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WORLD CONGRESS ON

INFECTIOUS DISEASES

September 09-10, 2021

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WCID 2021

BOOK OF ABSTRACTS

WORLD CONGRESS ON

INFECTIOUS DISEASES

SEPTEMBER 09-10, 2021

Theme:

Discovering new insights for a disease-free life

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About MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

About WCID 2021

Infectious Disease conference will provide all the attendees, the opportunity to network with experts, present their research findings to an international audience and notify the latest scientific developments from world's eminent speakers and contribute to various discussions that will shape future health policies and a proper patient care all around the world. The Conference will have a mix of lectures of keynote addresses, panel discussions, case discussions, current reports of scientific progress featured in oral abstracts and posters. The chosen topics will be of great benefit to practicing clinicians and academicians in the field of infectious diseases, medicine, microbiology, epidemiology, public health, critical care, pulmonology, pharmacology, pathology, pharmacy, nursing, and clinical research. This conference offers an opportunity for faculty, postgraduates, fellows, residents, and undergraduates to present their work, learn and network with the experts.

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KEYNOTE FORUM

DAY 1

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Sarah El Nakeep
Ain Shams University, Egypt

Infections in decompensated liver disease patients, a review of the literature

Decompensated liver disease is a huge burden on countries that suffer from high rates of chronic hepatitis or alcoholism, also recently NASH entered in the strong contenders after the regression of chronic HCV with oral direct antivirals. Liver decompensation in the form of hepatocellular or vascular decompensation carries the risk of disturbed immune response and liability to infections as SBP, pneumonia, chest infections, cellulitis, UTI, etc, that differ in their prognosis from the healthy liver patients. In addition, the spectrum of organisms differs with the subsequent difference in the responding regimens for treatment and liability for resistance is higher due to high recurrence rates. Thus the guidelines for dealing with such infections are specific, especially as the liver decompensation carries another limitation of the choice of drugs with a higher risk of complications. We will also discuss recent resistance antibiotic patterns that has developed and how to deal with them, the importance of cultures in these cases. Added to this; the importance of prevention and the regimens used for different infections. And the risk of acquiring infections from hospitalization itself, whether ward or ICU (including the different spectrum of the organisms that affect patients present in these environments). Pathophysiology for the disturbed immune response will be discussed.

Biography

Dr. Sarah El-Nakeep, Associate Professor of Internal Medicine, subspecialty; Hepatology and Gastroenterology in Faculty of Medicine, Ain Shams University. She has an M.D degree in Internal Medicine. She was a Sub-director of the Intermediate Gastroenterology ICU in Demerdash hospitals.

Huang Wei Ling
Medical Acupuncture And Pain Management Clinic, Brazil

Why do patients still have potential to transmit covid-19 despite receiving vaccination?

This process is not very easy to explain in the eyes of Western medicine and the author will explain it from the perspective of traditional Chinese medicine, following the commandments of Hippocrates, father of medicine. In an article written by the author entitled *Is SARS-CoV-2 Strong or Our Body Is Weak?* it shows that more than 97% of patients have low *Zheng-Qi*, which is the energy that protects the individual's body against the invasion of external pathogenic factors. In another article written by the author *entitled Energy Alterations and Chakras' Energy Deficiencies and Propensity to SARS-CoV-2 Infection*, she demonstrates that more than 90% of her patients studied between 2015 and 2020 are without energy in the five massive internal organs , which are responsible for maintaining our health, and that this energy deficiency is responsible for the formation of infectious and non-infectious diseases today. In another article written by the author, entitled What have behind in all kinds of infections that we need to know?, the author says that what all bacterial, viral and fungal infections have in common, is the deficiency of energy in the chakras and formation of internal Heat. The purpose of this study is that, the author wants to show that most people are considered immunedefiient , due to the energy deficiency pattern , generating in this way, internal Heat formation, this being the predominant factor for colonization and infection by bacteria and viruses. Method: the author uses many articles written by her explaining how to treat community and nosocomial infections withouyt need to use any antibiotics or antiviral medications. Results: because she knows that If we replenish the energy of these patients in order to reduce the formation of internal Heat, there would no longer be viral colonization in the nasal cavity of these vaccinated individuals, because currently, even if they are immunized, the underlying cause of immunodeficiency was not treated, which is low state os energy, due to the electromagnetic radiation generated by the modernization of communication. Conclusion; to reduce virus colonization even after vaccination for COVID-19, individuals need to improve their energy state, which is weakened, to reduce the production of internal Heat, responsible for the adherence of bacteria and viruses in individuals with these infections and which, according to the author's experience, who is a specialist in infectious diseases, but treats most community and hospital diseases without using antimicrobials, she uses the methods of older medicines, such as Chinese medicine and thus manages to treat most of the infections by resistant bacteria and viruses, only drawing internal Heat and rebalancing the internal energies of *Yin, Yang, Qi* and Blood.

Biography

Huang Wei Ling, born in Taiwan, raised and graduated in medicine in Brazil, specialist in infectious and parasitic diseases, a General Practitioner and Parenteral and Enteral Medical Nutrition Therapist. Once in charge of the Hospital Infection Control Service of the City of Franca's General Hospital, she was responsible for the control of all prescribed antimicrobial medication and received an award for the best paper presented at the Brazilian Hospital Infection Control Congress in 1998. Since 1997, she works with the approach and treatment of all chronic diseases in a holistic way, with treatment guided through the teachings of Traditional Chinese Medicine and Hippocrates. Researcher in the University of São Paulo, in the Ophthalmology department from 2012 to 2013.Author of the theory Constitutional Homeopathy of the Five Elements Based on Traditional Chinese Medicine. Author of more than 100 publications about treatment of variety of diseases rebalancing the internal energy using Hippocrates thoughts.

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SPEAKERS DAY 1

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Jason Tong
Royal Brisbane and Women's Hospital, Australia

An analysis of infection rates following midfacial fractures and the requirement of antibiotic use prior to surgery

Introduction: Midfacial fractures are common injuries resulting from facial trauma with some cases requiring surgical management. Use of perioperative antibiotics two hours before surgery has proven to lower rates of surgical-site infections (SSI). However, data regarding the use of prophylactic antibiotics prior to this time frame is limited and there are no current standard recommendations for antibiotic prescribing in craniofacial surgery. The basis of treatment is generalized from recommendations for orthopaedic management of fractures and head and neck oncological procedures with influence by unique situations based specifically for craniofacial fractures. This includes potential contamination of fracture sites from sinuses, introduction of intraoral bacteria to exposed fractures through mucosal tears, and delay in management of fractures. Therefore, despite the definitive management of midface fractures the use of prophylactic/preoperative antibiotics have been adopted. The purpose of this study is to determine if prophylactic/preoperative antibiotics in conservatively or surgically managed midface fractures reduce rates of infection.

Methods: 1353 patients with nonoperative/operative midface fractures from two centers were included in the study and separated into two groups: those treated with broad-spectrum prophylactic/preoperative antibiotics and those without. Specific risk factors were documented that could affect infection rates. Antibiotics were used for various durations depending on timeframe of presentation and treatment plan. The antibiotics consisted of amoxicillin/clavulanate, clindamycin, cephalosporin, and/or metronidazole. Infection rates were determined by retrospective chart review over a 2 year period.

Results: 2 infections in 560 patients with no prophylactic/preoperative antibiotics and 1 infection in 793 patients that received antibiotics with risk of infection of 0.357% and 0.126% respectively. These results were not statistically significant.

Conclusion: A study by Gillie set al showed the number needed to harm for diarrhea and candidiasis of 10 and 27 with the use of amoxicillin-clavulanate and amoxicillin alone respectively. Taking into consideration the rate of adverse events from antibiotics compared to our data showing a low infection rate despite no prophylactic/preoperative antibiotics, it is reasonable to consider with holding prophylactic/preoperative antibiotic prescription for midface fractures if certain risk factors do not exist.

Pin-Chieh Wu
Institute of Biotechnology and Chemical Engineering, I-Shou University, Taiwan

Risk factors and antimicrobial susceptibility pattern of extraintestinal pathogenic escherichia coli isolates recovered from community children in Southern Taiwan

Background: Extra intestinal pathogenic Escherichia coli (ExPEC) can cause many kinds of human extra-intestinal infections, which lead to a huge amount of medical cost around the world. Human intestinal tract has been identified as one of reservoirs for ExPEC and the genetic information of E.coli can be exchanged horizontally. Understanding epidemiologic data about fecal carriages of ExPEC could enable us to increase the possibility to control the spread of ExPEC–associated diseases. Therefore, we aimed to investigate risk factors and antimicrobial susceptibility pattern of fecal carriages of ExPEC among community children in Southern Taiwan. Method: We collected 504 non-duplicated stool samples April 2016 to Feb 2019 at pediatric department of a medical center in Southern Taiwan. All samples and questionnaire were collected within 3 days after admission. The contents of the questionnaire included demographic data, diet habits, travel history, and medical history. ExPEC was defined as E.coli isolates having at least three of the following five genes: S and F1C fimbriae (focG+sfaS), kpsM II, papA, afa and iutA. Antimicrobial susceptibility testing was determined by the VITEK 2 system.

Results: 107 ExPEC were isolated from 21.2% of these fecal samples. After multivariate analysis, chicken and duck consumption had significant association with fecal carriages of ExPEC (aOR 1.59, 95% CI 1.01-2.48, p=0.044). Subjects who drank boiled and filtered water had lower risk with fecal carriages of ExPEC (aOR 0.62, 95% CI 0.40-0.96, p= 0.033). ExPEC isolates had significantly higher resistant rates to gentamycin, ciprofloxacin, minocycline and sulfamethoxazole-trimethoprim than non-ExPEC isolates. Extended-spectrum β-lactamases was also more common in ExPEC isolates than non-ExPEC isolates. However, all ExPEC isolates were susceptible to ertapenem, imipenem, amikacin and tigecycline.

Conclusion: Diet and drinking water are associated with the risk of fecal carriages of ExPEC. The results provided evidence that food and drinking water may play a role in transmission route of ExPEC in human.

Biography

Dr. Pin-Chieh Wu holds an MD from Kaohsiung Medical University. She is a practicing physician at the Kaohsiung Veterans General Hospital Division of Family Medicine. She also joins the research group of Prof. Chih-Hsin Hung at the Institute of Biotechnology. She is now a PhD student at the same institution.

