research Centre over a period of 5 years, from January 2010 to January 2015.

### Results

#### 1. Characteristics

A total of 213 patients were included in this study. There were 150 (70.4%) males and 63 (29.6%) females with the median age of 36 years (18-88 years). Main diagnosis was Non- Hodgkin Lymphoma in 127 (59.6%) patients followed by Hodgkin's Disease 27 (12.7%) and 16 Acute Myeloid Leukemia (7.5%). Most of the patients 154 (72.3%) were on active chemotherapy at the time of admission to ICU, while 28 patients (13.1%) had newly diagnosed disease and 22 (10.3%) were with either relapsed or had progressive disease. Most common reason for admission to ICU was a combination of respiratory failure with septic shock (29.6%) followed by septic shock alone (19.7%) and acute respiratory failure (13.1%). Other causes included acute renal failure alone (7.5%) or in combination with respiratory or circulatory collapse (10.8%) and central nervous system involvement (5.6%). Majority of admissions to ICU occurred between day one and five of admission to floor (46.5%, n=99) whereas 49 (23%) patients were taken directly to the ICU. Mainstay of treatment in 38.5% of patients included both invasive ventilation and vasopressor support along with other supportive care like fluids and antibiotics. 23.5% received only supportive management. Duration of stay for 150 (70.4%) patients was between one to several days.

#### 2. Outcome

Analysis of outcome showed that 119 (55.9 %) patients expired while in ICU, 14 (6.6%) patients expired during the same admission on floor after being transferred out of ICU. So ICU survival was 44.1% whereas hospital survival was 37.5%. After the discharge from hospital in stable condition 18 (8.5%) patients were lost to follow up. 62 (29%) patients were alive at thirty days. A total of 33 (15.4 %) of patients had survived for one year after ICU admission. 21 (9.8%) of patients are still alive and healthy at a minimum median follow up of one and a half years.

#### 3. Predictors of Mortality

Overall, mechanical ventilation was required in 61% of patients. Out of the patients who expired, 92.4% required intubation, whereas from the patients who survived the ICU stay only 21.3% had needed it. Three or more organ involvement was seen in 12.8% of improved patients and 70.6% of patients who died during ICU stay. Neutropenia did not appear to be a major discriminatory factor, with 33% of improved and 42.9% of expired patients being neutropenic at the time of admission to ICU ( $p>0.05$ ) Majority of patients from both, the improved and expired group required intubation and vasopressors from day one onwards.

### Conclusion

Admission to the intensive care unit in a patient with hematological malignancy is associated with poor outcome and high mortality. Identifying the patients who can benefit from aggressive care and prolonged ICU support is important especially when it comes to countries like ours where there are limited resources and financial restraints. Multi organ damage and requirement of invasive ventilation are two main predictors of increased mortality. Neutropenia is also associated with adverse outcome; however, the difference is not as significant as the other two factors mentioned.

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A large pink ribbon is positioned in the upper right quadrant. Below it, two clusters of purple, spiky cancer cells are visible. The background features flowing pink and white wavy lines.

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## **Accepted Abstracts**





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## Retrospective review of TPR in rectal cancer post neo-adjuvant chemo-radiotherapy for rectal cancer: with literature review

Haytham Elsalhat<sup>1</sup>, Ahmad Ajawi<sup>1</sup>, Ibrahim turki taimur<sup>1</sup>, Prof Safwan Taha<sup>1</sup>, Maisoon Mahmoud<sup>2</sup>, Awad ElKarim<sup>2</sup>

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<sup>2</sup>Tawam Hospital, UAE

Throughout the past century the treatment of rectal cancer has gone through a very long path of unfavorable outcomes, where I call colorectal cancer as the goldilocks of the malignancies a lot of aggressive surgical approaches and, medical treatment was derived, for many years unlike the neighboring squamous cell cancer of the Anus the outcomes were not as feasible. In the past decade we started identifying feasible and promising results Total Pathological Response (TPR) post neo-adjuvant chemo-radiation therapy, which varied from 17% to 21% worldwide, that translated to a better progression free survival for our patients, and a better disease free survival.

