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### Keynote Forum

**10:00 - 10:40**

**Title:** Viruses of Epidemic Flu  
**Giulio Tarro,** Foundation de Beaumont Bonelli for cancer research, Naples, Italy

**Coffee Break 10:40 - 11:00**

**11:00 - 11:40**

**Title:** Discovery and Validation of Human Papillomavirus Inhibitors in 3-Dimensional Epithelial Tissue Cultures  
**Thomas R. Broker,** University of Alabama at Birmingham, USA

**11:40 - 12:20**

**Title:** Meaning and importance of disinfection of surfaces by means of aerosolization in sanitary facilities as a priority activity against resistant microorganisms  
**Roberto Lombardi,** National Institute for Insurance against Labour Accidents, Italy

**12:20 - 13:00**

**Title:** Epidemiology of pertussis and prevention strategies: problems & perspectives  
**Alberto Donzelli,** University of Milan-Bicocca, Italy

**Lunch Break 13:00 - 14:00**

### Technical Sessions  
**Chair:** Giulio Tarro, Italy

**14:00 - 14:30**

**Title:** Pulmonary Manifestations of Leptospirosis  
**Galya Ivanova Gancheva,** Medical University Pleven, Bulgaria

**14:30 - 15:00**

**Title:** Integrated Disease Surveillance Program of a poor-resource setting: A situational analysis  
**Sanchita Mahapatra,** Asian Development Research Institute, India

**15:00 - 15:30**

**Title:** Dissecting genetic susceptibility to infectious diseases using the collaborative cross, a next generation of mouse genetic reference population  
**Fuad A. Iraqi,** Tel Aviv University, Israel

**Coffee Break 15:30 - 15:45**

**15:45 - 16:15**

**Title:** Epidemiological features of traveller’s co-infections: case study  
**Elena Kuzovatova,** Nizhny Novgorod Scientific and Research Institute of Epidemiology and Microbiology, Russia

### Poster Sessions 16:15 - 17:00

**Poster 1**  
**Title:** Identification, isolation and purification of substances with antimicrobial activity in the hemolymph of Lonomia obliqua  
**Ronaldo Zuccatelli Mendonça,** Butantan Institute of São Paulo, Brazil

**Poster 2**  
**Title:** Prevention of biological accidents in a tertiary hospital: economic analysis  
**Mª Teresa del Campo,** Fundación Jiménez Díaz University Hospital, Spain
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<th>Time</th>
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<tr>
<td>10:00 - 10:40</td>
<td><strong>Influenza vaccination of pregnant women: insufficient evidence</strong></td>
<td>Alberto Donzelli, University of Milan-Bicocca, Italy</td>
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<td>10:40-11:20</td>
<td><strong>Within-host pathogen behaviour in shaping better choices of vaccines and antimicrobial treatments</strong></td>
<td>Pietro Mastroeni, University of Cambridge, United Kingdom</td>
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<td>11:40-12:20</td>
<td><strong>The effect of pomegranate xtract on survival and peritoneal bacterial load in CECAL LIGATION and PERFORATION model of sepsis rats</strong></td>
<td>Shahryar Eghtesadi, Azad University, Iran</td>
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<td>12:20-13:00</td>
<td><strong>Visible light and metal oxides nano particles for bacterial eradication</strong></td>
<td>Rachel Lubart, Bar-Ilan University, Israel</td>
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<td>14:00 - 14:30</td>
<td><strong>Molecular evaluation of anti-influenza activity of quercetin-3-O-a-L-rhamnopyranoside fromRapanea melanophloeos</strong></td>
<td>Parvaneh Mehrbod, Pasteur Institute of IRAN, Iran</td>
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<td>14:30 - 15:00</td>
<td><strong>Hepatitis C infection in egypt</strong></td>
<td>Said Hamed Abbadi, Suez University, Egypt</td>
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<td>15:00 - 15:30</td>
<td><strong>Non-specific effects of vaccinations in high-income settings: A disregarded research field</strong></td>
<td>Alberto Donzelli, University of Milan-Bicocca, Italy</td>
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<td>15:45 - 17:00</td>
<td><strong>Primary and Secondary biofilm formation in Klebsiella pneumoniae strains isolated from patients with purulent inflammatory processes</strong></td>
<td>Yuliya Mozgova, Kharkiv National Medical University, Ukraine</td>
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<td><strong>Pseudomonas Aerginosa Bacteremia in ICU; Clinical Presentation and outcome, emergence of Mdr strains</strong></td>
<td>Adila Shaukat, Al Wakra Hospital, Qatar</td>
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<td><strong>Disorganization of Pseudomonas aeruginosa Isolates Biofilms Affecting with Ultrasound Radiation</strong></td>
<td>Svitolana Malanchuk, V. N. Karazin Kharkiv National University, Ukraine</td>
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<td><strong>Etiologic Structure of Pyelonephritis in Children and Ability of Causative Agents to Form Biofilms</strong></td>
<td>Maryna Mishyna, Kharkiv National Medical University, Ukraine</td>
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Welcome Message

The acuteness of the emerging diseases and fundamental importance of research aimed at uncovering their agents places the theme of microbe involvement in vaccines among the most interesting and urgent problems in the field of medical science today.

It is therefore an honour for me and a great privilege to speak about the commitment of the International Conference on “Virology, Bacteriology and Infectious Diseases”. Furthermore, the Group wishes to extend this commitment into the future: it is its intention to continue these conferences in the next years. The topics to be selected shall cover a wide range and encompass the most up-to-date information on the multifactorial events which lead to potential pandemics in the world.

I would like to express my sincere thanks to the members of the Organizing Committee and to all who are contributing with their participation, help and interest in the success of this conference. We shall gain in real time the knowledge concerning these agents and the involvement in human infectious diseases that represents one of the most important breakthrough point in the advancement of human vaccine research.

Giulio Tarro
Foundation de Beaumont Bonelli for cancer research
Naples, Italy
Speaker Representations
Day 1
Keynote Forum
For the emergency created by the epidemic of « influence of the pigs » in Mexico it was correct not to create alarmism's being victims of a bad information. The possibility that the virus arrives in other parts of the world is real as for all the types of influence virus. In order that a strain has a wide distribution, its antigenic characteristics must ensure that it escapes the neutralization of antibodies of the host and of the surrounding population. So the outbreaks will happen with those strains that have dominant antigens that fit the deficiency, or better, the absences of antibody in the population. It seems, in conclusion that the flu virus shows ability and an aptitude for survival built on the possibility of emergence of new models that allow the virus being confused easily through populations still partly immune to previous antigenic forms. According to this view, the changes in the influenza A can be designed in single meaning, in the context of a principle and of an evolutionary progress, from Burnet said immunological drift or steering immunology. The antiviral drugs (inhibitors of the neuraminidases, receptor of the virus surface) should be assumed within 48 hours by the appearance of the influence symptoms and for the subjects that have had a close contact with people infected by the flu virus. The vaccination against the influence is the most effective method to prevent the illness. From the moment that we find the isolation of a new flu virus, we must wait for the preparation of a new specific vaccine that will be ready for the next influence season.

giuliotarro@gmail.com

Viruses of Epidemic Flu

Giulio Tarro
Foundation de Beaumont Bonelli for cancer research, Naples Italy

Biography

Human papillomaviruses are ubiquitous and infect cutaneous skin or mucosal epithelia. The mucosotropic HPV genotypes are the most common sexually transmitted pathogens. While the majority of infections spontaneously resolve, many lesions caused by oncogenic HPV-16, HPV-18 and closely related genotypes can persist and pose a risk of neoplastic progression over time. Ultimately, HPVs are responsible for 5% of all cancers, notably ano-genital and oropharyngeal carcinomas. Prevention and management depend on a combination of vaccination, early and regular screening, and therapy, which is currently based on local ablation of lesions or surgery. There are few effective, durable and well tolerated topical inhibitors of HPV infections. Our research examines the HPV–host keratinocyte interactions on which viral genome maintenance and replicative DNA amplification depend. We repurpose existing small molecule agents that target those proteins and pathways. Evaluation and molecular characterization are performed in 3-dimensional organotypic epithelial raft cultures developed from primary human keratinocytes that harbor extrachromosomal HPV-18 genomes. The tissue cultures recapitulate a highly productive phase, providing an experimental model ideal for anti-HPV drug-testing. 3D-raft cultures can also be established using HPV-immortalized or transformed cell lines, in which integrated high-risk genotypes express their E6-E7 oncogenes, recapitulating dysplasias and cancers. We score for selective sensitivity to inhibitors that promote cell death in such neoplastic lesions, relative to normal epithelia. In both arms of these anti-viral investigations, we identified effective and selective inhibitors from substantially different chemical classes, several of which have advanced to human clinical trials or are soon to do so.

broker@uab.edu
The antibiotic-resistant microorganisms are currently, at international level as well as in Italy, a worrying issue of public health since it is difficult to perform an effective treatment of infections in humans facilitating the return of infectious diseases that were thought to be defeated or under control with dramatic consequences such as some unexpected deaths occurring in the hospital and reported recently by the mass media.

In the hospital and healthcare environment, these resistant pathogens can frequently create an habitat on surfaces in some critical areas that are not accessible to manual disinfection, which, as a primary prevention, results in the obvious importance of performing a disinfection by means of aerosolization. This technological offer is currently identified, inter alia, in the fulfilments required by the EU Directives in the field of hygiene and safety at work. For EU countries disinfection is an important safety measure for the protection of health in the healthcare-hospital environment and must be implemented following the indications of the Directive 54/2000 EC, Directive 391/89 EC, assimilated in Italy in Legislative Decree 81/2008 CE and subsequent amendments, as well as Directive 93/42 EC and subsequent amendments, assimilated in Italy in Legislative Decree 46/97 and subsequent amendments.