Huang Wei Ling
Medical Acupuncture And Pain Management Clinic, Brazil

Is the mandatory implementation of a passport for COVID-19 vaccine reduce the transmission or not?

Introduction: In this theme the author will discuss various explanations that was used or not to implement this kind of rules in Europe and in many countries nowadays. Purpose; to demonstrate that using only this type of measures to control the spread of the virus, will not be reducing the incidence of the infecton because the author is demonstrating that the type of population that we have nowadays are not immune competent but immune deficient in energy , that will compromise the formation of antibodies for SARS-CoV-2 after receiving the vaccines and also, there are other variants and strains that only one vaccine cannot prevent all forms of SARS-CoV-2. Also, there are studies showing that persons that are fully vaccinating can spread virus even if assymptomactic due to maitaing virus in the nose and in the throat.

Methods: In this study,the author is showing the studies that we have nowadays reagarding this theme and also, said by many specialists in the area. Results; in these studies, they are waiting for the B and T cells responses after the vaccination. In another talk from Antony Falci, he is also saying that there is no evidence that the vaccine can control the wide spread of the virus. And there will be increase in the formation of auto-immune disease in the near future, according to some studies , due to this massive vaccine implementation.

Conclusion: the conclusion of this study is that the implementation of universe vaccination is not based on studies very well done and are based on studies that have no conclusion yet. According to the author, the vaccination will not control the widespread of the SARS-CoV-2 infection due to the fact that persons full vaccinated can spread virus to other even if assymptomactic and the majority of the population nowadays are considered immunessupressed, induced by the chronic exposition to electrtomanectic waves and affecting our energy and immune system, leading to less response to vaccines nowadays. The use of other forms of measurements to increase the immune system of the entire population nowadays, such as the use of highly dilluted medications such as homeopathies, increasing the vital energy of the population , that is very low nowadays, is the major importance, to treat the cause of the problem and not just treating the symptoms, that is the SARS-CoV-2 infection.

Biography

Huang Wei Ling, born in Taiwan, raised and graduated in medicine in Brazil, specialist in infectious and parasitic diseases, a General Practitioner and Parenteral and Enteral Medical Nutrition Therapist. Once in charge of the Hospital Infection Control Service of the City of Franca's General Hospital, she was responsible for the control of all prescribed antimicrobial medication and received an award for the best paper presented at the Brazilian Hospital Infection Control Congress in 1998. Since 1997, she works with the approach and treatment of all chronic diseases in a holistic way, with treatment guided through the teachings of Traditional Chinese Medicine and Hippocrates. Researcher in the University of São Paulo, in the Ophthalmology department from 2012 to 2013.Author of the theory Constitutional Homeopathy of the Five Elements Based on Traditional Chinese Medicine. Author of more than 100 publications about treatment of variety of diseases rebalancing the internal energy using Hippocrates thoughts.

Amarjeet Gambhir[1]*, Gita Rani[2]
[1]Lady Hardinge Medical College & Hospital, India
[2]Consultant Prosthodontist & Implantologist, India

Mucormycosis associated with COVID-19 - A deadly combination

The outbreak of coronavirus disease (COVID-19) caused by severe acute respiratory system coronavirus 2 (SARS-CoV-2) was first reported in Wuhan, China and has quickly spread to other parts of the world in the form of a global pandemic. It has been associated with a wide range of opportunistic bacterial and fungal infections. Recently, the increasing incidence of rhino-orbito-cerebral mucormycosis (ROCM) in the setting of COVID-19 world-wide, particularly in India has become a matter of immediate concern. According to the data from the Integrated Disease Surveillance Programme (IDSP), around 46958 cases and 4666 deaths due to mucormycosis following COVID-19 have been reported in India and around 18,562 cases of mucormycosis are under treatment in the country as on July 30, 2021. The primary reason that appears to be facilitating this outbreak of mucormycosis is an ideal environment of low oxygen (hypoxia), high glucose (diabetes/ steroid induced hyperglycemia), acidic medium (metabolic acidosis/ diabetic ketoacidosis), high iron levels (increased ferritins) and decreased phagocytic activity of white blood cells (WBC) due to immunosuppression (SARS-CoV-2 mediated/ steroid mediated/ background comorbidities) coupled with several other risk factors including prolonged hospitalization with or without mechanical ventilation. It is postulated that COVID-19 associated mucormycosis (CAM) is driven by complex host-microbe interactions.

Mucormycosis, erroneously referred to as "black fungus", is a rapidly progressive and potentially lethal, angioinvasive fungal infection caused by Mucorales species. The ubiquitous mold usually gains entry into the host through the respiratory tract. Alternatively, organisms may enter the body through cuts or burns in the skin or may become disseminated via bloodstream infection. COVID-19 associated mucormycosis may affect the lungs (pulmonary mucormycosis) but nose and sinuses are the most frequent infection sites causing symptoms such as nasal blockage and discharge, unilateral facial swelling, pain and/or redness around eyes or nose and black necrotic lesions. It can then spread to the eyes, causing blindness, or to the brain, causing headaches and seizures (rhino-orbito-cerebral mucormycosis). Diagnosis is usually made by clinical findings supported by diagnostic nasal endoscopy or contrast-enhanced MRI or CT scan coupled with microbiological confirmation on direct microscopy, culture or histopathology. Suspected mucormycosis requires urgent intervention as even a slight delay in initiation of appropriate therapy can have devastating implications on patient survival. The global guidelines of European Confederation of Medical Mycology (ECMM) and the Mycoses Study Group Education and Research Consortium (MSG ERC) strongly support an early complete surgical treatment for mucormycosis whenever possible, in addition to systemic antifungal treatment. Liposomal Amphotericin B, Amphotericin B lipid complex, and posaconazole oral suspension are considered as the first-line antifungal monotherapy, while isavuconazole is strongly supported as salvage treatment. Prognosis remains poor even with aggressive therapy with reported mortality rates of 33.3-80 per cent. Hence, it becomes extremely important in the current COVID-19 setting to optimize the indications for & dosage of systemic steroids, ensure judicious use of tocilizumab, monitor blood glucose levels & minimize the patient exposure to potential sources of infection to possibly reduce the incidence of this lethal fungal infection.

What will audience learn from your presentation?

- The presentation will provide an insight into the various aspects of COVID-19 and mucormycosis syndemic including:
- Causes/predisposing factors, particularly in the Indian context
- Pathophysiology, clinical presentation & staging of rhino-orbito-cerebral mucormycosis (ROCM)
- Global guidelines for diagnosis & management of mucormycosis
- Prevention of ROCM in COVID-19 setting

Biography

Dr Amarjeet Gambhir graduated in dentistry from GDC, Indore in 2002 & completed his post-graduation in Oral & Maxillofacial Surgery from NHDC, Mumbai in 2006. He completed his Senior residency from Lady Hardinge Medical College & Hospital, New Delhi in 2009. He worked as a faculty at different dental colleges and was promoted to Professor, Oral & Maxillofacial Surgery in 2016. He again joined Lady Hardinge Medical College as a Faculty in 2016. He has worked as a co-investigator in pilot project on School-based Sealant Program, 2017 under Ministry of Health & Family Welfare, Government of India. He is a reviewer of various international journals & has published more than 16 national & international papers in peer-reviewed indexed journals. He has attended numerous conferences & workshops and presented a number of papers & key-note lectures in national & international conferences/webinars. He has also authored 3 books for dental postgraduate entrance examinations. His areas of interest include oral cancer, TMJ disorders, maxillofacial pathology & reconstruction, maxillofacial trauma & dental implants.

Amanda Henriques Cavalheiro
Faculdade de Medicina de Ribeirao Preto - USP, Brazil

Leprosy: How to help patients with relapses?

Therapies and procedures to improve the quality of life of patients and adherence to treatment is a concern for the SUS and for health professionals. To test the hypothesis that the education al instruments developed by there searcher, as well as the pharma Co therapeutic monitoring of pharmaceutical care, increase the adherence to the treatment of patients diagnosed with leprosy in a high-complexity hospital. From the data, educational materials were produced and tested on patients. Then, the impact of follow-up and instructional materials on treatment adherence was evaluated.Treatment adherence increases after the intervention of pharmaceutical care and health education, as per the Morisky treatment test. The methodology was more effective in male patients with low education than in women, who already had high adherence. In addition, it was possible to identify that the Morisky and Haynes adhesion tests, used in the work, completely differed in their results, they occur to reflect the use of such tools in research in the area. Conclusion: it is possible to increase patient treatment adherence through health education programs and pharmaceutical care.

What will audience learn from your presentation?

- How to manage with patients adherence in pandemic situation.
- How to use technologies to improve adherence inpatients.
- How pharmacists can use their knowledge to help chronic patients.
- How to help leprosy patients to be more concerned about their treatment.

Biography

Graduated in Pharmacy-Biochemistry from the University of SaoPaulo(USP), Researchand Development Analyst for the Medicines, Cosmetics and Food Industry with project development in the Natural Products area together with USP; Specialist in Pharmacology and Drug Interactions and Specialist in Teaching in Higher Education. Health Instructorin education programs for patients with chronic and rare diseases. Taught classes for vocational courses. She has already been a Responsible Pharmacist in a distributor of medicines and drugstores. She is currently Professor of Pharmacy Technician and is finishing her master's degree at FMRP - USP, working with leprosypatients.