Here we started in 2012 our retrospective review of our patients from 2010, the outcomes identified a TPR of 31%, this encouraged us to continue on a prospective follow up as well as to place our new come patients in the registry where we had the most pleasant outcomes. After all Rectal cancer is not of much different from its neighbor.

This finding was pushing us towards the watchful waiting strategy with its outcome since we do believe that the patient who visited our clinic prior to surgery is not the same patient post-surgery.

## Experience and results of 42 Patients after 177 Lu-Octreotate Therapy in the Federal Capital of Brazil

Gabriela El Haje Lobo

Núcleos Centro de Medicina Nuclear, Brazil

Neuroendocrine tumors (NET) generally express somatostatin receptors (RS), allowing its treatment by radiolabeled somatostatin analogues (AS). Other tumors expressing these receptors are also amenable to such therapy approach. From January 2008 to June 2017, about 42 patients with neuroendocrine tumors and neuroendocrine not in progress, with RS expression (table) started the Rotterdam protocol for treatment with 177 Lu-Octreotate. They were selected after staging by imaging methods and scintigraphic confirmation by AS affinity, observing proper inclusion and exclusion criteria. Adverse effects during and after the administration of therapeutic doses were analyzed and patients were assessed for clinical response, laboratory and anatomic (complete response, partial response, stable and progression). This ongoing experience reproduced the literature data on safety and low incidence of adverse effects provided by therapy Octreotate-177 Lu. Not only patients with NET, but also those with other cancers with affinity for somatostatin analogues have benefited from this therapy.

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## Superparamagnetic nanoparticles SPIONs for the Development of Blood-Stage Malaria DNA Vaccines

**Fatin M. Nawwab Al-Deen**

Monash University, Australia

**D**NA vaccine is a promising therapeutic approach for treating diseases. However, a crucial feature in effective DNA vaccination is antigen delivery to the site of action. In this way, any delivery system having higher transfection efficacy and subsequent superior antibody production needs to be further investigated. Our previous study demonstrated for the first time the promising results of utilizing the magnetic nanovectors comprised of superparamagnetic iron oxide nanoparticles (SPIONs), Polyethylenimine (PEI) polymer, and hyaluronic acid (HA) to deliver malaria DNA encoding *Plasmodium yoelii* (Py) merozoite surface protein MSP119 (SPIONs/PEI/DNA + HA gene complex) to dendritic cells DC which showed high gene transfection efficiency *in vitro*. In this study, the immunostimulatory effect of the magnetic SPIONs/PEI/DNA+ HA gene complexes was examined *in vivo* application. Groups of BALB/c mice were immunized either with SPIONs/PEI/DNA+HA complexes or SPIONs/PEI/DNA complexes with and without applying external magnetic field, and naked DNA by two different routes of administration; intraperitoneal (i.p.) and intramuscular (i.m.). Our results show that higher serum antibody titers against PyMSP119 were elicited when magnetic gene vectors SPIONs/PEI/DNA+HA were given via intraperitoneal injection under external magnetic field. In addition, predominant IgG subclasses induced were IgG2a followed by IgG1 and IgG2b subclass responses were also observed when mice vaccinated by SPIONs/PEI/DNA+HA complexes via intraperitoneal route.

Activation was also measured as induction of interferon  $\text{INF-}\gamma$  secretion, production of interleukin 4 (IL-4) and interleukin 17 (IL-17) levels in the spleen cells as confirmed by flow cytometry. The complexes elicited high levels of interferon gamma ( $\text{IFN-}\gamma$ ), and moderate levels of interleukin (IL)-4 and IL-17 antigen-specific splenocytes, indicating induction of T helper 1 (Th1), Th2, and Th17 cell mediated immunity. The results illustrate that the ability of SPIONs/PEI/DNA+HA gene complexes across the i.p. route of administration to induce cytophilic antibodies together with broad-spectrum cellular immunity may benefit malaria vaccines.