In this regard, in relation to what is evidenced by the aforementioned legislation, the checks on efficiency must be based on methods recognized by the Scientific Community, which for the EU Member States are the European technical standards elaborated by the CEN. Please note that the same, in order to comply with the requirements of the aforementioned legislation, must relate to the combined use of equipment and formulation.

In this context, we have recently seen the use of an innovative equipment that, by using an appropriate disinfectant formulation based on hydrogen peroxide, allows effective disinfection for bacteria, fungi - mycetes, viruses and spores with extremely short contact times and an interesting accurate monitoring function with regards to the execution of the activity and the operators that perform it.
Pertussis vaccination has given an important contribution in reducing the incidence of the disease; however, pertussis reawakens internationally, even in highly vaccinated population groups. This resurgence seems to be attributable to various reasons: 1. Non-optimal efficacy of the vaccine; 2. Rapid decay of protective antibody titers in part of the population and above all 3. Their inadequacy in preventing also vaccinated subjects from infections and transmission of the pathogen; 4. Selective pressure of extensive vaccination with emergence of mutated resistant strains; 5. Substantial impossibility of obtaining a herd effect with the vaccines available today. This work analyzes the state of scientific knowledge and illustrates various topics that may challenge a prevention based only on the pediatric vaccine duty using a multicomponent vaccine. Public health strategies must be rethought, considering also different solutions that aim to fight the disease in a more targeted and potentially effective way, avoiding major damage to those at greater risk. A strategy currently tested is the vaccination of pregnant mothers, but adverse effects cannot yet be ruled out. Among the alternatives, public health services could consider also the experimentation of solutions less interfering with the bacterial ecology, that only aim at avoiding major damage to subgroups at greater risk; integrated with initiatives to improve surveillance systems, microbiological diagnosis/timely treatment and lifestyle-based prevention.

adonzelli@ats-milano.it

Biography

Donzelli is working as consultant collaborator, past Director of the Service of Appropriateness Education and EBM at the Agency for Health Protection of Milan. He received his Doctoral degree and specialization in Hygiene & Preventive Medicine from the University of Milan. He has authored several scientific and educational publications in various journals and books, reflecting his research interests in Prevention, Public Health, Medical Education and Comparative Assessment of Drugs & Health Technologies. Dr. Donzelli is also the Editor of the Good clinical practice Pills for doctors and Health education Pills for citizens, and Founder and member of the Executive Board of the Foundation Allineare Sanità e Salute.
Day 1
Technical Sessions
Pulmonary Manifestations of Leptospirosis

Galya Ivanova Gancheva

Department of Infectious Diseases, Epidemiology, Parasitology and Tropical Medicine, Medical University, Pleven, Bulgaria

Abstract: Leptospirosis has a spectrum of presentation which ranges from mild to severe form comprising of triad of jaundice, renal failure, and haemorrhages. Involvement of the lung can vary from subtle clinical features to deadly pulmonary hemorrhage and acute respiratory distress syndrome. Our objective was to analyze respiratory symptoms and to assess their prognostic value in leptospirosis.

Materials/methods: We performed retrospective analysis in 100 consecutive leptospirosis cases treated in Clinic of Infectious Diseases at University Hospital – Pleven (1976-2017) (90 male, mean age 37±18 years, lethal outcome in 13%). Statistical methods – tests of Student, Fischer and Pirson, and odds ratio.

Results: Fever (100%), hepatomegaly (92%), myalgia (86%), vomiting (84%), splenomegaly (74%), oliguria (69%), jaundice (63%), hypotension (49%), abdominal pain (41%), and hemorrhagic diathesis (37%) were the characteristic manifestations. The commonest respiratory symptoms were decreased breath (37%), rales (17%), tachypnea (15%), and dyspnea (13%). Respiratory symptoms were observed more often in icteric cases. Comparative study of respiratory symptoms in different according to severity forms revealed higher prevalence in severe cases than in moderate (p<0.001). Decreased breath, tachypnea, dyspnea and rales occur more often in deceased patients (p<0.001). The lethal outcome strongly correlated with lung edema (OR 25.00; φ=0.66) and brain edema (OR 17.29; φ=0.53).

Conclusions: Respiratory dysfunctions in the present study were nonspecific (being a part of multiorgan disorders) and correlated with severity. We had not observed cases with primary pulmonary haemorrhages. The lung edema is important factor for death in leptospirosis and its prevention requires prompt intensive treatment with interdisciplinary approach.

Biography

Gancheva is currently working as Associate Professor at the Medical University – Pleven, Bulgaria. She received her PhD on 2007 from the Medical University – Pleven. She completed her Masters on 1982 from the Medical University – Pleven, Bulgaria. Since then, she works at the same University served as Assistant Professor and Associate Professor in Department of Infectious Diseases, Epidemiology, Parasitology and Tropical Medicine. Dr. Gancheva has authored more than 130 publications in various journals and books. More of her publications reflect her research interests in leptospirosis. Dr. Gancheva is also an Academic Editor of the Asian Journal of Medicine and Health. She is serving as a member in European Public Health Association (EUPHA), European Health Management Association (EHMA), International Society of Infectious Diseases (ISID), Bulgarian Academy of Sciences and Arts (BASA), Bulgarian Scientific Union (BSU), Bulgarian Society of Infectious Diseases (BSID). Dr. Gancheva is three times honored by Certificate from Bulgarian Parliament entitled “Bulgarian patients trust in Dr Gancheva” (for 2015, 2016 and 2017).

galya_gancheva@abv.bg

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Integrated Disease Surveillance Program of a poor-resource setting: A situational analysis

Sanchita Mahapatra
Epidemiologist, Center for Health Policy, Asian Development Research Institute, Patna, India

Background: Given rapid climate change and increased urbanization, India is currently experiencing dual disease burden: traditional infectious diseases and chronic life style diseases. Increased attention has been focused on improving control of communicable diseases through adoption of a well-coordinated, de-centralized functional surveillance system at the local level which is built on potential case-finding through passive and active efforts. However, published literature concerning evaluation of integrated disease surveillance program (IDSP) is scarce in India.

Objective: The primary objective was to document the baseline performance of IDSP regarding its core and support functions in Bihar, India since its inception in 2009

Methodology: Secondary analysis of weekly/monthly data during 2009-2018 were performed to assess the structure, core and support surveillance functions using WHO/CDC recommended guidelines. The major indicators considered were: timeliness and completeness of reporting from each district, current trend of priority diseases, outbreak investigations and responses and notification of immediately reportable diseases or events.

Results: Weekly data are collected in three standardized forms: Form S capturing suspected cases at subcentre level by community health workers, Form P collecting probable cases at district-level by treating physicians and Form L capturing confirmed cases by laboratory technicians. There are about 11033 reporting units covering 38 districts in Bihar (644 for P, 597 for L and 9792 for S). Completeness of reporting “P”, “L” and “S” forms improved significantly from 2009 to 2018: S forms from 0% to 52%, P forms from 58% to 84% and L forms from 32% to 84%; The incidence of reported cases of Dengue, Meningococcal Meningitis, Viral Hepatitis A/E, Typhoid, Chikungunya Shigella and Acute Diarrheal Diseases increased over time. The number of outbreaks reported and responded strengthened over time: from 3 in 2009 to 181 till June, 2018. Majority of outbreaks reported over the past one year were related to Chicken pox, Measles, Malaria, Japanese Encephalitis, Acute Diarrheal Diseases, Acute Encephalopathy Syndrome and H1N1 Influenza. However, submission of the final outbreak reports was weak. Supervision and coordination were poor at the district-levels. Communicable diseases in Bihar are supported and managed by several vertical programs. Parallel data collection in different formats led to discrepancies resulting into under-utilization of data at the aggregate level. Non-standardized case-definitions often led to misreporting of potential cases. Poor laboratory network and lack of trained staff at all levels compromised the case and outbreak confirmation. Involvement of private sector was poor. Administrative delays in recruitment and contractual part time positions were other major barriers to proper IDSP implementation.

Conclusion: Although significant progress has been made in the core and support functions, the IDSP in Bihar needs strengthening particularly improvement in data quality through appropriate field based epidemiological training, supervision and human resource management.

Biography

Mahapatra is currently working as Subject Expert Epidemiologist at the Center for Health Policy, Asian Development Research Institute (ADRI), Patna, India. Mahapatra received her PhD on Epidemiology from the Fielding School of Public Health, University of California, Los Angeles (UCLA). Mahapatra completed her medical degree from Burdwan Medical College and did post-graduation in Public health from All India Institute of Hygiene and Public Health, Kolkata, India. She then worked at the National Institute of Cholera and Enteric Diseases, served as a Senior Research Fellow. Mahapatra awarded the Rockefeller Foundation Centennial Challenge and Canada Grand Challenge, “Stars in Global Health”, awards for development of a real-time health information based service delivery system in Kolkata, India. She is currently in charge of ongoing scholarly project “Strengthening Integrated Disease Surveillance Program in Bihar, India.

sanchita.chp@adriindia.org, raysanchita@yahoo.co.in
Dissecting genetic susceptibility to infectious diseases using the collaborative cross, a next generation of mouse genetic reference population

Fuad A. Iraqi
Department of Clinical Microbiology and Immunology, Sackler Faculty of Medicine, Tel Aviv University, Israel