Gayatri Tripathi[1]*, Ngairangbam Sushila[2]
ICAR-Central Institute of Fisheries Education, India

Recombinant activity gene: An analysis of expression profile during development stages of pterophyllum scalare

Early larval developmental stages of aquatic animals are highly susceptible to opportunistic pathogens until the complete maturation of the lymphoid organs. Knowledge of the expression pattern of important markers of adaptive immune system during the ontogenetic development is essential before vaccinating the fish. In the present study, *Pterophyllumscalare* (angelfish) was taken to explore the relative expression profile of developmental markers of adaptive immunity, recombination activating gene-2 (RAG-2) and immunoglobulin M (IgM). The fishes were bred and early developmental stages (0–45 days post-hatched) were used to assess the expression profile. The genes, RAG-2 and IgM were cloned and sequenced with the base pair lengths of 1958 bp and 225 bp respectively. The mRNA expression of RAG-2 appeared at insignificant level at the first day of hatching, but the expression was significantly increased from 24 dph (days post-hatching) onwards and reached its peak at 27 dph. The results proved that the maturation of lymphoid organs was completed at 27 dph as the respective protein is involved in the V(D)J recombination, important for the maturation of lymphoid organs. A similar trend was also observed in the mRNA transcript levels of IgM gene and a significantly high expression was detected from 27 dph onwards. The significantly high expression from 27 dph from RAG-2 and IgM marks the time of development and maturation of lymphoid organs in *P. scalare*. The study would be helpful in optimizing the timing of vaccination in order to allow protection as earliest possible for reducing the disease incidence during larval rearing.

What will audience learn from your presentation?

- RAGs: Important for early lymphocyte development and anything that interrupts the process fails to express antigen receptors, blocks the production of mature lymphocyte and ultimately results in immunodeficiency. Invasion of RAGs is the most important evolutionary event in terms of shaping the adaptive immune system.
- The immune-related genes expression profiles can be used as health reference markers and can further be developed for use as indicators for developmental immunotoxicology studies.
- How will this help the audience in their job? Is this research that other faculty could use to expand their research or teaching?
- Insilicotertiary structure of RAG-2 protein was found to be suitable for further analyses.Furthermore, the histological organization of lymphoid organs and their histochemical localization are the important studies that could support in understanding the development of organs related to adaptive immune system.
- Does this provide a practical solution to a problem that could simplify or make a designer's job more efficient?
- The aim of the study was to understand the age specific ontogeny of RAG genes and to optimize the vaccination strategies that could help in improving the survivability of Pterophyllumscalare during early stages.
- Will it improve the accuracy of a design, or provide new information to assist in a design problem? List all other benefits.
- Early larval developmental stages of animals are highly susceptible to opportunistic pathogens due to inadequate maturation of the lymphoid organs. Knowledge on the expression pattern of important markers of adaptive immune system during the ontogenetic development is essential for immunization studies.

Biography

An accomplished scientist and experienced professional, armed with a PhD degree in Life Sciences. She is working as Principal Scientist in the Aquatic Environment and Health management Division of Deemed University Central Institute of Fisheries Education, Mumbai. She possesses comprehensive experience in aquatic animal diseases & their diagnostic research encompassing embryonic stem cell biology, nanotoxicology, and immunotoxicology. A recognized researcher in the field of fish disease diagnosis and therapy with an enviable track record of scientific achievements through publications as well as researching and implementing new scientific concepts and procedures. More than 50 publications comprising papers in international journals and national journals. She has 1312 citations to her name and has achieved a i10 index of 24.

Debdeep Mitra*, Anuj Bhatnagar
Command Hospital, India

Leprosy: Clinical spectrum

Leprosy, also known as Hansen's disease, is a curable infectious disease which is caused by Mycobaterium leprae. It remains endemic in >140 countries around the world. Leprosy currently affects approximately a quarter of a million people throughout the world, with the majority of these cases being reported from India.Despite being declared "eliminated" as a global public health problem by the World Health Organization in the year 2000, approximately 200,000 new cases were reported worldwide in 2017. With globalization and migration of population the diseases has migrated to so called 'non-endemic' zones. Leprosy predominantly affects the skin and peripheral nerves. It has a spectrum of clinical presentation and there are episodes of lepra reaction which are acute inflammatory episodes during the chronic course of the illness. The disease is associated with a lot of social stigma and the deformities resulting due to delay in diagnosis and prompt initiation of correct treatment leads to permanent stigmata of leprosy. The basic aim of this presentation would be to make the audience about the the varied common presentations of this disease and the frequent complications encountered if we do not initiate treatment on time.

What will audience learn from your presentation?

- Diagnose and treat leprosy cases?
- Leprosy cases are not seen routinely in non endemic zones, hence this presentation would introduce the various presentations of this age old infectious disease.

Biography

Dr Debdeep Mitra, Professor Dermatology at Command Hospital Bangalore India is an alumnus of Armed Forces Medical College India. He has more than 50 publications in indexed journals and more than 100 publications in national and international forums with scholarships and presentations in last 4 Infectious disease week conferences across The United States of America. He has keen interest in research and clinical practice in cases of mycobacterial skin infection including leprosy and cutaneous tuberculosis. He has managed more than 1000 patients of leprosy in the last 10 years of clinical practice. A dermatologist by profession and an avid quizzer, he has conducted several national and international medical quizzes.

Noa Eliakim Raz
Beilinson Hospital, Israel

Durability of response to SARS-CoV-2 BNT162b2 vaccination in patients on active anticancer treatment

We recently reported initial findings from a prospective cohort study which evaluated the antispike (anti-S) IgG antibody response to the SARS-CoV-2 BNT162b2 messenger RNA (mRNA) vaccine (BioNTech/Pfizer) in patients with solid tumors on active anticancer treatment vs healthy controls.1 After a median of approximately 5.5 weeks from the second vaccine dose, 90% of the patients with cancer and 100% of the healthy controls were seropositive, and the median IgG titer in the patients was significantly lower than that in the controls:1931 (interquartile range [IQR], 509-4386) AU/mL vs 7160 (IQR, 3129-11241) AU/mL; P <.001 Herein, we describe the anti-S response in the patients with cancer vs the controls approximately 4 months after the second vaccine dose.

Methods: Study design, eligibility criteria, and anti-S IgG evaluation have been previously reported.1 The study was approved by the ethics committee of Rabin Medical Center. All participants provided written informed consent. Statistical analyses were performed as previously described.1 A P value <.05 was considered significant. Statistical analysis was performed using R, version 4.0.2 (R Foundation).2

Results: The previous analysis included 102 patients with cancer and 78 controls.1 The current analysis included 95/102 patients (5 died, 2 withdrew) and 66/78 controls (12 withdrew). Baseline characteristics of the 95 patients and 66 controls are presented (Table). After a median (IQR) of 123 (116-129) days from the second vaccination, 83 patients (87%) and all the controls (100%) were seropositive for anti-S IgG antibodies. The median titer in the patients was statistically significantly lower than in the controls (417 [IQR, 136-895] AU/mL vs 1220 [IQR, 588-1987] AU/mL; P <.001) (Table; Figure A). Evaluating the IgG titers by tumor type and anticancer treatment demonstrated a 3.6-fold range in median titer values across tumor types and a wider range (8.8-fold) across treatment types. The lowest titers were observed with immunotherapy plus chemotherapy/biological therapy (median [IQR], 94.4 [49.4-191]/147 [62.8-339]). In an exploratory multivariable analysis, the only variable significantly associated with lower IgG titers was treatment with chemotherapy plus immunotherapy and immunotherapy plus biological therapy. Of the 12 seronegative patients, 8 were seronegative in the previous analysis. One breast cancer patient who was seronegative in the previous analysis, was no longer on active therapy in the current analysis and became seropositive. Evaluating the IgG titer as a function of the time between the second vaccine dose and the blood sample drawn from each patient demonstrated a significant negative linear correlation for the patients (R = -0.34, P<.005) and the controls (R = -0.7, P<.005) (Figure B,C).

Discussion: The seropositivity rate among the patients with cancer remained high (87%) approximately 4 months after the second BNT162b2 vaccination dose. The median IgG titer in the patients and the controls decreased over time. Notably, in both the previous1 and the current analysis, the IgG titers were statistically significantly lower in the patients vs the controls. Data on the durability of protection after vaccination are limited for healthy subjects and lacking for oncological patients. Elevated antibody levels persisting 3 months after the second dose of mRNA-1273 vaccine (Moderna) were reported in 34 participants, although a slight decrease in antibody levels was reported.3 Interim results from a phase 3 trial of the mRNA-1273 vaccine in 33 healthy adults demonstrated that the antibody activity remained high in all age groups after approximately

7 months.4 Although the correlation between antibody levels after vaccination and clinical protection is yet to be proven, the accumulating evidence supports antibody response as a potential correlate of disease protection.5 Long-term cellular memory could call into question the need for a third BNT162b2 booster dose. Study limitations include lack of cellular immunity testing and/or neutralizing antibody testing.

Subrahmanyam D K S*, Harish B N, Vadivelan M
Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), India

Utility of limulus amebocyte lysate assay as a diagnostic aid in patients with sepsis

Background: Bacterial sepsis is a common medical illness and is associated with high mortality. Gold standard for the diagnosis of sepsis is culturing from blood or other body fluids which is of unsatisfactory yield. However, culture positivity in severe sepsis is 40%. Limulus amebocyte lysate (LAL) assay detects the lipopolysaccharide on the cell wall of Gram-negative bacteria and is an appealing principle for the diagnosis of sepsis.

Objective: This was a pragmatic study which was done to find out the utility of LAL assay in the identification of patients with sepsis.

Methodology: This study included 55 admitted patients with clinical sepsis and 42 controls (no sepsis but admitted for other conditions). Patients who were above the age of 18 years with a clinical diagnosis of sepsis were included in this study. Patients with primary immune system disorders, those who had received immunoglobulin or heparin were excluded from the study. Four groups of patients were studied. Group A included patients with possible gram-negative sepsis, group B had patients with possible gram-positive sepsis, group C included patients with sepsis due to unknown cause and group D had patients without any infection (control group). The study was carried out at a tertiary teaching hospital in south India over a period of 2 years. Blood samples and relevant body fluids were collected from all the study subjects and LAL test was performed by the gel-clot technique.

Results: 5 subjects in the groups with sepsis and 1 subject in the control group were found to be positive on LAL assay. After analysis of the LAL assay and the culture results, true positive was found in 1 case, and false positives were found in 5 cases. False negative results were seen in 36 cases and true negative results were seen in 55 cases. The sensitivity of LAL assay was calculated to be 2.7% and specificity was found to be 91.67%. The positive predictive value of LAL was found to be 16.67% while the negative predictive value was 60.44%.

Conclusion: LAL assay was not found to be useful as a diagnostic aid in patients with sepsis and needs improvised technology for future application.

Acknowledgement: The authors gratefully acknowledge the funding received through Intramural Research Grant from the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry-605006, India for on ducting this study.