## The Italian new mandatory vaccination law: rationale, scope and promises

**Ranieri Guerra**

Director General Preventive Health, Italy

**I**taly has seen a steady decrease in vaccination coverage over the past five years. Decrease is particularly relevant for non-compulsory vaccinations (only DTP and B hepatitis were compulsory by law until the newest bill of August 2017) such as measles. Coverage decline was general and occurred in all regional areas monitored. It was particularly serious in 2013/14, paradoxically after a measles outbreak. There are several reasons that the national health authority has investigated during the year-long negotiation to have the new national vaccination plan agreed and financed.

The pervasive and increasingly vocal presence of antivax movements was among the main reasons. A small but active number of health staff (mainly doctors, especially pediatricians) who built their credibility with scarce reaction from the health authority. Only in early 2017 the national and provincial medical boards adopted sanctions that were implemented in a number of cases.

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## Debates in stage II colon cancer treatment

**FerasAlahmad**

King Salman North West Armed Forces Hospital, KSA

At the time of initial diagnosis, stage II colorectal cancer (CRC) accounts for approximately 25% of all CRC cases. In general, stage II disease is associated with a good prognosis with 5-year overall survival (OS) above 80%.

Stage II CRC is a heterogeneous group of cancers with different biology, and significant research efforts have focused on defining the key clinical and or biological features that can identify the subgroup of stage II patients with an increased risk of cancer recurrence after curative surgical resection. Additional studies have focused on developing biomarkers to identify the group of patients who would benefit most from adjuvant chemotherapy. Several expert panels, including ASCO and European Society of Medical Oncology, have identified a set of high-risk clinical features that support the role of adjuvant chemotherapy with an oxaliplatin-containing regimen for stage II CRC, including T4 primary tumors, poorly differentiated tumors, perforation and/or obstruction, lymphovascular invasion, perineural invasion, and less than 12 lymph nodes in the surgical resection specimen.

## Clinicopathological study and management of non-invasive encapsulated follicular variant of papillary thyroid carcinoma: A single institutional experience

**Manal Khayat, I Alqulaity, M Malaka, B Alallah, H Almaghraby**

King Abdul-Aziz University, Saudi Arabia

Encapsulated follicular variant of papillary thyroid carcinoma is a common subtype of papillary thyroid carcinoma (PTC) with low malignant potential. It could be either invasive or non-invasive. Recently, a proposal by an international group of thyroid disease experts has been made to re-classify the non-invasive encapsulated follicular variant of papillary thyroid carcinoma (NIEFV-PTC) as a non-malignant thyroid neoplasm and to use the term: “Noninvasive Follicular Thyroid Neoplasm with Papillary-Like Nuclear Features (NIFTP)”. This study was designed to evaluate the clinicopathological characteristics and management of NIEFV-PTC among Saudi patients attending King Abdulaziz Medical City, Jeddah, Saudi Arabia, between January 2011 till December 2015.

### Conclusion

NIEFV-PTCs showed benign behavior compared to IEFV-PTCs and C-PTCs. However, they were treated the same. Adopting the NIFTP terminology in accordance with the recent recommendations might significantly reduce the over-treatment and its associated complications.