Infectious diseases, also known as communicable diseases, refer to a full range of maladies caused by pathogen invasion to the host body. Host response towards an infectious pathogen varies between individuals, and can be defined by responses from asymptomatic to lethal. Host response to infectious pathogens is considered as a complex trait controlled by gene-gene (host-pathogen) and gene-environment interactions, leading to the extensive phenotypic variations between individuals. With the advancement of the human genome mapping approaches and tools, various genome-wide association studies (GWAS) were performed, aimed at mapping the genetic basis underlying host susceptibility towards infectious pathogens. In parallel, immense efforts were invested in enhancing the genetic mapping resolution and gene-cloning efficacy, using variety of mouse inbred lines. Notwithstanding the evident advances achieved using these mouse models, the genetic diversity was low and quantitative trait loci (QTL) mapping resolution was inadequate. Consequently, the Collaborative Cross (CC) mouse model was established by full reciprocal mating of eight divergent founder strains of mice (A/J, C57BL/6J, 129S1/SvImJ, NOD/LtJ, NZO/HiLtJ, CAST/Ei, PWK/PhJ, and WSB/EiJ) generating a next-generation mouse genetic reference population (CC lines). Presently, the CC mouse model population comprises a set of about 200 recombinant inbred CC lines exhibiting a unique high genetic diversity and which are accessible for multidisciplinary studies. The CC mouse model efficacy was validated by various studies in our lab and others, accomplishing high-resolution (<1MB) QTL genomic mapping for a variety of complex traits, using about 50 CC lines (3-4 mice per line). Herein we present a number of studies demonstrating the power of the CC mouse model, which has been utilized in our lab for mapping the genetic basis of host susceptibility to various infectious pathogens. These include Aspergillus fumigatus, Klebsiella pneumoniae, Porphyromonas gingivalis and Fusobacterium nucleatum (causing oral mixed infection), Pseudomonas aeruginosa, and the bacterial toxins Lipopolysaccharide and Lipoteichoic acid.

Biography

Fuad A. Iraqi is currently working at Department of Clinical Microbiology and Immunology, Sackler Faculty of Medicine in Tel Aviv University, Israel
fuadi@tauex.tau.ac.il

www.infectiousdiseasesconference.org
Epidemiological features of traveler’s co-infections: case study

Elena Kuzovatova
Infectious Diseases at the Nizhny Novgorod Scientific and Research Institute of Epidemiology and Microbiology (NNIIEIM) named after Academician I.N. Blokhina, Russia

A 3-y.o. man, Australia citizen, applied for surgical assistance because of itching, swelling and rubor migrated for a week on his foot. Additionally, he complained for mild transitory bowel syndrome (thin stool o.d. four days), temperature remains normal. Anamnesis: four months on journey, attended South Asia, arrived to Russia three weeks ago, visited different cities; experienced mosquito bites, walked barefoot in tropical and Black sea beaches, had meal in roadside cafe and snack bars, now stays at hostel. Routine laboratory tests - no abnormalities but eosinophilia (11%). Diagnosis: aseptic infiltrate. Prescriptions: foot bandage, referral to infectious disease specialist. PE: focal edema and redness on left foot inner surface, rather painful. Abdomen is soft and painless on palpation. Concurrent infectious diseases are suggested – enteric infection (either bacterial or viral etiology) and helminthiasis. Blood chemistry values are normal. Scatopacity - mild colitis (Le up to 20 FOV), ova and parasite exam negative except trophozoooids and cysts of Entamoeba Hartmani. PCR stool exam - viral DNA negative, DNA of EPEC positive. Stool culture negative. Ultrasound findings - moving inclusions in left foot infiltrate. Diagnosis: suspected Larva migrans. Microfilaria blood test negative. Treatment: Nemozole 0.4 bid; Ciprofloxacin 0.5 bid, hyposensitization. Because of incomplete treatment effect Nemozole course is repeated. Final diagnosis: Acute enterocolitis caused by EPEC. Subcutaneous larva migrans. Ent.Hartmani being non-pathogenic however might contribute to patient's digestive disorders. Despite different ways, conditions and geographic regions of infection both colibacillosis and parasite invasion are travel-related and resulted from violation of personal and environmental hygiene.
Posters
Infections with resistant bacterial strains have become a serious public health problem leading to death of thousands of people annually. For this reason, the search for new antibiotics has become an urgent necessity. For this, bioprospecting from insect exudates has become an increasingly frequent option. Therefore, this work aimed to identify, isolate and characterize chemically of molecules with antimicrobial action in the hemolymph of caterpillars of the family Saturniidae. The crude hemolymph was applied to a Sep-Pack® C18 disposable column, allowing the separation of hydrophilic material from the hydrophobic. The elution was performed with a concentration gradient of 0 to 80% of acetonitrile. The antimicrobial assays were performed with Cladosporium herbarum, Escherichia coli Micrococcus luteus, Salmonella arizonae, and Staphylococcus aureus strains. The antimicrobial activity was determined by the growth inhibition assay in liquid medium. For the evaluation of cytotoxic activity, hemolytic and MTT assays were used. All the fractions that presented antimicrobial activity were submitted to mass spectrometry. The tested samples showed activity against the strains Escherichia coli Micrococcus luteus, Staphylococcus aureus, Cladosporium herbarum and Salmonella arizonae. None of the fractions with antimicrobial activity showed cytotoxic activity or hemolytic activity. The minimum inhibitory concentration was 1 to 3 μg / mL. Concentrations as low as 0.50 μg / mL were sufficient to neutralize Staphylococcus aureus. Hemolymph fractions that showed antimicrobial activity were applied to the mass spectrometer. All compounds with activity are small molecules below 2 KDa. At the moment we are testing the activities against resistant strains.

Biography

Ronaldo Zucatelli Mendonça is currently working as scientific research at the Butantan Institute of São Paulo, Brazil. He received his Doctoral degree or Microbiology from the University of São Paulo (USP). And completed his Masters on Microbiology from the University of São Paulo (USP). He has 3 PhD on Biotechnology. One by Unam, Mexico, and two by IBET, Portugal. He is working at the Institute, since 1980 and now is the Director of Parasitology Laboratory. Ronaldo Zucatelli Mendonça has authored several publications in various journals and books. His publications reflect his research interests in virology and biotechnology.

zucatelli@uol.com.br

Identification, isolation and purification of substances with antimicrobial activity in the hemolymph of Lononima obliqua

Ronaldo Zucatelli Mendonça*, Roberta Fiusa Magnelli

Butantan Institute, Brazil
Prevention of biological accidents in a tertiary hospital: economic analysis

Mª Teresa del Campo, Mª Antonieta Ramírez
Fundación Jiménez Díaz University Hospital, Madrid, Spain

Biological risk stemming from care delivery is considered the greatest risk to which most hospital employees are exposed. Hospital Universitario Foundation Jiménez Díaz has an occupational health and safety (OHS) plan with these main objectives:
- carry out training and information initiatives with a view to increasing knowledge of safety risks
- Develop prevention plans and action protocols to institute continuous improvement of the health and safety of employees.

OHS plans have been laid down to meet the target of reducing the number of accidents. This effort has been assigned concrete preventive measures such as the following: specific training in occupational safety focusing on biological risk.

The results evidence the reduction in relative frequency (fi) of biological accidents, taking into account the average number of staff members since 2011 (n of biological accidents= 154; average staff= 2,282; fi of biological accidents= 6.75%) until 2017 (n= 102; average staff= 2,664; fi= 3.80%).

An economic analysis of this issue was conducted:
1) Cost:
\[\text{drug treatments (antiretroviral drugs used in cases of accidents involving HIV-positive patients or with unknown sources): } \€ 8,534\]
\[\text{visits to occupational health services regarding biological accidents: } \€ 5,307\]
\[\text{laboratory tests stemming from biological accidents: } \€ 4,479\]
Total: \(\€ 18,320\).

2) Investments:
\[\text{specific training in biological risk prevention: } \€ 4,280\]
\[\text{Hepatitis B vaccination: } \€ 1,190\]

3) Savings:
Cost - investments: \(\€ 18,320 - \€ 5,470 = \€ 12,850\).

The biological accidents associated with occupational exposure in a tertiary hospital may be reduced based on optimal training in biological protection.

Biography

Dra del Campo is currently working at Department of Occupational Health, Fundación Jiménez Díaz Hospital. She received her Doctoral degree on Medicine from the University Autónoma de Madrid. She then worked at the Fundación Jiménez Díaz, served as Honorary Professor at the University Autónoma de Madrid. She has authored several publications in various journals and books. Her publications reflect her research interests in healthcare workers. She is Editor of the Journal Revista de la Asociación Española de Especialistas en Medicina del Trabajo (AEEMT), serving as General Secretary in AEEMT. She is currently in charge of ongoing project about occupational diseases.

tcampo@fjd.es

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Monitoring of MMR Vaccine Potency by Quantitative Real Time PCR (qPCR) During Production Phases

Gisela Freitas Trindade, Jessica Malheiros
Bio-Manguinhos- Fundação Oswaldo Cruz –Rio de Janeiro, Brazil

The development of vaccines with multiple live attenuated viruses required efficient analytical approaches to monitor safety and efficacy. The potency of the measles, mumps and rubella vaccine (MMR) is performed by conventional plaque assays or infectious dose cell culture assays (CCID50) that are dependent on the observation of the cytopathic effect. Although these tests are considered gold standard, they are laborious and the results can be difficult to interpret. Here, we consider high quality control parameters to establish a qPCR method as an alternative test to quantify MMR viruses during different stages and abbreviate the vaccine production process. We established a multiplex method based on the TaqMan system for each genome target, to follow the viral titer and compare it with the single tests. Monovalent bulks, final vaccine bulk (after formulation) and final vaccine batch (after lyophilization) were analyzed in triplicate and Games-Howell test demonstrated significates differences when compared monovalent bulk with other vaccine preparations: measles $p < 0.00001$; mumps $p < 0.00001$; rubella $p = 0.00035$. It was observed decrease of 1-2 Log 10 copies/mL in titer of vaccine preparations in comparison of monovalent bulk. These data are in accordance with was described in Brazilian Pharmacopoeia to MMR vaccine titered by traditional CCID50. This study revealed the efficacy of the qPCR test to estimate the viral potency of the MMR vaccine, which saves time in production process especially during vaccination campaigns.