What will audience learn from your presentation?

- What is already known about this subject?
- Bacterial sepsis is associated with high mortality
- Gold standard for diagnosis of sepsis is isolation of organism from blood or other body fluids
- Culture positivity rate is low in patients with sepsis
- What are the new findings?
- Limulus amebocyte lysate (LAL) assay detects the lipopolysaccharide on the cell wall of gram-negative bacteria

- LAL assay can be used in real-time setting in hospitals treating patients with sepsis
- How might these results change the focus of research or clinical practice?
- LAL assay if it is found to be useful can help the clinician by narrowing the choice of antibiotic for empirical therapy and also prevent misuse of classified antibiotics

Biography

Subrahmanyam D.K.S. is a Professor (Senior scale) & Head of Department of Medicine, JIPMER, Puducherry, India. Academic Qualifications are MD (Medicine), Diploma in Cardiology, Special areas of interest: Clinical cardiology, clinical neurology, Geriatric medicine, Publications: 50

Ambresh S Badad
Mahadevappa Rampure Medical College, India

Rare atypical manifestations of type 2 lepra reactions-A case series

Type 2 lepra reaction can present clinically in varied forms. Ulcers with maculo-papularrash, tender erythematous nodules are an unusual presenting feature of leprosy. They occur as result of neuropathy, type-2 lepra reaction or Lucio's phenomenon. The hall mark of type-2 reaction is erythema nodosum. Very rarely it manifests as ulcerative skin lesions. We describe a case series of 5 patients of type 2 lepra reaction.

Introduction: Leprosy is a multi-organ infectious disease affecting mainly the skin and the nerves. Leprosy is also associated with type-1 and type-2 reactions. When severe, it can rarely manifest as ulcerative skin lesions (erythema necroticans). Ulcers are an uncommon presentation of leprosy. These occur as a result of loss of sensation (peripheral) or very rarely in lepra reaction (both type-1 and type-2 reaction) and are the presenting features of Lucio's phenomenon.

Discussion: Skin lesions commonly are macules patch, and plaques, rarely papules or nodules.We presented case series of five patients with varied manifestations of type II lepra reactions because it is important for us to be aware of various manifestations of leprosy including some unusual ones in lepra reactions.

What will audience learn from your presentation?

- It will create awareness among physicians about varied manifestations of leprosy reactions
- The audience (doctors) will be able to diagnose rare cases of leprosy and its reactions and can help them treat the patients more effectively.
- It will help audience to take such study and more research in the field of leprosy infections.

Biography

Dr Ambresh S Badad studied MBBS from MRMC, RGUHS Bangalore, India and graduated in 2009.He then completed his MD in Dermatology from prestigious Armed Forces Medical College, Pune (AFMC PUNE) in the year 2013.Presently working as Associate Professor in Dept of Dermatology MRMC, Kalaburagi Karnataka India. He is the reciepient of WCD Raising Star Award 2019, Milan Italy presented at World Congress Of Dermatology 2019.He has published more then 30 research articles and has more than 30 oral presentations at various national and international conferences.

Irina Nesterova*, E O Khalturina, V V Malinovskaya, G A Chudilova

The Peoples' Friendship University of Russia, Russian Federation

An immunopathogenetically based therapy program for atypical chronic active herpesvirus co-infections associated with postvirus chronic fatigue syndrome

Introduction: Due to the annual steady increase in the number of immuno-dependent, chronic herpes-viral-induced diseases accompanied postviral chronic fatigue syndrome (CFS), associated with amnestic mild cognitive impairment (aMCI). At the same time, the role of disorders NG subpopulation and IFN system in patients with AChA-HVI and methods for their correcting have not been well studied.

The aim: to develop an immune patho genetically based program of combine immunotherapy for patients, suffering from AChA-HVI, associated with CFS and aMCI.

Materials and methods: The study group included 198 patients, aged23 to 60 years, suffering from AChA-HVI. The control group (CG) consisted of 15 healthy persons, comparable by sex and age. Clinical methods were used:to assess the clinicalstatus before and after treatment using the created 5-point scale and the Mini- Mental State Examination (MSE) to assess cognitive functioning. For detection of herpes viruses ELISA, PCR were used.The immunological tests included: ELISA, cytofluorimetry methods.The adequate methods of variation statistics were used.

Results: Patients in SG had mixed ACh-HVI: EBV + CMV + HHV6 - 36.4%, HSV1 + EBV - 27.3%; EBV + CMV -18.2% of cases. The post-viral CFS was diagnosed in 100% of cases. Mono-GVI - in 26% of cases. It was found that in patients with AChA-HVI, the incidence of aMCI was met in 68.3% of cases. The detection of base mechanisms of immune system (IS) have shown: the decrease in induced production of IFNα and IFNγ in 96.8%, the decrease of number of nature killers (NK), and/or subpopulations of T cells (CD3+CD4+; CD3+CD8+; CD3+CD56+) in 89.5%,the functional defects of NG- 82.3% of cases. In patients of SG the number of NG with phenotype IFNα/βR1dimIFNγRmidTLR4mid was in 24,4% versus in CG – in 2,5% of cases. The program of 2-month course combine immunotherapy was created which was based on immunopathogenesis of postviral CFS. This program included: 1) for restoration of IFN system: prolonged systemic(suppositories of recombinant IFNα2b - 6 mln.IUin combination with very active antioxidants) and local application (gel recombinant IFNα2bin combination with antioxidant); 2) for restoration NK and T lymphocytes:14-day courses inosine pranobexin adequate doses;3) 14-day courses of antiviral drug famciclovirin adequate doses. After treatment the positive clinical and immunological dynamics were observed. It was shown the regression of postviral CFS and aMCI in 87% of cases, a significant decrease in the replicative activity of herpes viruses. The improvement of the IS was shown in 85%, the restoration of the IFN system -in 67% of cases. The positive transformation of phenotype IFNα/βR1dimIFNγRmidTLR4midHΓwas shown in 54,1% of cases. Two different active phenotypes of subset IFNα/βR1+IFNγR+TLR4+NG: IFNα/βR1brightIFNγRbrightTLR4dimNGin 40% and IFNα/βR1brightIFNγRbrightTLR4brightNG in 60% of cases were appeared.

Conclusion: The immune pathogenesis of post-viral CFS associated with cognitive disorders in patients with AChA-HVI has been clarified. The developed program of combine IFN- and immunotherapy has demonstrated high clinical and immunological effectiveness.

Biography

Dr Irina V. Nesterova studied Medical Science at the Kuban State Medical University, Krasnodar, Russia, graduated as MS in 1973. She received her PhD degree in 1980 and Doctor of Science in 1993 at the same institution. She has published more than 200 research articles in SCI(E) journals. Science field- immunopathology, recurrent respiratory and herpesvirus infections, secondary immunodeficiency, antiviral immunity, interferonopathias, dysfunction of neutrophilic granulocytes, development different programm of mono- and combine interferon - and immunomodulatory therapy.

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POSTERS DAY 1

WORLD CONGRESS ON

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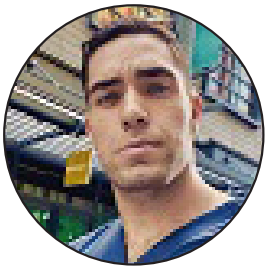

Adam Cadesky
Pennsylvania Hospital of the University of Pennsylvania, United States

Unexpected spiral of events

Leptospirosis is a disease that is seen more often outside of the United States. For clinicians practicing in the United States, it is often not on the top of the differential. For this patient, as his clinical course progressed, it became more evident of leptospirosis. A 51-year-old Spanish speaking male presented with bilateral calf pain starting after he flew from Puerto Rico to Philadelphia. The patient reported difficulty with ambulation, fevers and chills as well as darker urine, dry throat and motrin use. On admission, his creatinine kinase (CK) was elevated to 800. Bilateral LE ultrasound was negative for DVT. The patient was treated with aggressive IVF resuscitation. An infectious workup for typhoid, dengue, zika, leptospirosis and hepatitis were sent. He was empirically started on ceftriaxone and doxycycline. That night, the patient became hypotensive, febrile and unresponsive to fluids. He was started on pressor support, CXR now showed pulmonary edema. The patient was broadened to vancomycin, cefepime and doxycycline. The next day, the patients blood pressure normalizedoff of pressors, thick/thin smears were taken which ruled out malaria. CK peaked at 2500. Leptospirosis IgM antibody came back positive and the rest of the workup came back negative. It was thought that the patient had undergone a Jarish-Herxheimer reaction. It was only after the results came back, on further history, the patient endorsed sleeping outside for fear his house would collapse from earthquakes. It was thought he may have come in contact with rat urine in this situation as a mode of transmission of leptospirosis. This case illustrates the importance of a doing a proper history, especially when there is a language barrier to ensure key information won't be missed. As well, this case demonstrates the symptoms of leptospirosis and how treatments may not be so benign, with spirochetes having the ability to cause the Jarish-Herxheimer reaction when treated.

Biography

Dr Adam Cadesky, MD is an Internal Medicine Specialist in Philadelphia, PA

Eduardo Guimaraes de Araujo Moreira*, Barcelos
Universidade Federal de Minas Gerais, Brazil

Syphilis during pregnancy at the primary health care of campos eliseos and in the city of betim. A readjustment in the work process for an early diagnosis and a proper treatment1, 2

Syphilis and congenital syphilis are preventable diseases if the infected patient or pregnant woman is promptly diagnosed and properly treated, as well as sexual partner (s), being their occurrence an indicative of failure in the prenatal and health care. Serological screening at prenatal is an effective measure and penicillin treatment is efficient and also cheap. However the production and availability of the drug in the last five years has become scarce in Brazil due to a lack of production and economic issues. Such shortages, associated with a poor process of work in these primary care units, resulted in a scenario with the resurgence of this disease. According to data available at the Secretaria Municipal de Saude de Betim (Betim Municipal Health Secretary), in 2015, 88 cases of syphilis were reported; in 2016, 171 new cases meaning an increase of almost 100%. A trend observed on a global scale. The numbers of infected pregnant women and congenital syphilis also increased at an alarming rate. Thus, educational measures and appropriate prenatal screening became a priority issue in the health services agenda. This work aims to elaborate an intervention plan, with measures for prevention, diagnosis and appropriate treatment of pregnant women diagnosed with syphilis in the city of Betim and at the primary health care unit Campos Eliseos. The methodology was carried out in three stages:- Situational diagnosis - with a review of all medical reports from pregnant women between jan 2013 to jan 2018, searching for: moment where syphilis rapid test happened, moment of notification, time until the start of treatment, total of partners notified and treated, total of congenital syphilis and intercourses related to the infection.- Review of the literature on the subject - the search was carried out in the Biblioteca Virtual de Saúde (BVS), in the databases of the Latin American and Caribean literature on Health Science (LILACS) and in on the Scientific Eletronic Library Online (Scielo) as well as in the modules of the Curso de Especializacao de Estrategia de Saude da Família da Universidade Federal de Minas Gerais, publications of Ministerio da Saude (MS) and books related to subject. - Elaboration and implementation of the action plan- it is expected with the adjustment of the work process, to reduce syphilis in the general population, especially in pregnant women and also reduce cases congenital syphilis.