# Global Cancer & Vaccine Summit

December 04-06, 2017 | Dubai

## Evaluation of ifosfamide induced neurotoxicity in cancer patients

**Shahbaz Ahmad Khan**

University of Texas MD Anderson Cancer Center, USA

Ifosfamide is synthetic analog of cyclophosphamide which is involved in inhibition of DNA and protein synthesis and thus widely used in treatment of various types of tumors. Along with its beneficial effects it is also thought to induce severe neurotoxicity including encephalopathy. Data regarding the trends, changes in lab values and treatment is widely available in western countries but there is no specific data available for eastern countries population. This study was aimed to gather data regarding ifosfamide induced neurotoxicity, its risk factors, management and monitoring in cancer patients. A total of 82 cases were studied and evaluated for neurotoxicity and encephalopathy. Demographic data, data regarding previous and current chemotherapy, radiotherapy and surgery was collected. Lab values including serum albumin, creatinine, bilirubin and AST/ALT was also collected. The variables like dose of ifosfamide, number of cycles, duration of therapy, rate of infusion, other prescribed drugs, pharmacokinetic interactions and dose of radiation was also determined to see their association with likelihood of toxicity. Male patients were found to be at greater risk for neurotoxicity, the higher the dose of ifosfamide higher risk of toxicity was found. Reduced serum albumin and ifosfamide infusion up to 24 hours were found to be the most important factors behind the neurotoxicity. A serum albumin level lower than 3.5 g/dL, hyponatremia, elevated serum creatinine level, bulky abdominal disease (and especially bulky pelvic disease), previous nephrectomy, previous treatment with cisplatin, and poor performance status have been implicated in the development of CNS toxicity in patients receiving ifosfamide therapy. The most common manifestations of neurotoxicity include confusion, depressive psychosis, somnolence, and hallucinations; other symptoms include dizziness, incontinence, seizures, mutism, weakness, cranial-nerve dysfunction, extrapyramidal symptoms, and, rarely, coma. There was statistically significant difference ( $p < 0.005$ ) in serum album found in patients before and during ifosfamide chemotherapy. Therefore it is concluded that ifosfamide should be administered in 2 hours infusion and serum albumin levels should be monitored on regular basis to prevent any neurotoxicity

## Vaccinations between government and professional ethics, community duties and individual rights. Where is the border that the health authorities must respect to protect individual choices and to prevent community hazards? The case of measles outbreaks and compulsory vaccinations.

**Ranieri Guerra**

Director General Preventive Health, Italy

Italy is suffering from the second worse 2017 measles outbreak in Europe, after Romania. The government took the initiative to pass a mandatory vaccination law prescribing ten antigens (hexavalent plus tetravalent) as compulsory for children 0-16 years to be accepted at school, in an attempt to catch up with coverage during the national immunization plan lifespan of three years. At the end of this period, the hexavalent will remain compulsory, whereas for the tetravalent a decision will be taken depending on coverage achieved and the epidemiological situation of the country. Meanwhile, Italy is promoting a European concerted action in vaccinations and health security in order to get the European region aligned and adopting one single vaccination schedule. The strategy foresees a strong Antivax groups action, as they are ubiquitous and must be contrasted with the tools of scientific evidence and with facts. The international community must join forces in identifying the proper way to manage media (in particular the internet and the social media) and to educate public opinion as well as bloggers and journalists in the use of science and on how to communicate with individuals and communities. Evidence also says that some groups are so ideologically oriented that persuasion and reason may not be enough. In this case the Government and the medical boards have the duty to enforce ethical legislation and to act in the interest of public health



# Global Cancer & Vaccine Summit

December 04-06, 2017 | Dubai

## Gastrointestinal stromal tumors (GISTs) syndrome and its treatment

**Feras Alahmad**

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**G**astrointestinal stromal tumor (GIST) is the most common mesenchymal tumor in the digestive tract, originating from the interstitial cell of Cajal. Sporadic GISTs are most commonly located in the stomach (60–70% of cases), followed by the small intestine (20–25%) and other locations. In sporadic GISTs, 85–90% of cases have mutations in the c-kit gene. In addition, 35–62.5% of cases without c-kit gene mutations have mutations in the PDGFRA gene. On the other hand, GISTs in NF 1 patients differ from sporadic GISTs in several aspects. GIST in the setting of nonhereditary and hereditary multiple tumor syndromes continues to expand.