Biography

Dra. Gisela Freitas Trindade is currently working as Public Health Technologist at the Fundação Oswaldo Cruz. Dra Gisela received her Doctoral degree in 2011 and her Master’s degree in 2006 from the Oswaldo Cruz Institute at the Oswaldo Cruz foundation. She then worked at the Institute de Tecnologia em Imunobiológicos – Fiocruz, focusing on technological development of viral vaccines. Dra. Gisela has authored several publications in various journals and books. Her publications reflect her research interests in molecular virology and vaccines.

gisela.freitas@bio.fiocruz.br
Day 2

Keynote Forum
Pregnant women are a WHO priority group for influenza vaccination, but evidences of its effectiveness and safety come from observational studies, notoriously prone to confounding by indication and healthy-vaccinee bias. The latter type of bias leads to an overestimation of the effectiveness and safety of the vaccine, as it probably occurs in pregnant women. Indeed, better-educated women with healthier behaviors, who seek better medical care, may be more adherent to vaccinations recommended by doctors, scientific societies, health authorities. Therefore, it is fundamental to obtain information about vaccine effectiveness and safety from randomized controlled trials (RCTs). Cochrane reviews have identified only one RCT with “low risk of bias”. However, its results were not reassuring in terms of maternal, perinatal, and infant deaths and hospitalization, and showed a Number Needed to Vaccine of 55 for mothers, with an excess of local adverse effects. A Cochrane review concluded that the inactivated influenza vaccine provides pregnant women with uncertain or very limited protection against influenza-like illnesses and influenza. Some observational studies have suggested possible adverse effects of the inflammation following the vaccination. Consistent with the Cochrane reviewers’ conclusions, further trials for influenza vaccines with appropriate study designs and comparison groups are required before promoting universal seasonal influenza vaccinations of pregnant women. Meanwhile, vaccination in 2°-3° trimester should be offered, communicating the uncertainties that still exist, promoting informed choices. Vaccination in the first trimester is debatable. This does not mean leaving women defenseless: many other useful behavioral and environmental measures can reduce infectious disease.

adonzelli@ats-milano.it
Within-host pathogen behaviour in shaping better choices of vaccines and antimicrobial treatments

Bacterial diseases cause approximately six million deaths per year. Antimicrobial resistance is on the increase and better vaccines are needed. Knowledge of the biology and pathogenesis of the microbes and their interaction with the immune system is essential to improve prevention and treatment of bacterial infections. We use multidisciplinary approaches in mammalian models of infection to understand how location, growth and spread of invasive bacteria impacts the efficacy of vaccines and antibiotics. We also study the impact of immune-deficiencies on invasive bacterial diseases and on the efficacy of antibiotics. Using *Salmonella* as an example of an invasive systemic pathogen we have established that these infections have a pathogenesis that is both extracellular and intracellular, with systemic spread in multiple body tissues. In the extracellular phase the bacteria are vulnerable to antibodies and complement that lyse and/or target them to phagocytes, increasing the antimicrobial functions of host cells. We have identified phagocyte receptors, intracellular killing mechanisms and bacterial evasion strategies that affect phagocyte- and antibody-mediated killing of *Salmonella*. We have determined the correlates of the protective IgG response in murine and human preclinical models, thus generating essential information on the requirements of the protective response. We have also determined the interactions between pathogen behavior and the efficacy of antibiotic therapy showing correlations between location and growth and drug efficacy in vivo. This work lays the foundations for the development of better vaccines and antibiotic treatments for bacterial infections and establishes principles applicable to other systemic bacterial diseases.

pm274@cam.ac.uk
Sepsis is one of the major causes of death in intensive care units. Oxidative stress and hyper-inflammation has been shown to be major cause of mortality and morbidity in septic cases. Pomegranate is a fruit which is considered for its antioxidant and anti-inflammatory properties. The aim of this study was to evaluate the effect of POMx, a standard pomegranate extract, on mortality and peritoneal bacterial load in cecal ligation and perforation (CLP) model of sepsis in rats. Male wistar rats were divided into four groups: sham; CLP; prevention [consumed POMx (250mg of polyphenols/kg/day) for 4 weeks and subjected to CLP]; treatment [subjected to CLP and then received a single drink of POMx (250mg of polyphenols/kg)]. Sepsis was induced by CLP surgery. Ten day survival rate of all groups (subdivided into with and without antibiotics subgroups) were recorded. Peritoneal bacterial load of animal were also assessed. Data were analysed using log-rank and Kruskal-Wallis tests. There were no significant differences in survival rates of CLP, prevention and treatment groups, in subgroups without antibiotics. However, in subgroups with antibiotics, the prevention group had significantly lower survival rate than sham group (p<0.05). Conversely, the bacterial load of prevention and treatment group were significantly higher than sham group (p<0.01). In conclusion our study demonstrated that pomegranate extract could increase mortality rate via increasing peritoneal cavity bacterial load, in CLP model of sepsis. More studies to assess mechanisms of this effect are warranted.

segtesadi@gmail.com

The Effect Of Pomegranate Extract On Survival And Peritoneal Bacterial Load In Cecal Ligation And Perforation Model Of Sepsis Rats

Shahryar Eghtesadi
Azad University, Iran

Biography
Shahryar Eghtesadi received Bachelor degree in Nutrition Science and Food Chemistry 1975, from Shahid Beheshti University of Medical Sciences, Tehran; MSPH degree in Nutrition, 1977, from Tehran University of Medical Sciences, Tehran and PhD from University of California at Davis (UCD), USA, in Nutrition (1985). He served as Visiting Scientist in USDA Human Nutrition Research Center on Aging (HNRC), Boston, USA (1994-1995); Full professor of Tabriz, Iran and Tehran Universities of Medical Sciences and currently serves as Professor of Azad University, Science & Research Branch. He was the chairs of Departments of Nutrition and Biochemistry, Biochemistry & Clinical Nutrition, Public Health Nutrition and Nutrition in aforementioned Universities. Also Served as Associate Dean and Dean of School of Public Health & Nutrition and School of Public Health of Tabriz and Iran Universities of Medical Sciences respectively.
Since the effectiveness of antibiotic treatments is decreasing due to the development of resistant strains, alternative approaches for killing microorganisms are needed. In the past we found that intense blue light could be used for bacterial eradication. The phototoxic effect correlated with the amount of reactive oxygen species (ROS) generated by the bacteria due to illumination. In this presentation we show that the effect of light (visible and NIR) can be enhanced by introducing metal oxides nanoparticles (nps) to the bacteria prior to irradiation. It has been found that water suspensions of metal oxides nps produce stable oxy radicals due to their high chemical activity. Moreover, we found that upon excitation of these nps with visible or NIR light an increase in ROS amount occurs. This led us to suggest combining nanoparticles with light irradiation for bacteria killing. Combination of illumination with the nanoparticles (ZnO or TiO2) resulted in a marked increase in the reduction of bacterial viability to a mean reduction of 80-90% for both nanoparticles. As a matter of fact metal oxides nps alone can be used for bacteria killing. The advantage of our approach is the use of lower concentrations of np, combined with reduced light intensity that is less toxic to the host tissue. To further avoid the toxicity of metaloxides nps on healthy tissue it is possible to coat them on the surface of various substrates including ceramics and polymers.

Lubartr@biu.ac.il

Visible light and metal oxides Nano particles for bacterial eradication
Day 2
Technical Sessions
Molecular evaluation of anti-influenza activity of quercetin-3-O-α-L-rhamnopyranoside from Rapanea melanophloeos

Parvaneh Mehrbod
Pasteur Institute of IRAN, Tehran, Iran

Influenza infection is a major health threat and drug resistance against it has been observed. Side effects of chemicals have increased potentials for the alternative use of herbal medications for prophylaxis against viral infections. In this study, in-vitro anti-influenza activity of quercetin-3-O-α-L-rhamnopyranoside "Q3R" isolated from the South African medicinal plant Rapanea melanophloeos (L.) Mez, (RM), family Myrsinaceae was tested. RM was selected owing to its traditional use, and previous confirmation of anti-influenza activity of its methanolic extract. The compound was identified by means of NMR and mass spectrometry techniques. The Q3R non-cytotoxic concentration was tested for activity against influenza A virus (IAV) in simultaneous, pre-penetration and post-penetration combined treatments over 1 hr incubation time on MDCK cells. The virus titer and viral load were determined using HA and QPCR respectively. Q3R at 150µg/ml decreased the viral titer by 6 logs (p<0.01) in the simultaneous procedure. The Nucleoprotein (NP) gene copy numbers as a viral target gene, calculated based on the Ct values and standard formula, significantly decreased in simultaneous treatment (p<0.01). This is the first report of Q3R isolation from RM and its anti-influenza activity. The compound significantly blocked viral particle receptors and prevented cell penetration with reduced viral particle propagation. Pre- and post-penetration treatments did not cause significant change with the inference that it doesn't influence host cellular receptors. Further research focuses on detecting the specific mechanism of anti-influenza activity of the compound.