What will audience learn from your presentation?

The main goal of these project was to reduce the cases of syphilis during pregnancy and the cases of congenital syphilis using only the technology and resources already available at the primary health system in the city of Betim. To do so, it was important to understand where the assistance was failing and create a new approach to the work process. With a review of all medical records of pregnant women between Jan 2013 to Jan 2018, it was possible to highlight five major problems. Syphilis rapid tests were happening only in the fourth appointment of prenatal assistance. In a case where a test had a positive result, the median interval until the first dose of penicillin was 28 days. 3 - In only 25% of the the partner was also treated 4 - Only 45 % percent of the cases were notificated to the local epidemiological surveillance service. 5 - Inadequate choice of antibiotics and poor follow up. The new work process proposed was: Do the rapid test in the first appointment of prenatal. Begin treatment of all positive results in the same day the test was done and do the follow up according to local guidelines. Reinforce the importance of the notification and how it should be done. Reinforce the importance of inviting all partners to be tested and treated if

necessary. Educate doctors, nurses and other health professionals about the subject with current and consistent scientific data. This process was carried out in the year of 2018; in a 10 month evaluation, it was tested for syphilis 78 pregnants, treated and notificated 21 cases, no children were born with congenital syphilis. The results of these intervention were shown to the local health authorities and to all doctors and nurses of all other 17 health care units as a possible, viable and affordable solution.

Biography

MD. Eduardo Guimaraes studied Medicine at the Universidade Federal de Minas Gerais (UFMG) - Brazil and graduated in 2016; did his post graduation in Primary Health Assistance for UFMG between 2018 - 2019. He started his medical residency infectious diseases at Hospital Nereu Ramos (HNR) in Florianopolis - Brazil.

Ivelina Trifonva
National Centre of Infectious and Parasitic Diseases, Bulgaria

Viral pathogens associated with acute lower respiratory tract infections in Bulgaria

Acute lower respiratory tract infections are a major cause of morbidity and hospital admissions. This study aimed to determine the viral etiology of these infections among the patients of different age groups in Bulgaria during the period October 2016-September 2019. Nasopharyngeal specimens were collected from patients with bronchiolitis, pneumonia, and exacerbation of chronical respiratory diseases (asthma, COPD). The viral etiology was determined by individual Real-Time PCR assays against 12 respiratory viruses. Of the 644 patients examined, 476 (73.9%) were positive for at least one virus. Co-infections with two and three viruses were found in 81 (17%) of the infected patients. Among the 532 children younger than 5 years, respiratory-syncytial virus (RSV) was the predominant pathogen (37.4%), followed by rhinoviruses (14.1%), bocaviruses (8.8%), human metapneumovirus (7%), adenoviruses (6.8%), influenza A(H3N2) (4.7%) and influenza A(H1N1) pdm09 (3.8%) viruses. RSV-B were more prevalent than RSV-A throughout the study period. At least one respiratory virus was identified in 82.9% and 67.2% of the children with bronchiolitis and pneumonia, respectively. Among the patients >5 years, influenza A(H1N1)pdm09 virus was the most frequently detected (16.5%), followed by RSV (8.8%) and influenza A(H3N2) (7.8%). Diagnostic testing for respiratory viruses using molecular methods may lead to the reduced use of antibiotics and may assist in measures to control infection.

Biography

Ivelina Trifonova is PhD student at the National Centre of Infectious and Parasitic Diseases, National Laboratory "Influenza and ARD", Sofia, Bulgaria. She started her Ph.D. study on 01.02.2017. She completed her Masters in 2015 from the University of Plovdiv "PaisiiHilendarski She has published more than 6 papers in reputed journals. She participated in more than 5 international congresses. She has participated in two scientific projects founded by the National Science Found: DH 13/15/ 20.12.2017, project title: "Viral pathogens in respiratory medicine – distribution in Bulgaria, genetic and clinical characteristics" and ? 13/3/15.12.2017, project title: "In vitro antitumor and antiviral activity of cranberries (vacciniumvitis-idaea) origin from Bulgaria".

Jola Karaj*, Shashank Sharma
Ashford and St Peter's NHS Trust, United Kingdom

Study of a non-TB mycobacterium cohort in a NHS district general hospital

Introduction: Non-TB mycobacterium (NTM) infections are relatively rare but increasingly prominent, with a rising incidence in both the United Kingdom and Europe. The commonest species is Mycobacterium aviumintracellulare (MAI), usually associated with chronic lung diseases. Most data comes from tertiary referral centers, which introduces selection bias. Therefore, we conducted a retrospective cohort study in an NHS District General Hospital (DGH), with an aim to identify underlying characteristics of an unselected population. Our patients displayed varying disease courses, from indolent to disseminated. We were interested to find an association between interferon-gamma pathway defects and disseminated NTM in some cases.

Method: Retrospective cohort study conducted by reviewing electronic medical records. Inclusion criteria: adults with NTM growth in sputum. Exclusion criteria: paediatric patients and incomplete records.

Results: 61 patients had a coded diagnosis of NTM between 2016 - 2019. 57 of these had complete data records, included in our final analysis. Average age was 64 years, with equivocal number of male and female patients. The commonest causative organism was MAI - 50.9% of our cohort. The second-commonest organism was Mycobacterium chimaera (MC) - 14% (n=8). 39 patients underwent thoracic CT imaging. NTM lesions were predominantly in the upper lobes; 7 were bi-apical. 11 patients (19.3%) had pre-existing immunodeficiency; 3 of whom suffered severe or disseminated disease – all required intravenous treatment with Amikacin. Each of these patients had a deficiency in the interferon-gamma pathway. An association between deficiency of this cytokine and susceptibility to NTM infections is emerging, with several cases reports associating it with disseminated disease. Pre-existing pulmonary conditions were present in 46 patients (80.7%) - 19 of whom had bronchiectasis and 17 had COPD. 2 patients had lung cancer. Prior inhaled corticosteroids (ICS) use represented 42.1% of our population (n=24); Fluticasone was the commonest. 25 patients underwent treatment, 12 whom are on lifelong or continuing antibiotics. Average length of treatment was 26 months for those who completed a finite course. 11 patients achieved complete resolution of their NTM, whether treated or untreated.

Conclusion: This study of a general population of British patients with NTM provided several interesting findings. The prevalence on MC was surprisingly higher than expected – 14% compared to 6% reported average. Although several publications associate MC with cardiac surgery and heater-cooler systems, none of our patients had a history of this. High prevalence in our cohort was likely due to increasing recognition of MC as a separate sub-species of Mycobacterium avium complex. Immunodeficiency predisposed to more severe disease. Importantly, we found an association between disseminated disease requiring IV aminoglycosides and deficient interferon-gamma pathways. A few published case reports have made such an association and understanding of how interferon-gamma is involved in destroying NTM infections is emerging. A significant proportion of our cohort had underlying respiratory diseases such as COPD and bronchiectasis – many of these patients were established with ICS. The commonest ICS was Fluticasone; this steroid has been associated with NTM previously. We are interested to investigate whether particular steroid inhalers predispose to NTM.

What will audience learn from your presentation?

- Certain established factors predispose to non-tuberculous mycobacterium, such as certain pulmonary diseases and immune deficiency. Persistent symptoms despite conventional antibiotics should raise suspicionto investigate NTM disease.
- There is increasing evidence linking interference in the interferon gamma pathway with NTM. These patients are likely to have more severe disease, require complex and longer treatment.
- We would suggest to the audience that they consider investigation for immunodeficiency especially interferon gamma deficiency in patients who present with disseminated disease or without underlying chronic lung disease.
- We have more to learn about the role and effects of steroids on predisposition to NTM infections – do they produce an element of localized immunosuppression?

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SPEAKERS DAY 2

WORLD CONGRESS ON

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SEPT 09-10, 2021

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Shaalina Nair
University Malaya Medical Centre, Malaysia

Case report: COVID-19 pneumonia and dengue fever co-infection in an individual from Southeast Asia

COVID-19 infection is caused by the novel coronavirus, SARS-Co-V2 which was initially reported in Wuhan, China and declared a pandemic by the World Health Organization in 2020. Dengue fever is caused by the dengue virus from the *Flaviviridae* family and is transmitted via the bite of female *AedesAegypti* mosquito. COVID-19 pneumonia and dengue fever co-infection is a relatively difficult diagnosis to be established considering the similarities in the clinical manifestation of both diseases. This is a report on the co-infection in a tertiary hospital setting from a dengue endemic area in Southeast Asia. A 62-year-old gentleman presented to the Emergency Department with fever for 6 days associated with chills, rigors, arthralgia, myalgia and a generalized pinpoint rash over chest and abdomen. He mentioned that he works in a cafe and that he might have had contact with one of the workers who was recently tested positive for COVID-19. Otherwise, he denies overseas travel and participation in mass gatherings. Vital signs were stable and peripheral capillary oxygen saturation (SPO2) of 99% under room air was recorded. His full blood count revealed polycythemia with hemoglobin of 18.3 g/dl, increased hematocrit level of 0.54 L/L with concomitant decrease in platelet count of 111 x 109/L. Both total white blood cell and lymphocyte counts were normal. However, the liver function test showed evidence of acute liver injury with increased total bilirubin level of 19 µmol/L, elevated transaminases with alanine transaminase (ALT) level of 110 U/L, aspartate transaminase (AST) level of 77 U/L and increased gamma-glutamyltransferase (GGT) level of 138 U/L. His coagulation profile, electrolytes and renal profile were normal.Viral screen for Hepatitis B, Hepatitis C and Human Immunodeficiency Virus (HIV) were negative.Posterior-anterior chest radiograph of the patient with ground glass opacity in both middle and lower zones of the lungs which is mostly peripheral with preservation of lung markings. The diagnosis was confirmed by positive SARS-CoV-2 polymerase chain reaction (PCR) test with cycle threshold value of 19.97and positive immunoglobulin M, immunoglobulin G titers on the Dengue Serology panel on the same day of testing. Predisposing risk factors were chronic medical illnesses (type 2 diabetes mellitus, hypertension and ischemic heart disease) and exposure to probable COVID-19 infected individual. The patient fully recovered after treatment with oral paracetamol 1 gram four times a day for five days and intravenous drip of 0.9% sodium chloride for 24 hours.