Sporadic GIST patients have increased risk of developing synchronous/metachronous cancers, including nonhematologic and hematologic malignancies. Data suggest these associations are non-random, more prevalent in men and increase with age. New adrenal tumors have also been associated with nonhereditary Carney's triad. Meanwhile, understanding of the molecular basis of heritable GIST syndromes has improved. Several new familial GIST kindreds have been reported, including those with germline KIT and PDGFR $\alpha$  mutations. Knowledge about succinate dehydrogenase (SDH) deficiency and mutations in hereditary GIST syndromes has expanded. It is now known that neurofibromatosis-1-associated GISTs are SDHB-positive, whereas Carney-Stratakis syndrome-associated GISTs are SDHB-deficient with underlying germline mutations in SDH subunits A-D.

### SUMMARY

Recognition and early diagnosis of GIST syndromes allows for improved comprehensive medical care. With additional understanding of the molecular pathogenesis of GIST multiple tumor syndromes, we can refine our screening programs and management of these patients and their families.

## Evaluation of ifosfamide induced neurotoxicity in cancer patients

**Shahbaz Ahmad Khan**

Shaukat Khanum Memorial Cancer hospital and Research center, Pakistan

**I**fosfamide is synthetic analog of cyclophosphamide which is involved in inhibition of DNA and protein synthesis and thus widely used in treatment of various types of tumors. Along with its beneficial effects it is also thought to induce severe neurotoxicity including encephalopathy. Data regarding the trends, changes in lab values and treatment is widely available in western countries but there is no specific data available for eastern countries population. This study was aimed to gather data regarding ifosfamide induced neurotoxicity, its risk factors, management and monitoring in cancer patients. A total of 82 cases were studied and evaluated for neurotoxicity and encephalopathy. Demographic data, data regarding previous and current chemotherapy, radiotherapy and surgery was collected. Lab values including serum albumin, creatinine, bilirubin and AST/ALT was also collected. The variables like dose of ifosfamide, number of cycles, duration of therapy, rate of infusion, other prescribed drugs, pharmacokinetic interactions and dose of radiation was also determined to see their association with likelihood of toxicity. Male patients were found to be at greater risk for neurotoxicity, the higher the dose of ifosfamide higher risk of toxicity was found. Reduced serum albumin and ifosfamide infusion up to 24 hours were found to be the most important factors behind the neurotoxicity. A serum albumin level lower than 3.5 g/dL, hyponatremia, elevated serum creatinine level, bulky abdominal disease (and especially bulky pelvic disease), previous nephrectomy, previous treatment with cisplatin, and poor performance status have been implicated in the development of CNS toxicity in patients receiving ifosfamide therapy. The most common manifestations of neurotoxicity include confusion, depressive psychosis, somnolence, and hallucinations; other symptoms include dizziness, incontinence, seizures, mutism, weakness, cranial-nerve dysfunction, extrapyramidal symptoms, and, rarely, coma. There was statistically significant difference ( $p < 0.005$ ) in serum album found in patients before and during ifosfamide chemotherapy. Therefore it is concluded that ifosfamide should be administered in 2 hours infusion and serum albumin levels should be monitored on regular basis to prevent any neurotoxicity

# Global Cancer & Vaccine Summit

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## Cisplatin gemcitabine (CG) combination in gallbladder cancer (GBC): 4years' experience at an endemic centre.

**SushmaAgrawal, R.Saxena**

Sanjay Gandhi Postgraduate Institute of Medical Sciences, India

### Background:

GBC is endemic in North India and it usually presents in advanced stage. In such cases chemotherapy is the standard of care. A retrospective analysis of our 4years' experience with the combination of two chemotherapeutic drugs Cisplatin and Gemcitabine (GC) is being reported here.

### Materials and methods:

All consecutive GBC patients registered in the department of Radiotherapy (under SA (Spell out SA) between 2012-2015 and treated with Cisplatin and Gemcitabine (25mg/m<sup>2</sup> and 1gm/m<sup>2</sup> respectively, day 1 and 8, repeated 3 weekly) were included for this analysis. At 3 cycles of completion of GC, a CECT scan of abdomen was done to evaluate response to GC. The intended plan was to deliver 6 cycles of GC. Those who did not turn up after a consultation, or could not complete 3 cycles GC for response assessment, or those who received only chemo radiation were excluded. The demographic profile, disease burden, any surgical procedure, response to chemotherapy (by RECIST criteria), tolerance to chemotherapy, and overall survival (OS) by Kaplan Meier analysis were computed.