Biography

Parvaneh Mehrbod is academic member of Pasteur Institute of Iran, started her postgraduate study in 2006 at University of Tehran in the field of Cellular and Molecular Biology and pursued her PhD study in Molecular Biotechnology at Universiti Putra Malaysia. She was successful to obtain postdoctoral fellowship awards from Universiti Putra Malaysia (2014), Pasteur Institute of Iran (2016) and University of Pretoria (2016-2018). These years’ experiences of research provided her with the opportunity and enthusiasm for successful international collaborations. She has several publications of her research findings in peer reviewed journals and conference proceedings, and has many more in collaborations.

mehrbode@yahoo.com

www.infectiousdiseasesconference.org
Hepatitis C Infection In Egypt

Said Hamed Abbadi  
Suez University, Suez, Egypt

Egypt has the largest epidemic of hepatitis C virus (HCV) in the world. The recently released Egyptian Demographic Health Survey [EDHS]* tested a representative sample of the entire country for HCV antibody in 2008. The sample included both urban and rural populations and included all 27 governorates of Egypt. Over 11,000 individuals were tested. The overall prevalence (percentage of people) positive for antibody to HCV was 14.7%. Interestingly, genotype 4 represents over 90% of cases in Egypt. Chronic HCV is the main cause of liver cirrhosis and liver cancer in Egypt and, indeed, one of the top five leading causes of death. In Egypt, the major route of exposure appears to be due to injection therapy and inadequate infection control practices. In addition to blood transfusions prior to 1994, the major risk factor associated with HCV infection is a history of antischistosomal injection treatment before 1986. Schistosomiasis used to be a common parasitic disease in Egypt acquired through swimming or wading in contaminated irrigation channels or standing water. Thus, farmers and rural populations were at greatest risk, and this is supported by the higher prevalence rate of HCV in the Nile delta and rural areas. Hepatitis is today recognized by people at all levels in Egypt. The good news is that Egypt reached agreement to access new oral hepatitis C treatments that promise higher cure rates at significantly reduced cost.

Biography

Said H. Abbadi has completed his MD from Suez Canal University Faculty of Medicine in 1988. He got his PhD in Microbiology in 1998 and completed postdoctoral studies at CDC, Atlanta, GA, USA. Currently, he is professor of Microbiology and dean of Faculty of Medicine, Suez University, Egypt. He has published more than 25 papers in reputed journals and has been serving as an editorial board member of reputed journals.

saidabbadi@hotmail.com
Non-specific effects of vaccinations in high-income settings: a disregarded research field

Alberto Donzelli
Scientific Committee of the Foundation Allineare Sanità e Salute, Italy

“Non-specific effects” of vaccines go beyond the specific protective effects against the targeted diseases. They, if real, could theoretically be beneficial, neutral or negative.

This article intends to answer the following questions:

• Do the non-specific effects of vaccines exist? Almost certainly yes, and they can be important in low-income countries
• Are non-specific effects also present in high-income countries? At least to some extent, it seems quite logical
• Can non-specific effects be systematically identified by the current systems of side effects/unintended reactions monitoring? Most likely not
• Could the Institute of Medicine proposals and some ongoing attempts solve the issue? It seems unlikely
• Could there be better, feasible, ethically acceptable ways to achieve the aforementioned objective? An innovative proposal is presented and detailed about this issue, with the potential both to solve the problem with the most valid methods, and to overcome the ethical problems that have so far precluded the adoption of randomized controlled trials (RCTs) to study possible vaccine non-specific effects, monitored by long follow-up. Public health could take advantage of the vaccine hesitancy, which remains in some individuals even after receiving an extensive and balanced information, based on the state of knowledge. These persistently hesitant persons (for themselves or for their children), that could be tens of thousands spread wide in a country, can be offered the opportunity to participate in well designed, pragmatic, independent, longlasting RCTs, and so contribute to a real advance in the scientific knowledge, with minimal risks for themselves, for their children and the community.

Biography

Donzelli is working as consultant collaborator, past Director of the Service of Appropriateness Education and EBM at the Agency for Health Protection of Milan. He received his Doctoral degree and specialization in Hygiene & Preventive Medicine from the University of Milan. He has authored several scientific and educational publications in various journals and books, reflecting his research interests in Prevention, Public Health, Medical Education and Comparative Assessment of Drugs & Health Technologies. Donzelli is also the Editor of the Good clinical practice Pills for doctors and Health education Pills for citizens, and Founder and member of the Executive Board of the Foundation Allineare Sanità e Salute.

adonzelli@ats-milano.it
Posters
Primary and Secondary biofilm formation in *Klebsiella pneumoniae* strains isolated from patients with purulent inflammatory processes

Yuliya Mozgova
Kharkiv National Medical University, Kharkiv, Ukraine

Biofilms are complex systems produced by bacteria and constituted by macromolecular matrix embedding cells. They provide advantages to bacteria including protection against antimicrobials. The ability of *Klebsiella pneumoniae* strains to form dense biofilms was investigated. Strains of bacteria were isolated from patients with purulent inflammatory processes and identified using MICRO-LA-TEST. The ability to form biofilms was determined in polystyrene plates. The biofilms optical density was measured by photometer Multiskan EX 355 and expressed in units of optical density. It was determined that all *Klebsiella pneumoniae* isolates were able to produce primary and secondary biofilms. But the density of biofilms was variable. Certain isolates after inoculation of suspension culture with density of 0,042±0,001 units formed primary (0,485±0,05 units) and secondary (0,691±0,014 units) biofilms of low density. Another *Klebsiella pneumoniae* strains produced primary biofilms with density of 1,01±0,009 units and practically equal secondary biofilms that exceeded the production of plankton cells almost in 2 times. Thereby, all *Klebsiella pneumoniae* isolates were able to form secondary biofilms with active plankton cells production that is the colonization factor of this causative agent. The obtained data indicated an existence of plankton forms able to produce primary and secondary biofilms of variable density among *Klebsiella pneumoniae* strains isolated from patients with purulent inflammatory processes, and this fact is necessary to consider in admitting of antimicrobials for effective treatment of such infections.

Biography

Yuliya Mozgova currently working as associate professor of D.P. Grynyov Department of Microbiology, Virology and Immunology at the Kharkiv National Medical University, Ukraine. She received PhD on 2008 from the I.I. Mechnikov Institute of Microbiology and Immunology, Kharkiv, Ukraine. Then she worked as Assistant of D.P. Grynyov Department of Microbiology, Virology and Immunology in Kharkiv National Medical University till 2012. Then she started to work as assistant professor. Yuliya Mozgova has authored several publications in various journals. Her publications reflect research interests in finding effective combinations of treatment the biofilm associated purulent inflammatory processes. She is a member of ESCMID.

yumozgova1980@gmail.com
Pseudomonas aeruginosa has emerged as the most common gram-negative pathogen associated with serious hospital-acquired infections, particularly within intensive care units. PsA bacteremia may be primary (with no identifiable source) or secondary to a discrete focus of infection, including: Urinary and GI tract, lungs, skin and soft tissue, intravascular foci (e.g., indwelling central venous catheters).

**Objectives:**
1. to assess clinical presentations and outcome of pseudomonas bacteremia in ICU patients
2. to assess risk factors for pseudomonas bacteremia in ICU patients
3. to assess risk factors for emergence of MDR pseudomonas strains

**Method:** All patients admitted to three ICUs (medical ICU, trauma ICU and surgical ICU) in Hamad General Hospital with positive blood C/S for PsA over three years (1 feb 2010-31 jan 2013) were studied retrospectively. Patients having polymicrobial bacteremia were excluded.

**Results:** Total number of patients was 47. Majority were males. Most of the patient’s had co morbidity conditions, prolonged hospital stay and history of invasive procedures. Almost half of cases presented with septic shock. Outcome: All cause mortality was about 60%, mainly because of primary disease. Rest of the patient were discharged home or shifted to rehabilitation units. Antimicrobial susceptibility testing showed 14 out of 47 patients (29.7%) were MDR pseudomonas. 4/47 (8.5%) were pan resistant, sensitive only to colistin. Colistin was 100% sensitive among all the isolates. Other susceptibilities were amikacin 92%, cefepime 82%, ceftazidime 82%, aztreonam 57%, ciprofloxacin 88%, gentamicin 86%, meropenem 78% and piperacillin tazobactam 86%.

**Conclusion:** Prolonged hospital stay, presence of comorbid conditions, septic shock, immunosuppressive conditions & H/O invasive procedures are poor prognostic factors in cases of pseudomonal bacteremia. Previous history of antibiotic use lead to emergence of multidrug resistant strains. Initiation of effective empirical antimicrobial therapy in patients at high risk of acquiring pseudomonas infection can improve outcome.

**Biography**

Adila Shaukat is currently working as Consultant infectious Diseases and Head of section at Al Wakra Hospital, Hamad Medical Corporation, Qatar

akashaf1@hamad.qa
Etiologic Structure of Pyelonephritis in Children and Ability of Causative Agents to Form Biofilms

Maryna Mishyna
Kharkiv National Medical University, Kharkiv, Ukraine

Microbial inflammatory diseases of the urinary tract, including pyelonephritis, make up 76-80% of the renal pathology in children, about 40% of cases can lead to the formation of terminal renal failure. The spread and increase in the proportion of catheters installation, drains with the simultaneous antibacterial therapy to which pyelonephritis pathogens are resistant lead to development of biofilm infection. Periodic release of planktonic cells from biofilms into urine stream is a source of development and maintenance of chronic infectious inflammation in kidneys. Detection of pyelonephritis etiologic structure in children and ability of causative agents to form biofilms was aimed in research. Identification of isolates was provided in MICRO-LA-TEST, formation of biofilms was studied in polystyrene plates followed by measurement of biofilms optical density using photometer Multiskan EX 355 and expressing in units of optical density. The study revealed 79 strains of bacteria in children with pyelonephritis. It was found that the main pathogens were representatives of the family Enterobacteriaceae (62.1%), mainly E. coli (45.6%), K. pneumoniae (11.4%) and Proteus spp. (5.1%), and Gram-positive cocci – E. faecalis (37.9%). Investigation of isolates ability to form biofilms showed that E. coli, K. pneumoniae, Proteus spp. and E. faecalis formed dense biofilms: 0.845 ± 0.014; 1.213 ± 0.065; 0.763 ± 0.019 and 0.504 ± 0.019 units respectively. Thus, an increase in pyelonephritis incidence in children requires regular microbiological monitoring and the biofilm formation detecting of pyelonephritis pathogens in order to find the ways of effective therapy.