What will audience learn from your presentation?

- The audience can learn important points on how to differentiate and diagnose COVID-19 infection from Dengue Fever both diseases have similar clinical manifestations
- This case report can help physicians formulate a good management plan for patients with COVID-19 pneumonia and Dengue Fever co-infection
- The mechanism of co-infection is still poorly understood and presents an amazing opportunity for researches to establish the pathophysiology of the disease and subsequent treatment
- The audience will be taught extensively on Dengue Fever which is endemic to the Southeast Asia region and COVID-19 clinical manifestation, diagnosis and management.

Biography

Dr Shaalina Nair graduated with a degree in Doctor of Medicine (MD) in 2017 from Universiti Putra Malaysia. She then practiced as a physician at the University Malaya Medical Centre, Malaysia since 2018.

Dr Balamurugan R
Rya Cosmo Foundation Hospital, India

Mucormycosis of maxilla: An oral and maxillofacial surgeons perspective

The aim of this presentation is to report the available evidence on the interaction between these two infections. Differences and similarities of TB and COVID-19, their immunological features, diagnostics, epidemiological and clinical characteristics and public health implications will be discussed. Based on the immunological mechanism involved, a shared dysregulation of immune responses in COVID-19 and TB has been found, suggesting a dual risk posed by co-infection worsening COVID-19 severity and favouring TB disease progression. The available evidence on clinical aspects suggests that COVID-19 happens regardless of TB occurrence either before, during or after an active TB diagnosis. More evidence is required to determine if COVID-19 may reactivate or worsen active TB disease. The potential role of drugs prescribed during the initial phase to treat COVID-19 and their interaction with anti-TB drugs require caution. Regarding risk of morbidity and mortality, several risk scores for COVID-19 and independent risk factors for TB have been identified: including, among others, age, poverty, malnutrition and co-morbidities. Additional evidence is expected to be provided by the ongoing global TB/COVID-19 study.

Biography

Dr Balamurugan R is an Oral and Maxillofacial Surgeon and Oral Implantologist from Chennai, India. He initiated his professional career in the field of dentistry and continued his specialisation in the path of Oral and Maxillofacial Surgery (India) and Fellowship in Oral Implantology (International Congress of Oral Implantologists ICOI, USA). His field of expertise in basic dental treatments, dento-alveolar surgeries, maxillofacial trauma, dental implants, medical emergencies, pathologies associated with maxillofacial region, TMJ related disorders. He was awarded as the best PEER REVIEWER by Star Dental Centre Pvt Ltd, India for his sincerity and dedication towards work by adhering to the timelines with a prompt reviewing process. He holds various International and National peer reviewed paper publication that adds credit to his career. He is associated with International and National journals as editor and reviewer board member and he has also been invited as a keynote speaker globally. He also encourages and motivates the authors to explore with new innovative ideas in the field of research. Currently, he is a researcher and walks in the right path of motivation by providing a heart of service for the patients as an Oral and Maxillofacial Surgeon in RYA Cosmo Foundation, Chennai, India.

Dr Balamurugan R
Rya Cosmo Foundation Hospital, India

Mucormycosis of maxilla: An Oral and maxillofacial surgeons perspective

Introduction: Mucormycosis is a rare, rapidly progressive and a fulminant, life-threatening, opportunistic infection. Although it most commonly manifests in diabetic patients, its presence in other immunologically compromised patients cannot be ruled out. Its etiology is saprophytic fungal organisms, with rhizopus being the most common causative organism. Clinically the disease is marked by apartial loss of neurological function and a progressive necrosis due to the invasion of the organisms intothe blood vessels causing a lack of blood supply.

Case presentation: A 65 year old male patient presented with a complaint of nasal regurgitation from right nose for the past 2 years. The past history was elicited and based on the clinical examination the case was diagnosed as mucormycosis of maxilla. The case was surgically managed through maxillectomy followed by primary closure. After 6 months the patient reported with oroantral fistula. Thereafter, the patient was subjected for functional endoscopic surgery followed by reconstruction using palatal finger flap.

Conclusion: This case report intensifies the importance of considering mucormycosis as a possible diagnosis in spontaneous necrotic soft tissue lesions of the face, especially in an immuno compromised patient.

Biography

Dr Balamurugan R is an Oral and Maxillofacial Surgeon and Oral Implantologist from Chennai, India. He initiated his professional career in the field of dentistry and continued his specialisation in the path of Oral and Maxillofacial Surgery (India) and Fellowship in Oral Implantology (International Congress of Oral Implantologists ICOI, USA). His field of expertise in basic dental treatments, dento-alveolar surgeries, maxillofacial trauma, dental implants, medical emergencies, pathologies associated with maxillofacial region, TMJ related disorders. He was awarded as the best PEER REVIEWER by Star Dental Centre Pvt Ltd, India for his sincerity and dedication towards work by adhering to the timelines with a prompt reviewing process. He holds various International and National peer reviewed paper publication that adds credit to his career. He is associated with International and National journals as editor and reviewer board member and he has also been invited as a keynote speaker globally. He also encourages and motivates the authors to explore with new innovative ideas in the field of research. Currently, he is a researcher and walks in the right path of motivation by providing a heart of service for the patients as an Oral and Maxillofacial Surgeon in RYA Cosmo Foundation, Chennai, India.

Erzheny Tsybikova
Federal Research Institute for Health Organization and Informatics of the Ministry of Health of Russia, Russian Federation

Combined tuberculosis/HIV infectious in Russia: Statistics and perspectives

Objective: Epidemiology of combined TB/HIV infection in the Russian Federation over the past 10 years (2008-2017).

Materials and methods: retrospective analysis of statistical data on combined Tuberculosis/HIV infection for the period (2008-2017) received from the reporting forms of the ROSSTAT and MoH of Russia. For the analysis, cartographic and correlation analyzes were used.

Results: over the past 10 years, in Russia, against background of a steady decline in the incidence of tuberculosis (TB), there has been a radical change in the structure of TB patients due to increase in proportion of TB/HIV patients, which in 2017 was 20.9% among newly diagnosed patients and 18.5 % among contingents (TB patients under dispensary observation). The incidence of TB/HIV for the same period increased by 1,4 times and in 2017 was 7,1 per 100000 of population, the total rates of growth were 36,5%. The spread of TB/HIV was observed in age groups of 25-44 years, the proportion of which throughout the entire observation period was 76% among newly diagnosed patients and 77% among contingents. In the structure of TB/HIV patients there was a high proportion of patients with severe HIV infection with manifestations of multiple infections and diseases (ICD-10 B20.7, B22.7), accounting for 45% among newly diagnosed patients and 42% among contingents, which gave evidence of late diagnosis of HIV. The proportion of TB/HIV patients who were diagnosed Hepatitis (ICD-10 B20.7) in 2017 was 42% among newly diagnosed patients and 43% - among contingents. Moreover, in their structure, proportion of patients with Hepatitis C was 93% among newly diagnosed patients and 92% among contingents. The spread of TB/HIV in 85 subjects of Russia was characterized by apparent irregularity: in 35 subjects of Russia (41% of their total number) the incidence of TB/HIV was high and exceeded that in Russia, and in 50 subjects of Russia (59% of their total number) was low and did not reach such in Russia. The most severe group was MDR-TB/HIV patients, whose proportion in 2017 was 19% among newly diagnosed patients and 18% among contingents. In 48 Russian subjects, where the proportion of TB/HIV patients was >7% of the total number of newly diagnosed patients with TB, a direct correlation was revealed ($r = 0.33$, $p < 0.05$, t-statistics = 1.4) between the proportion of patients with MDR-TB and the proportion of TB/HIV patients. In the same 48 Russian subjects, a correlation was found between the proportion of TB/HIV patients and the proportion of those who died during the first year of observation ($r = 0.45$, $p < 0.01$, t-statistics = 3.5). The presence of immunosuppression reduces significantly the effectiveness of treatment of TB/HIV patients: in 2017 in Russia the proportion of patients with CD4 lymphocyte count of <350 cells/μL was high and was 66.6% among newly diagnosed patients and 52.5% among contingents. In Russia over the past 10 years, the effectiveness of TB/HIV patients' treatment has been low and averaged 47%. Proportion of deaths, in contrast, was high and in 2017 was 21%. In 22 Russian subjects, it was even higher and ranged from 25% to 88%. In structure of the deceased patients, 81% were people aged 25-44 years.

Conclusions: High rate of TB/HIV incidence, which is currently registered in 35 subjects of Russia, helps to slow down the rate of TB incidence, which may not be enough to reach the WHO targets in the program to eliminate tuberculosis in Russia.

What will audience learn from your presentation?