### Results:

265 patients were registered out of which only 156 patients were eligible for this analysis. The median age was 50 years (25-80 yrs), 70.5% were females. Patients were referred after extended cholecystectomy (EC, n=26), simple cholecystectomy (SC, n=40), locally advanced disease (LAGB, n=34), metastatic disease (n=56). 10% patients experienced grade 2 neutropenia. 23 patients had no evidence of disease at completion of 6 cycles GC (14.7%), 79 achieved partial response (PR, 50.6%), 20 achieved stable disease (SD, 12.8%) and 34 had progression of disease (PD, 21.8%). At a median follow-up of 12 months (2-60mo), the median OS was not reached (NR), 12, 7, and 6 months respectively for CR, PR, SD, and PD (p=0.000) respectively. The median OS was not reached (NR), 14, 11, and 7 months respectively for EC, SC, LAGB, and metastatic disease (p=0.000), respectively.

### Conclusions:

This regime is well tolerated in Indian patients. Response to treatment and burden of disease are significant prognostic factors in this disease.

# Global Cancer & Vaccine Summit

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## Interventions for anxiety and depression in cancer patients

**Kofi Adesi Kyei**

University of Ghana, Africa

### **Problem Statement:**

The feeling of fear, distress and uneasiness of an imminent endangerment is described as anxiety and in the setting of the proposed study, anxiety goes down to the principal feeling among patients undergoing various degree of cancer treatment. Depression is the level of symptoms which is manifested through tireless sensations of hopelessness, unhappiness, lack of concentration, lack of energy, and insomnia when a news like cancer hits an individual. It has been established that every cancer patient in his or her cancer journey or at some point will experience some degree of anxiety and depression during their treatment course and this extend even unto their families. After diagnosis have been made, there comes the phase of the emotional shock and disbelief as part of their emotional characteristics followed by anxiety.

Breast cancer according is one of the most feared diseases among women and it could induce the development of psychological disorders like anxiety and depression. Majority of breast cancer patients undergoing treatment at the study site are not comfortable with the trends in the treatment they receive and this has been followed with various degree of complains leading to an intensification in their level of anxiety and triggering much level of depression.

### **Purpose:**

This study was directed to look out for frameworks of various interventions for depression and anxiety among breast cancer patients in Ghana. In doing this, a mixed method design was used to gather both quantitative and qualitative data. The qualitative data was primarily interview with selected working participants while the quantitative data was a non-probabilistic approach using a semi-structured questionnaire to assess the severity, the frequency, the quality of life, the remedy for anxiety and depression experienced by patients undergoing breast cancer treatment in Ghana.

### **Results:**

Results showed that breast cancer patients that come to the radiotherapy department at the Oncology Unit experienced levels anxiety and depression especially for their therapeutic services and the interviews with the team members confirmed. However, the reasons that underlay the anxiety and depression of breast cancer patients was experience an abnormal level of anxiety and depression based on the hospital anxiety and depression scale scoring.

### **Conclusions:**

It was concluded that anxiety and depression issues of cancer patients could be managed and curbed through a number of interventional approaches or factors. It could also be concluded that cancer patient's that come for treatment goes some levels of anxiety and depression. It was also identified through the interviews that anxiety and depression problems and issues could be managed appropriately.

# Global Cancer & Vaccine Summit

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## Right childhood immunization uptake in Vietnam from 2000 to 2011: A multilevel analysis of individual and contextual determinants.