Biography

Maryna Mishyna currently working as a chief of D.P. Grynyov Department of Microbiology, Virology and Immunology at the Kharkiv National Medical University, Ukraine. She received her PhD on 2004 from the I.I. Mechnikov Institute of Microbiology and Immunology, Kharkiv, Ukraine and MD on 2012 from the Bogomolets National Medical University, Kiev, Ukraine. Maryna Mishyna has authored several publications in various journals and books. Her publications reflect research interests in finding effective combinations of treatment biofilm associated purulent inflammatory processes. She is a member of ESCMID.

mishina1969mmm@gmail.com
Disorganization of *Pseudomonas aeruginosa* Isolates Biofilms Affecting with Ultrasound Radiation

Svitlana Malanchuk  
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Currently, biomedical studies widely use ultrasound radiation as a part of complex therapy of bacterial purulent inflammatory disease, as well as in physiotherapy. The antibacterial effect of ultrasound radiation can be an alternative to antibiotics. Therefore, the aim of the research was to study the effect of ultrasound radiation on the biofilms formed by *Pseudomonas aeruginosa* that caused purulent inflammatory processes. Production of biofilms was tested in polystyrene plates together with measuring the biofilms optical density by photometer Multiskan EX 355 expressed in units of optical density. The study of ultrasound exposure *in vitro* on the formed by *Pseudomonas aeruginosa* isolates biofilms revealed that irradiation for 3, 5 and 10 minutes of ultrasonic waves of low intensity from 2 to 3 W/cm² with the operating frequency of the oscillations of 26.5 kHz and amplitude of oscillations from 50 to 80 microns decreased the optical density of the biofilms in 5.9, 14.8 and 23.4 times ($0.48 \pm 0.09$, $0.19 \pm 0.03$ and $0.12 \pm 0.04$ units respectively) compared to the biofilms optical density before irradiation. Determining of the ability to form biofilms by *Pseudomonas aeruginosa* planktonic cells after the action of uninterrupted low-intensity ultrasound radiation found that withdrawn plankton cells are unable to produce dense biofilms, and this is an important fact in the administration of adequate combine therapy. Thus, action of ultrasound radiation may be used for inhibition of biofilms formation in *Pseudomonas aeruginosa* isolates and for the destruction of formed biofilms.

Biography

Svitlana Malanchuk currently working as Associate Professor at the Department of General and Clinical Immunology and Allergology at the V. N. Karazin Kharkiv National University, Ukraine. She received her PhD on 2016 from the Danylo Zabolotny Institute of Microbiology and Virology, Kiev, Ukraine. Svitlana Malanchuk has authored several publications in various journals and books. Her publications reflect research interests in studying the action of physical and chemical agents on biofilms formed by causative agents of purulent inflammatory processes.

s.malanchuk@karazin.ua
Clinical and epidemiological features of cytomegalovirus infection among HIV-positive women and newborns

Simonova Elena
I.M. Sechenov First Moscow State Medical University (Sechenov University), Russia

Cytomegalovirus infection (CMVI) plays a significant role in perinatal pathology and may be the cause of the development of obstetric-gynecological pathology, perinatal mortality, and even infertility. In this regard, the purpose of the study was to study the clinical and epidemiological features of CMVI in HIV-infected pregnant women and their newborns. On the basis of a large hospital using ELISA, the presence of serum CMV markers obtained from 161 fertile women and 80 newborns were examined. The comparison groups included 45 healthy and 61 HIV-positive pregnant women, as well as 31 children born from healthy and 49 from HIV-positive mothers. 239 childbirth histories and outpatient records of pregnant women, including those diagnosed with HIV, were retrospectively studied. According to the results, it was found that markers of acute infection (IgM) were significantly more frequent in pregnant women. At the same time, among HIV-positive and healthy pregnant women, their frequency was 3.3 and 4.4%, respectively. In pregnant women with acquired immunodeficiency, in contrast to healthy pregnant women, the symptoms of acute CMVI were observed more often before the age of 19 years, and at an older age - reinfection. Most HIV-positive pregnant women had markers of infection without clinical manifestations. All HIV-positive women with acute CMVI were in the stage of primary manifestations of HIV infection with a predominant sexual transmission route of the pathogen. In children born to HIV-positive mothers, the detection rate of IgG was 95.9%, IgM - 4.1%. Children with intrauterine CMV infection were born from early pregnancies and from mothers who were at the stage of secondary manifestations of HIV infection. These data indicate the need for measures aimed at preventing vertical transmission of CMV in a group of HIV-positive pregnant women.

Biography

Dr. Simonova is currently working as professor at the I.M. Sechenov University. She received his doctoral degree on epidemiology from the Central Research Institute of Epidemiology (CRIE) in Moscow. Works as a leading researcher at the CRIE. She has authored more than 200 publications in various journals and books. Her publications reflect research interests in the epidemiology. She is serving as a member of National Association of Infectious Disease Control Specialists. She is currently in charge of ongoing scholarly project «Improving the management of the epidemic process in modern conditions». She was scientific adviser for 6 PhD. simonova_e_g@mail.ru
Accepted Abstracts
Evaluation of genotoxic and cytogenetic effects of papilomavirus L1 protein associated with saponins obtained from Agave sisalana Perrine (sisal)

Roberta Fiusa Magnelli
Butantan Institute, Brazil

Bovine papillomavirus (BPV) is the etiological agent of bovine papillomatosis, infectious disease characterized by the presence of benign tumors that can progress to malignancy. The phylogenetic classification of the PVs is performed based on the sequence homology of the Open Reading Frame L1, the most conserved among different viral serotypes. Given the importance of L1 protein and the immunogenicity of saponins, these emerge as a promising candidate as adjuvant for veterinary use. Objectives: This study aimed to evaluate the mutagenic and genotoxic potential of the isolated and purified protein as well its effects when associated with saponins and a comparison with the adjuvant widely used aluminum hydroxide. Methods: Genomic lesions, which after processed without repair can result in mutations, were detected by comet assay. Possible damages to genetic material caused by structural chromosomal changes (clastogenesis), as well as chromosomal losses (aneugenesis) were evaluated by the micronucleus test. Both tests were done on polychromatic erythrocytes and Vero cells. The evaluation of apoptosis and necrosis of treated Vero cells was made by Annexin V / PI staining and flow cytometry. Results and Discussion: The two vaccine products (L1 + Saponin and L1 + Aluminum Hydroxide) showed damages compatible with the positive control in the comet assay and both slightly elevated the micronucleus levels, in the Cell Viability Assay the results with Aluminum Hydroxide were satisfactory, characterizing Aluminum Hydroxide as a safer adjuvant according to the proposed tests, better than the saponins.

Efficient isolation of erythromycin-resistant Campylobacter.

Shuji Fujimoto
Department of Health Sciences, Faculty of Medical Sciences, Kyushu University, Fukuoka, Japan.

Campylobacter is one of the most common causes of human bacterial gastroenteritis in the world. C. jejuni and C. coli are the species most commonly associated with the disease. During the past decades, Campylobacter has become increasingly resistant to both macrolides and fluoroquinolones. Since Resistant Campylobacter spp. to fluoroquinolones has emerged in Japan, the most recommended drug is erythromycin. However, the Japanese Veterinary Antimicrobial Resistance Monitoring System has revealed a general trend of rising erythromycin resistance in Campylobacter. Our final goal is to show the correlation among erythromycin-resistant Campylobacter isolates from patients with enteritis, food-producing animals and foods (such as chicken meats) in the same geographic area in Japan. As the first step in the project, the aim of this study is to develop a selective medium for the isolation of erythromycin-resistant Campylobacter from materials. The medium contains erythromycin in Preston Agar with 5% defibrinated sheep blood. Seventeen Campylobacter strains with erythromycin MICs of 0.25 to 512 μg/ml were used as erythromycin-resistant or erythromycin-susceptible reference strains to examine the selectivity of this medium in this study. Among the reference strains, all the erythromycin-resistant Campylobacter strains grew well on the medium but the growth of the erythromycin-susceptible strains were significantly inhibited. Seventy two clinical isolates were examined and five strains were grew on the medium. Erythromycin MICs of the three of them were more than 256 μg/ml. The results suggested that the medium allow the successful selection of erythromycin-resistant Campylobacter strains. The medium will useful efficient isolation of erythromycin-resistant Campylobacter.
In vitro penetrability of Anisakis simplex larvae

Fumiko Kojima

Department of Health Sciences, Faculty of Medical Sciences, Kyushu University, Fukuoka, Japan.

Anisakis larvae were isolated from Scomber japonicus fish those were caught in the sea around Goto Islands (Nagasaki Prefecture, Japan), the sea around Kanagawa Prefecture (Japan) and the sea around Jeju Island (Korea). We used Anisakis simplex larvae those were identified by morphological features in the study. For identification of the sibling species, PCR-RFLP for ribosomal DNA internal transcribed spacer (rDNA ITS) regions was performed. The penetrability of the larvae were evaluated with the agar method which was previously reported1). We examined 138 A. simplex larvae (third stage) for comparison of the penetrability among the species (A. pegreffii, A. simplex sensu stricto). The penetration rate of A. pegreffii and A. simplex s. s. was 79 and 68%, respectively. A. pegreffii showed rapid penetrability in comparison with A. simplex s. s.. Penetrability under the long term storage in saline at 4°C was also examined. A. simplex larvae survived for over 14 weeks. The penetrability was kept for long times as long as they lives. The larvae penetrated more slowly in proportion to the storage time. The results showed that our method is useful to test the penetrability of Anisakid larvae. Both A. pegreffii and A. simplex s. s. larvae had high ability to penetrate into agar, but the former penetrated quickly than the latter. In addition, larvae’s penetrability was kept even be an imperfect body and by the storage under the cold condition. Further studies should be done to clear the reasons why almost of anisakiasis is caused by A. simplex s. s. larvae.