- Significant spread of TB among patients with HIV in 35 subjects of the Russian Federation (41% of their total number);
- A high proportion of TB/HIV patients with severe HIV, accounting for 45% of their total number, is due to the late detection of TB, the presence of concomitant Hepatitis in 42% of patients, as well as other severe HIV manifestations.
- The low efficiency of treatment of TB/HIV patients is due to late diagnosis of TB, severe immunosuppression in 67% of patients, the presence of a high proportion of patients with concomitant hepatitis and other severe HIV manifestations.
- The high mortality rate among TB/HIV patients is due to the low efficiency of treatment of TB / HIV patients.
- A significant spread of TB / HIV in 35 subjects of the Russian Federation has a negative impact on the TB elimination program due to the slowing down of the incidence rate of TB.
- Conducting mandatory cartographic research to determine the areas with the highest, medium and low levels of TB/ HIV;
- Correct coding of TB/HIV cases using ICD-10 B20.0, B20.7 and B22.7 codes to determine the severity of the disease and determine the area of responsibility of the TB and HIV services in case of late detection of both TB and HIV;
- Mandatory use of "quick" methods for diagnosing TB in patients with HIV in areas with a high level of TB/HIV spread for adequate selection of a TB treatment regime;
- Mandatory chemoprophylaxis of TB, as well as the appointment of antiretroviral therapy for all patients with TB/HIV in areas with a high incidence of TB;
- Treatment of concomitant Hepatitis.

Biography

Dr Tsybikova Ergeni studied medicine at the Irkutsk Medical University. In 1992 she graduated from the postgraduate study and defended her thesis at the Scientific Center for Surgery of the Russian Academy of Sciences. She studied Phthisiology under the guidance of Academician M.I. Perelman at the Institute of Phthisiopulmonology, 1st Moscow State Medical University named after I.M. Sechenov and received the degree of Doctor of Medicine in 2013. Currently, she is the Principal Research Officer of the Federal Research Institute for Health Organization and Informatics, Ministry of Health of Russia. She has published more than 45 scientific articles in scientific (electronic) journals.

Doaa Abdallah
King Abdulaziz University, Saudi Arabia

Genes expression analysis of macrophages infected with Staphylococcus aureus vs. Macrophages infected with Salmonellae enterica in mice

Macrophages are essential cells of innate immune system, their vital role in recognition and elimination of bacterial pathogen is the fundamental to contain the infection until the adaptive immune response is initiated. Macrophages sense the presence of Pathogen-Associated Molecular Patterns (PAMPs) on the pathogen's surface via pattern recognition receptors (PRRs) including Toll-like receptors (TLRs), scavenger receptors, and NOD-like receptors, which trigger proinflammatory and antimicrobial responses. PRRs-induced signal transduction pathways result in the activation of gene expression encoded inflammatory and innate immune responses including cytokines, chemokines, cell adhesion molecules, and immunoreceptors. Understanding how innate immune cells response to different pathogens is fundamental and can lead to discover new antimicrobial pathways. For example, the study of Salmonella Typhi bacteria led to the discovery of Rab32/BLOC-3, a universal host-defence pathway that protects mammalian species from a wide range of intracellular pathogens. In this study we undertook a detailed, comparative examination of the transcriptional responses of macrophages to Gram-negative Salmonella serovars (S. Typhi, S. Typhimurium) and Gram-positive (S. aureus). To investigate how the PAMPs of different pathogens, which act as pathogen ligand to PRRs, induce both common and specific transcriptional profile.

Results: We identified the shared and distinct gene expression responses in macrophages. In addition, Salmonellae is a potent macrophage-activating stimulus comparing to S. aureus. TRP53 (P53) is the key player of the cellular responses to the induced DNA damage in Salmonella and S. aureus. Also, Host DNA replication was repressed as a response to the damage in all pathogens related

What will audience learn from your presentation?

- This study of host–pathogen interactions demonstrated that Salmonella and S. aureus has had common and exclusive macrophage activation program. Defines the transcriptional responses of macrophages indifferent pathogens elicit the manipulation of the cell defences, which could be a useful reference for practical applications in designing vaccines and cytokinetherapies.
- Therapeutic targeting of P53 can be the solution for the antibiotic resistance which is one of the biggestpublic health challenges of our time according to the CDC. However, a further extensive study of the bacterial regulation of P53 hold promises to elucidate the fascinating interplay of microbial infection and tumorigenesis

Biography

A highly motivated and resourceful Clinical Microbiology Demonstrator at King Abdulaziz University, collage of Medicine. recently completed MSc in Microbiology from the University of Aberdeen, and I earned my Bachelor Degree in Medicine and Surgery (MBBS) from King Abdulaziz University, KSA. In JAN 2015. keen to start my PhD in a top tier university. currently, I'm assisting in the undergraduate teaching by demonstrating Microbiology laboratory skills for 2nd year students for the college of medicine.

Hector Javier Gallardo Valencia
Michoacana University, Mexico

Prevalence of toxoplasmosis in populations of tlacuaches (Didelphis Albiventris), in the municipality of morelia and its zoonotic relationship

Zoonotic diseases have always been of concern to humans, one of the most common is toxoplasmosis, a worldwide disease caused by the etiological agent Toxoplasma *gondii* (Carrada, 2005), which affects birds, mammals and man, Basso and Venturini (2009) mention that: "The infection has a variable clinical presentation according to the affected species and the individual immune status. In humans it is frequently subclinical, but it can cause fetopathies if primoinfection occurs during pregnancy, as well as ocular lesions due to transplacental or postnatal infection, and encephalitis in immunosuppressed individuals. " (Page 1) Now, given the zoonotic importance and the little clinical signology that is presented, it requires greater sanitary controls, especially in vectors that can often be wild animals that we cannot imagine; Therefore, a species that has not been taken into consideration as a transmitter of this disease can be tlacuache (Didelphis albiventris), which is a marsupial that is distributed from southeastern Canada to Costa Rica and in Mexico it can be located throughout the Republic except Baja California and the plateau north of Guanajuato (Portillo, L., 2008). Eating habits make it an important vector in the transmission of toxoplasma gondii, since they are omnivorous that feed on fruits, seeds, plant sprouts, insects and other invertebrates, but also on vertebrates such as rats, mice, snakes, amphibians, fish and carrion, also eats eggs, chicks of wild and domestic birds (Portillo, L., 2008). In the case of intermediate hosts, such as tlacuache, it is mainly infected with raw meat from other intermediate hosts containing viable forms of T. godii (tissue cysts, tachyzoites), by ingestion of water contaminated with oocysts. For this type of intermediate hosts the biological cycle is performed exclusively extraintestinal. Thus, the infectious forms penetrate different nucleated cells of the organism, multiplying as tachyzoites. In this period of rapid multiplication, in which the tachyzoites destroy the parasitized cells and spread within the host, being here where clinical manifestations occur. When the cells invade the host organism, they are mainly helped by a group of organelles that are located at the anterior end of the parasite called the Apical Complex that includes one or more electrodense polar dense rings, a cone, roptrias, micronema, dense granules and subpelicular microtubules. After this the parasites multiply more slowly, without destroying the host cell forming the tissue cysts, called bradyzoites, remaining viable for an indeterminate time, even during the whole life of the host (Basso, &Venturini, 2009). Ferraro (2012) mentions that toxoplasmosis was cataloged as a parasitic disease transmitted by foods of an emergent nature, caused by ingestion of raw or undercooked meat as a contaminant, which comes from parasitized intermediate hosts. But it is important to consider that natural water and soil, with cat feces (definitive host), are also considered as potential sources of infection, so that they can establish endemic cycles (Ferraro, 2012, p. 14) Based on the above, it is established the need to consider the population status of the population of Tlacuaches (Didelphis virginiana), in the municipality and the body condition, as well as the relationship it has as a vector in the transmission of toxoplasmosis in the population of the municipality of Morelia, with this the following objectives are established:

a) Characterize the relative density of the population of tlacuaches in the Municipality of Morelia.
b) Characterize the health status of the specimens.
c) Determine the prevalence of toxoplasmosis in populations of tlacuaches in the Municipality of Morelia, and
d) Determine the zoonotic degree of toxoplasmosis

What will audience learn from your presentation?

- Know the importance of American marsupials
- Know the population status of the American marsupials
- Importance of wild vectors in the presentation of zoonotic diseases
- Prevention of zoonoses caused by wild animals

Biography

Dr Hector Javier Gallardo Valencia studied Veterinary at the Michoacana University, México and graduated as MS in 2001. He has worked with wild species and private clinical with small animals. He received his PhD degree 1n 2015 at the Oviedo University. He obtained the position of an Associate Professor. He has published a several research articles.

Lydia Mbatidde*, Amir A, Bart M Demaerschalk, Abdirahim A Aden, Nan Zhang, Richard Butterfield, Rose Muhindo, Adrian Kayanja, Cumara B O Carroll

St Cloud State University, United States

HIV infection is an independent predictor of mortality amongst adult individuals with reduced level of consciousness in southwestern Uganda

The clinical epidemiology of adults admitted with reduced level of consciousness (LOC) in Sub-Saharan Africa (SSA), and the impact of HIV infection on the risk of mortality in this population is not known. We secondarily analyzed data from 336 individuals with reduced LOC and known HIV status, obtaining clinical, laboratory, and 30-day follow-up data. We recorded the investigations and treatments deemed critical by clinicians for patient care but were unavailable (unmet clinical need). We summarized patient characteristics, computed mortality rates, and used logistic regression to determine predictors of 30-day mortality. The mean age was 51 years. Reduced LOC was mostly associated with metabolic encephalopathy 106/336 (32%), CNS infections 93/336 (28%), and stroke 73/336 (22%). The median admission Glasgow Coma Scale was 10. Persons Living with HIV infection (PLWH) accounted for 97/336 (29%) of the cohort. Compared to HIV negative individuals, PLWH were younger and more likely to present with diarrhea, vomiting, headache, cough, anemia, and leukopenia. The thirty-day mortality rate in the total cohort was 159/359(45%), and this was significantly higher in PLWH(57%vs40%,adjusted OR [95% CI] 2.48 [1.35, 4.55], p=0.0033). Predictors of mortality on multivariable regression analysis were presence of any un met clinical need, serum potassium, HIV infection, andan admission FOUR Score <12. Presentation with reduced LOC in Uganda is associated with high mortality rates, with worse outcomes in PLWH. Expansion of existing acute care services and other required diagnostic studies may lead to better outcomes in this population.

Lessons to the audience:

The impact of HIV infection and the risk of mortality among patients who present with reduced level of consciousness. Factors that increase the risk of mortality among HIV positive individuals who present with reduced levels of consciousness.

What is unmet clinical need and its role in the survival of HIV positive patients who present with reduced level of consciousness?