Dao Thi Minh An<sup>1</sup>, Jong-koo Lee<sup>2</sup>, Hoang Van Minh<sup>1</sup>, Nguyen Thi Huyen Trang<sup>1</sup>, Nguyen Thi Thu Huong<sup>1</sup>, Chul Ou Lee<sup>2</sup>, Do Van Dung<sup>3</sup>

<sup>1</sup>Hanoi Medical University, Vietnam

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<sup>3</sup>University of Medicine and Pharmacy, Craiova

### Background:

Since the beginning of 2014, nearly 6000 confirmed measles cases occurred in Northern area in Vietnam of which more than 86% have not been immunized or their vaccination statuses were not confirmed. Moreover, there were some adverse events following immunization (AEFI) cases in period from 2007 to 2013 that made parents delay immunization for their children.

### Aims:

To describe the likelihood of children  $\leq 5$  years old getting right immunization from 2000 to 2011 and identify factors account for variations in right immunization.

### Methods:

Secondary data use of the Multiple Indicator Cluster Survey (MICS) which sampled households and household women aged 15-49 years old from the 1999 Vietnamese Population and Housing Census frame. Multilevel analysis using Poisson regression was performed

### Results:

Generally, proportions of children  $\leq 5$  years old receiving right immunizations was low but increased progressively from 2000 to 2011 except HBV dose 2 (HBV\_2) and HBV dose 3 (HBV\_3). Among 7 vaccines of the National Expanded Program of Immunization (EPI) vaccinated in 2000, 2006, and 2011, Measles dose 1 (Measles\_1) got the highest right vaccination at 65.3%, 66.7%, 73.6%, respectively while Hepatitis B dose 1 (HBV\_1) got the lowest at 17.5%, 19.3%, 45.5%, respectively. Pattern of right immunization clusters within households and communities. Low right immunization was belonged to children whose mothers of marginal groups such as minority ethnicity, living in rural areas, having lower education and wealth index. At the community level, region of child's living was main factor of right immunization while hospital delivery and community prenatal care are minor influences.

### Conclusions:

The EPI communication program should take into account indicator of right immunization beside full immunization to be quality indicator of the immunization and focus more on mothers who have children  $\leq 5$  years old living in rural areas, have lower education, belonged to minority groups, and poor. Studies on right immunization designed for multilevel analysis should be urged to develop



# Global Cancer & Vaccine Summit

December 04-06, 2017 | Dubai

## A feasibility study of neoadjuvant chemoradiation in locally advanced carcinoma rectum on tumor down staging and sphincter preservation

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### Purpose:

To evaluate the rate of sphincter preservation, tumor regression, local control and acute toxicities of Neoadjuvant chemoradiation for locally advanced distal rectal carcinoma.

### Methods:

Patients with clinical T3 / T4 cancer of distal rectum were taken into the study to receive Combined Neoadjuvant chemoradiation followed by surgical resection. All the patients were given inj. Leucovorin (30 mg/m<sup>2</sup>) and inj. 5-FU (325 mg/m<sup>2</sup>) D1 concurrently with radiation of 45 Gy/25# @ 1.8 Gy for 5 weeks. Surgery was performed 4-6 weeks after completion of chemoradiation. The primary end points of this study are tumor regression and sphincter preservation and acute normal tissue toxicities were taken into account as secondary point.

### Results:

A total of 20 patients have been evaluated from July 2007 to July 2008. The study shows overall resectability rate of 86.6% and a sphincter preservation rate of 53% as 53 % of patients underwent Low anterior resection (LAR) and Abdominoperineal resection (APR) was done in 33%. Only 13% patients were declared inoperable in whom palliative colostomy were done. Non hematological toxicities (diarrhea of grade III – 20% and skin reaction of grade II- 20%) were main complication observed during neoadjuvant chemoradiation. Grade II hematological toxicity (neutropenia) reported only in one patient. With a median follow up period of 6 months no loco regional failure has been seen. One patient has failed distantly presenting with lung metastasis without any local failure.

### Conclusions:

Concurrent preoperative chemoradiation for locally advanced carcinoma rectum is associated with improved tumor respectability which results in improved sphincter preservation, local control and is relatively safe, effective and well tolerated.

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