Why Patients Still Catch Hospital Infections Despite the Practice of Infection Prevention and Control Programs?

Huang Wei Ling

Medical Acupuncture and Pain Management Clinic, Franca, Brazil.

Very few publications provide scientific data used to determine which components are essential for Infection Prevention and Control (IPC), which reduce the risk of infection. A range of regional best practice principles have been developed addressing what could be considered as core components of IPC programs. However, there remains a major gap in relation to the availability of international best practice principles for core components of IPC programs. The purpose of this study was to show why patients still catch hospital infections despite IPC programs. A variety of theories need to be understood to explain the physiopathology of diverse diseases described in the medical past history. A broader view seems to show the necessity of seeing the patient completely; not only focusing on the disease. The methodology used was a review of theories presented by Hippocrates as well as others from oriental medicine, which explain that diseases originate from three factors: external (exposure to cold, heat, humidity, wind and dryness), internal (emotional) and dietary. Findings: Having a broader view of the patient as a whole (Yin, Yang, Qi, Blood energy and Heat retention), we can understand better the formation of hospital infection, which is a systemic energy reaction of our body undergoing normal hospital treatment.

Conclusion: To understand better why a patient is still catching hospital infections, despite these IPC programs, we need to broaden our view observing all emotional, environmental and dietary factors, as well as studying his energy situation now of admittance identifying his risk of hospital infection.
Mechanical Vectors related to camel trypanosomosis in Al Kharj Town, Riyadh Region, kingdom of Saudi Arabia

Mohamed El Wathig
Animal Quarantine of Jeddah Islamic Port, (MEWA) KSA

The present study was conducted to determine the prevalence of camel trypanosomosis and its vectors in Al-Kharj, central part of Saudi Arabia. One hundred and seven serum samples were examined to detect the infection by CATT test. Eight NZI traps for sampling of biting flies were deployed in farms where camels and cows were kept, water treatment stations, people's residences, cactus farms, irrigated areas, open ranges, sheep pens, and behind barns. Camel trypanosomosis prevalence was 21.5% during the study period. The highest catches of flies were around water treatment stations and people's resident. The biting flies caught were Stomoxys calcitrans and some mosquitoes species. Stomoxys calcitrans may be an important mechanical vector of camel trypanosomosis in the study area. A peak of muscids abundance was observed in March and April.

Nosocomial neonatal meningitis with Acinetobacter baumannii on myelomeningocele: a real therapeutic challenge

Adil Fouad
Intensive Care Unit, Mohamed VI University Hospital, Marrakesh, Morocco.

Imipenem-resistant Acinetobacter baumannii meningitis is a hospital-acquired infection, the treatment of which constitutes a real therapeutic challenge. In this article, together with a review of the literature, we report two cases of imipenem-resistant Acinetobacter baumannii neonatal meningitis following ruptured myelomeningocele, treated with intravenous colistin with favorable results. In recent years, Acinetobacter baumannii has become a more and more commonly described pathogen in hospital-acquired infections. However, the cases of meningitis are mainly postoperative and are still not quite frequently described in the literature. Colistin appears to be preferably administered by intravenously at a dose of 100.000 IU/kg/day.
Exploring the influence of daily climate variables on malaria transmission and abundance of Anopheles arabiensis

Gbenga J. Abiodun
Foundation for Professional Development, Pretoria, South Africa

The recent resurgence of malaria incidence across epidemic regions in South Africa has been linked to climatic and environmental factors. An in-depth investigation of the impact of climate variability and mosquito abundance on malaria parasite incidence may therefore offer useful insight towards the control of this life-threatening disease. In this study we investigate the influence of climatic factors on malaria transmission over Nkomazi municipality. The variability and interconnectedness between the variables were analyzed using wavelet coherence analysis. Time-series analyses revealed that malaria cases significantly declined after the outbreak in early 2000, but with a slight increase from 2015. Furthermore, the wavelet coherence and time-lagged correlation analyses identified rainfall and abundance of Anopheles arabiensis as the major variables responsible for malaria transmission over the study region. The analysis further highlights a high malaria intensity with the variables from 1998 – 2002, 2004 – 2006, and 2010 – 2013 and a noticeable periodicity value of 256 - 512 days. Also, malaria transmission shows a time lag of between one month to three months with respect to mosquito abundance and the different climatic variables. The findings from this study offer a better understanding of the importance of climatic factors on the transmission of malaria. The study further highlights the significant roles of An. arabiensis on malaria occurrence over Nkomazi. Implementing the mosquito model to predict mosquito abundance could provide more insight on malaria elimination or control in Africa.

Bioinformatics technology in clinical and public health microbiology applying computational methods

KIM H
Department of Bioinformatics, Bionano Institute, Seungnam, South Korea

The role of clinical genomics in infectious disease diagnostics and public health microbiology is the topic of discussion during a recent decade. Although much of this work is aimed at describing the structure of outbreak communities, the methodology works equally well to identify pathogens in clinical samples. Clinical genomics is the exploitation of genome sequence data for diagnostic, therapeutic, and public health purposes. Central to this field is the high-throughput DNA sequencing of genomes and metagenomes. The key concept in using clinical genomics methodology is that detection of microbes is independent of culture and is not limited to targets used for in-depth PCR assays. Rather, it is a process of generating large-scale sequence data sets that adequately sample a specimen for microbial content and then of applying computational methods to resolve the sequences into individual species, genes, pathways, or other features.
Lipidomics – an emerging tool to redefine the role of lipids in combating drug resistant tuberculosis

Zeeshan Fatima
Amity Institute of Biotechnology, Amity University Haryana, India

Tuberculosis (TB) still remains a major health problem globally and multidrug resistance (MDR) acquired by Mycobacterium tuberculosis (MTB) through continuous deployment of antitubercular drugs warrants immediate search for novel drug targets. Although the technologies such as transcriptome, proteome have gained considerable attention, lipidomes still remain relatively uncharacterized and at rudimentary level. In the era of newly developed ‘omics’ based technologies, our knowledge have gained significant leap and recently improved our insight to understand lipids to great extent. The emerging field of lipidomics in the recent times has considerably enhanced the awareness about lipid molecules to have some unique biological roles that is distinct from their usual functions. Considering the fact that 30% of MTB genome codes for lipid, deciphering the role of lipids in development of MDR in MTB is emerging as new strategy in current scenario. In this study we have employed high throughput mass spectrometric approach to analyze differential lipidome profile in response to isoniazid (INH). The data generated unravels the complete remodeling of MTB lipids and we could confirm that INH treated cells have distinct lipid imprints. MTB lipids are potential candidates for diagnostic and therapeutic biomarkers owing to their limited structural similarity with human lipids. Since lipid compositional changes are significant for the sustenance of MDR, this study points towards compositional variation in INH treated bacilli. Further intricate studies are warranted for its implication in biomarker(s) identification. The present lipidomic approach will serve as resource for further validation so that assessment of various strategies aimed at disrupting the function of MTB lipids and thereby MDR could be employed for TB management.

Evaluation of the nutrition and metabolic status in HIV outpatients.

Emerole Karl C
RUDN University, Moscow, Russia

Background: After the World health organisation's first technical consultation on Nutrient Requirements for People Living with HIV/AIDS in Geneva 2003 a lot of research questions that are considered crucial for improving understanding of the interaction of nutrition and HIV infection were raised and until this moment left unanswered. To gain a better understanding of HIV and nutrition we implemented a comprehensive approach which was developed at the Institute of Nutrition Moscow, Russia. This comprehensive study of the nutritional status of an individual involves the assessment of the individual's actual diet within a given period of time, body composition, and vital metabolic parameters.

Objectives: Clinical evaluation of the nutritional and metabolic status to enhance the provision of medical care to people living with HIV.

Methods: 45 asymptomatic HIV patients and 32 healthy volunteers aged between 24 and 40 were enrolled in the study. Food intake by monthly dietary recall was determined. Body composition was measured using bioelectrical impedance analysis. Selected biochemical parameters were evaluated and the resting metabolic rates were calculated using indirect calorimetry to accurately understand the metabolism of participants.

Results: Participants in the HIV group did not meet the recommended daily allowance level (RDA) of carbohydrate requirements. Body fat mass was significantly decreased in the HIV group as well. Energy expenditure resting energy expenditure was higher in the HIV group compared to the control group (P< 0.05). There values of urea nitrogen concentration, fat and protein oxidation rates in the HIV group were significantly increased (P< 0.01). Also observed was a significant decrease of carbohydrate oxidation in the HIV group ((P< 0.01)

Conclusions: The study reveals a catabolic status in the HIV group and suggests an adjustment in the nutrient RDA to compensate such status. Further investigation should be extended to HIV patients with opportunistic diseases during metabolic stress as well as in pediatric HIV infection.
In vivo immunogenicity evaluation of a chimeric protein containing conserved regions for further vaccine improvement

Behrokh Farahmand

Department of Influenza and Respiratory viruses, Pasteur Institute of Iran, Iran.

Vaccination is the most effective preventive strategy for influenza; however, due to high degree of genetic drift in the disease pathogens, vaccination must be updated annually to match with new pathogen antigenic composition. Therefore, the development of a constant formulation with a high preventive capability is recommended. Herein, a chimeric protein containing conserved regions of influenza A viruses (H1N1), including hemagglutinin (HA2), nucleoprotein (NP) and three copies of Matrix protein 2 ectodomains (3M2e), was developed and characterized in vitro and in vivo environments by measuring antibodies responses, cytokine assay, lymphocyte proliferative assay and mortality rate. Also, the adjuvanticity of different adjuvants was evaluated. In this regard, various methods, such as sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE), western blotting, electroelution and enzyme-linked immune sorbent assay (ELISA) were used. The results showed that the incorporating NP and HA2 constituents into the construct increased the immunogenicity of the chimer. Also, the protein alone caused 67% survival rate in challenged mice. Furthermore, the potency of the chimeric protein was confirmed by activating humoral (B cells) and cellular (T cells) immunity as well as eliciting Th1 and Th2 responses. Regarding the sufficient immunogenicity and adjuvanticity of the protein construct against influenza, it can be concluded that the chimeric protein can be considered as a promising vaccine candidate in the prevention of influenza.

Comparative analysis of Complete Blood Count in Cancer and Non-Cancer Patients Followed by Antibiogram Analysis of Isolated Bacterial Pathogens in Peshawar kpk Pakistan

Asif Iqbal

Faculty of Life Sciences, Department of Microbiology and Biotechnology, Abasyn University Peshawar Campus, Pakistan.

The aims and objectives of the current research study were the analysis of Complete Blood Count in Cancer and non-Cancer patients. In the present study antibiotic susceptibility of bacterial pathogens and detection of ESBL producing bacteria among the isolated bacterial pathogens were also studied. The current research studies were carried out in Abasyn University Peshawar and in Hayatabad Medical Complex Peshawar. In this study, a total 200 blood and urine samples were screened out for bacteria. Out of the tested samples, different bacterial pathogens were identified and among the isolates Escherichia Coli were (13.33%), Staphylococcus aureus (11.66%), Pseudomonas aeruginosa (11.66%), salmonella spp (10%), bacillus spp (9.16%), Enterobacter spp (8.33%), Streptococcus Pyogene (7.5%), Klebsiella spp. (5.83%), Staphylococcus epidermidis (4.16 %) and Shigella was (4.16%) present in cancer patients and non-cancer patients except Staphylococcus epidermidis which is only present in cancer patients. Maximum resistivity (91%) was showed to penillion and maximum sensitivity (78%) was showed to rifampicin against isolated bacterial pathogens. The ESBL producing bacteria among the isolated 120 bacterial species were only 14 bacterial isolates are ESBL producers which were Escherichia coli (37.5%), P. aeruginosa (28.5%). Enterobacter spp (20%). Klebsiella spp (42.8%) and Shigella were (20%). The blood analysis were performed for cancer patients in which 60 % patient were high level of WBC and non-cancer patients were 56 % were high level of WBC. Further the 100 urine samples were also microscopically studied for presence of bacteria in cancer which is 86% and 78% in non-cancer samples.
Biotechnology in Health Care: Recent Advances & Innovations, Evolution of fungi as human pathogens: What happened with C. auris?

Claudia M Parra-Giraldo
Department of Microbiology, University Javeriana, Bogotá, Colombia.

The number of fungal species on earth is estimated to be about 1.5 million species from which a very small fraction, only about 400 species, can behave as animal and human pathogens. That situation is changing. In recent decades, the development of new surgical procedures and non-invasive treatments has enabled patients to overcome critical states of health. It is in this new scenario, that fungi have taken up a central role because of the deficient diagnostic capabilities and treatment for these agents, as well as the increasing number of patients who are at risk. This has given rise to new clinical practices, such as prophylactic and empiric therapies, that increase the global use and the reliance on the very few antifungal drugs available. A new fungal pathogen has been causing a much greater impact. Being first reported in 2014, Candida auris has caused several simultaneous outbreaks in different continents in just a couple of years. To date, we know that it is a diploid yeast that does not produce filaments; remarkably, its halotolerance and desiccation resistance are thought to be factors that allow this pathogen to spread and generate geographically distinct outbreaks around the globe. What is most interesting about this pathogen is its demonstration of multiresistant to all three groups of known antifungals. This leads to think about how the indiscriminate use of antibiotics might be leaving open niches to new species. However, it is very important to study its virulence mechanisms. We have a long path to walk if we want to understand the correct management for deep mycoses, we must develop ways to anticipate and manage abrupt ecological changes within the fungal kingdom.

A single dose of anti-HIV 1 antibodies can protect macaques from repeated mucosal SHIV exposures for 6 months

Rajeev Gautam
Laboratory of Molecular Microbiology, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, USA

In the absence of an effective and safe vaccine against HIV-1, the administration of broadly neutralizing antibodies (bNAbs) represents a logical alternative approach to prevent virus transmission. We introduced two amino acid mutations (M428L and N434S [referred to as “LS”]) into the Fc domains of the highly potent HIV-specific 3BNC117 and 10-1074 bNAbs to increase their half-lives and evaluated their efficacy in blocking infections following repeated low dose SHIV mucosal challenges of rhesus macaques. The bNAbs were administered into 30 rhesus macaques (3BNC117, n=6; 10-1074, n=6; 3BNC117-LS, n=6; 10-1074-LS, n=6 and LS-combination, n=6 whereas 12 macaques served as controls. After one week of mAb administration, animals were inoculated intrarectally with 10 TCID50 of Tier 2 SHIVAD8-EO at weekly intervals until infection became established. Viral RNA, serum bNAb concentrations, anti SHIV-neutralizing titers, and anti-bNAb responses were measured. A single intravenous infusion of 10-1074-LS mAb markedly delayed virus acquisition for 18 to 37 weeks (median=27 weeks) whereas the protective effect of the 3BNC117-LS bNAb was more modest (protection for 11 to 23 weeks; median=17 weeks). Serum concentrations of the 10-1074-LS mAb gradually declined and became undetectable in all recipients between weeks 26 to 41 whereas the 3BNC117-LS bNAb exhibited a shorter half-life. A combination immunoprophylaxis (3BNC117-LS plus 10-1074-LS) by the subcutaneous route, targeting different gp120 epitopes, to model potential exposure to genetically diverse and/or resistant HIV 1 strains protected macaques for a median of 20 weeks. The serum mAb concentration in all the mAb groups, corresponding to a per-challenge infection probability of 1%, was calculated to be 2.67 μg/ml. The protection observed in macaques with the use of Fc modified anti HIV mAbs in this study could translate into an effective semi-annual or annual immunoprophylaxis regimen for preventing HIV 1 infections in humans.

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Direct evidence of viral infection and mitochondrial alterations in the brain of fetuses at high risk for schizophrenia

Segundo Mesa Castillo
Psychiatric Hospital of Havana, Cuba.

There is increasing evidences that favor the prenatal beginning of schizophrenia. These evidences point toward intra-uterine environmental factors that act specifically during the second pregnancy trimester producing a direct damage of the brain of the fetus. The current available technology doesn’t allow observing what is happening at cellular level since the human brain is not exposed to a direct analysis in that stage of the life in subjects at high risk of developing schizophrenia. Methods. In 1977 we began a direct electron microscopic research of the brain of fetuses at high risk from schizophrenic mothers in order to finding differences at cellular level in relation to controls. Results. In these studies we have observed within the nuclei of neurons the presence of complete and incomplete viral particles that reacted in positive form with antibodies to herpes simplex hominis type I [HSV1] virus, and mitochondria alterations. Conclusion. The importance of these findings can have practical applications in the prevention of the illness keeping in mind its direct relation to the aetiology and physiopathology of schizophrenia. A study of the gametes or the amniotic fluid cells in women at risk of having a schizophrenic offspring is considered. Of being observed the same alterations that those observed previously in the cells of the brain of the studied foetuses, it would intend to these women in risk of having a schizophrenia descendant, previous information of the results, the voluntary medical interruption of the pregnancy or an early anti HSV1 viral treatment as preventive measure of the later development of the illness.

The Purpose of Temperature of Fever

K. M. Yacob.
Marma Health Centre, Kochi, Kerala, India

When the disease becomes threat to life or organs blood circulation decreases, Temperature of fever will emerges to increase prevailing blood circulation. And it acts as a protective covering of the body to sustain life. When blood flow decrease to brain, the patient becomes fainted-delirious. If we try to decreases temperature of fever, the blood circulation will further reduced. Blood circulation never increases without temperature increase. Delirious can never be cured without increase in blood circulation. The temperature of fever is not a surplus temperature or it is not to be eliminated from the body. During fever, our body temperature increases like a brooding hen’s increased body temperature. The actual treatment to fever is to increase blood circulation.

Two ways to increase blood circulation.
1. Never allow body temperature to lose
2. Apply heat from outside to the body. When the temperature produced by body due to fever and heat which we applied on the body combines together, the blood circulation increases.

Then body will stop to produce heat to increase blood circulation. And body will get extra heat from outside without any usage of energy.
Vote of Thanks

We take this opportunity to extend our most sincere thanks to all Moderators, Keynote speakers, Plenary Speakers, Workshop & Special Session presenters, Students, Delegates, Journal Collaborators, Media partners who have come from different destinations around the globe for their support & cooperation.

We also wish to express our gratitude to Session Chairs and Co-Chairs, for their minute-to-minute guidance and support and for providing encouragement at every point of time in the organization of this great event. Let us thank Speakers who have responded so well to our invitation to participate in the conference. We have received several papers which will form the basis of our discussion in the various sessions. Let us thank you all for associating with this conference by your presence.

An event of this dimension cannot happen overnight. It requires meticulous planning and execution and an eye for details. We thank everyone enough for the involvement they have shown and the willingness they have expressed to take on the completion of tasks beyond their comfort zones.

Finally, we extend our appreciation to each of you for your participation in this conference. We hope you enjoy the conference and that your time spent here will contribute to your professional development and enable you to build new collaborations in this important and rapidly emerging field of Virology, Bacteriology and Infectious Diseases.

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Cenetri Publishing Group
2550 Middle Road
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