Critical laboratory investigations to look out for among HIV positive patients who present with reduced levels of consciousness. Critical early interventions for HIV positive patients who present with reduced levels of consciousness that would improve survival.

Biography

Dr Lydia Mbatidde graduated with a Medical Degree from Makerere University College of Health Sciences Uganda in 2015. After Internship in August of 2016, she joined the Infectious Diseases Institute (IDI) until July 2018. While at IDI, Dr Lydia was a Project coordinator for the CDC funded Bunyoro HIV health systems strengthening project where she led a team of field stuff in the successful implementation of comprehensive HIV care and treatment in rural western Uganda. Dr Lydia Is currently working with another team of researchers in neuro HIV care as well as a Research Student at St Cloud State University.

Dr Hai V Le
University of California, United States

Retrospective epidemiological study

Background: In December 2019, SARS-CoV-2 or coronavirus disease 2019 (COVID-19) emerged from Wuhan, China. A global pandemic quickly unfolded, infecting>137 million people and causing >2.9 million deaths globally as of April 13, 2021. Before April 1, 2020, there were only five confirmed COVID-19 cases in Nepal. Like many countries around the world, the COVID-19 situation quickly escalated in Nepal. The purpose of this study was to determine the trends in COVID-19 cases and deaths in Nepal from April 2020 to March 2021.

Methods: We utilized epidemiological data from daily Situation Reports published by the Ministry of Health and Population (MOHP) of Nepal. Data were extracted or calculated from April 1, 2020 to March 31, 2021. Primary variables of interest were national and provincial daily cases, total cases, daily deaths, and total deaths.

Results: Between April 1, 2020 to March 31, 2021, there were 277,304 cases. October 2020 had the highest monthly cases with 92,926 cases. During the one-year study period, the infection rate was 915 cases per 100,000 people. The largest single-day new cases was October 21, 2020 with 5,743 cases, which is calculated to 19 cases per 100,000 people. There were a total of 3,030 deaths. The largest daily new deaths was November 4, 2020 with 43 cases. June 10, 2020 had the highest number of people in quarantine with 172,266 people. October 23, 2020 had the highest number of active cases with 46,329 cases. By March 31, 2021, the percent of mortality was 1.1%, active infection was 0.5%, and recovery was 98.4%. Men comprised 64.9% of cases (n=179,886), while women comprised the remaining 35.1% (n=97,418). The age groups 21-30 (26.8%), 31-40 (26.2%), and 41-50 (16.7%) were most affected by COVID-19. Of the 277,304 cases, 55.1% occurred in Bagmati. Bagmati had the largest infection rate of 2,764 cases per 100,000 people, while Province 2 had the lowest infection rate of 387 cases per 100,000 people.

Conclusions: Nepal had lower COVID-19 infection and case-fatality rates compared to other countries most affected by the pandemic. This was due to several factors, most notably early implementation of strict lockdown measures and closing of international borders on March 24, 2020 after the second confirmed COVID-19 case. As lockdown restrictions were lifted on July 7, 2020, COVID-19 cases and deaths in Nepal rose rapidly. As vaccination begun on January 27, 2021, cases started to slow down until the most recent outbreak coinciding with the second wavein its neighboring country, India. Now, infection and case-fatality rates in Nepal are at an all-time high, prompting further lockdowns on April 29, 2021.

Biography

Dr Hai V. Le is an orthopedist in Sacramento, California and is affiliated with UC Davis Medical Center. He received his medical degree from University of California San Francisco School of Medicine and has been in practice between 6-10 years.

Rajeev Soni
Rivaara, India

Development of molecular diagnostic kits for infectious diseases based on real time PCR

Real time PCR as a molecular diagnostic tool has really come of age and has become an essential technique for detection and quantification of infection for various diseases. However, there are still challenges that remain due to the sensitivity and specificity of various kits out there in the market. The factors contributing to these challenges are sample transport and integrity, efficient nucleic acid extraction from the sample, efficiency of master mix (including the enzyme used) and use of proper internal controls to ensure reliability of the data. We have managed to address these challenges and are in the process of developing kits for HBV, HCV, HIV, CMV, Dengue and Chickengunya in order to provide kits that can give accurate results and help clinicians decide the future course of action based on this information.

Biography

Rajeev Soni did his Master's in Biotechnology from the Jawaharlal Nehru University, New Delhi, India and his Ph.D. in Molecular Biology and Biotechnology from the University of Cambridge, U.K. He has more than 25 years of experience including industry and academia, both nationally and internationally. He has been accredited with the discovery of G1 cyclins in plants during his Ph.D., a discovery that changed the whole course of plant growth and development field. Rajeev's research has several patents to his credit including the patents on the development of a synthetic nuclease for bioterrorism applications while being at the Naval Research Lab in the USA. He has served as Associate Director, Biotechnology at Ranbaxy, where he was involved in drug discovery in the field of infectious and metabolic diseases. He also had a stint at entrepreneurship where he served as President and COO of PREMAS Biotech, a CRAMS organization for 6 years. Rajeev then joined as an Associate VP in Biocon where he was responsible for the Molecular biology aspects of various projects, in particular being Insulin Glargine. Thereafter, he served as the Head of Protein Engineering at Novozymes, where he researched on the engineering and application of enzymes for various industrial applications. His last assignment was as the Head of R&D and QC at RAS Life Sciences (a Biomerieux Company) in Hyderabad where his focus is on the development of PCR and Real-time PCR based diagnostic kits and cloning and expression of enzymes for research and diagnostic industries. He is currently the Head of Technical Operations at Genei Labs (a Rivaara Company) in Bangalore where he is focusing on development of molecular diagnostic kits as well as molecular biology research reagents and teaching kits for research. His specialization includes drug discovery research in the field of cancer and infectious diseases, molecular diagnostics, industrial biotechnology with a focus on enzyme engineering for various applications, development of protein expression systems in various organisms, fund raising, strategic planning and business development.

Ergys Ramosaco*, EntelaKolovani, Arben Rroji, Artur Xhumari, Arjan Harxhi, Najada Como

University of Medicine, Albania

Primary multiple cerebral hydatid cysts: An unusual case report in European

Introduction: Cystic echinococcosis is a zoonotic infection that occurs worldwide. Humans are infected through ingestion of parasite eggs in contaminated food, water or through direct contact with infected dogs, which are the definite host. Humans are accidental intermediate host, usually occur in children and young adults. Cystic echinococcosis is endemic in Mediterranean, South American, Middle Eastern, Central Asia, East Africa countries and Australia. The liver is the most common organ involved, followed by lungs. In the brain hydatid cyst have been reported only in 2% of cases. Primary cerebral hydatid disease is a rare entity, but should be considered in the differential diagnosis of cerebral lesions, not only in children, even in European countries, although it is not currently evidenced in these countries.

Objectives: The main of this purpose is to demonstrate a rare primary cerebral hydatid cysts, with obvious clinical symptoms and imaging findings, which is an unusual case report in European countries

Material: We describe the case of 22 years old female, which shows a primary multiple cerebral hydatid cysts, because we did not detect any other organs affected by the disease, in the imaging examinations re-evaluated during the stay or after exiting the hospital.

Results: In the RMI examination patient shows six supratentorial cerebral lesions, which were prescribed as lesions of intraparenchymalnonenhancinghypodense lesion with a well-circumscribed border and no pericystic edema. Respectively, one in the left frontal lobe (2.9x2.7 cm), one in the left fronto-parietal lobe (4.6x3.8 cm), one in the left temporo-parietal lobe (4.5x4.1 cm), one in right occipital lobe (3.1x2.7 cm) and two of them in right frontal lobe (4.3x3.9 cm, 3.0x2.7 cm) presented with presence of thin septa. Serological tests for hydatid disease was positive. The patient underwent 2 neurosurgical interventions, for a period of 2 weeks, for the removal of all cerebral hydatid cysts and was kept in ICU for few days, after each of them.Patient had fast neurological recovery. To prevent recurrence, the patient was put on therapy with albendazole, 400 mg x 2, per day.

Conclusions: Hydatid disease is often neglected, even in endemic areas or not early diagnosed till the lesions assumes an enormous size. It seems an dramatic and uncommon disease, but is a totally curable disease. Control and vaccination of the intermediate hosts is important to interrupt the transmission cycle ant to prevent humans infections.

Biography

Born in Vlora (Albania) 08/10/1972. Degree in Medicine at the University of Medicine of Tirana (Albania) in 1996 – 97 Accademic Year. Specialization in Infectious Diseases at the the University of Medicine of Tirana (Albania) in 2003. Doctor at the Infectious Diseases Clinic at University Hospital Center "Mother Teresa", Tirane (Albania) since 2008 till now. Pedagogue in Faculty of TechnicalMedical Sciences,TheUniversity of Medicine since 2004. Head of Clinic department in Faculty of Technical Medical Sciences,The University of Medicine since 2016. I act as a infectious diseases specialist in Infectious Diseases Clinic at University Hospital Center "Mother Teresa", and as consultant in several setting such as endocrinology chirurgical and neurologic clinic. I have published many scientific paper and presented numerous communications in national and international congresses.

Shyamapada Mandal*, Manisha Mandal
University of Gour Banga, India

Exploring the phytochemical based inhibition of PonA1 from mycobacterium tuberculosis by molecular docking, dynamic simulation and ADMET studies

Objective: To perform molecular docking of plant-based bioactive compounds against a class of penicillin-binding protein PonA1 from *Mycobacterium tuberculosis* causing tuberculosis in humans. This study also authenticated the stable protein-ligand binding by molecular dynamic simulation.

Methods: The 3D structures of Withania somnifera (in Bengali Ashawagandha) phytochemicals, such as viscosalactone B, withaferinA and withanolide A, were retrieved from PubChem (https://pubchem.ncbi.nlm.nih.gov/), and were used as the ligands. The crystal structure of PonA1(from Mycobacterium tuberculosis)was selected as target, and was downloaded from RCSB Protein Data Bank (https://www.rcsb.org/), in 3D form. We have docked the phytochemical ligands to MtPonA1, and the protein-ligand interactions were analysed. Kanamycin was used as the control. The pharmacokinetics profile of the phytochemical ligands (viscosalactoneB, withaferinA and withanolide A) were predicted in silico, and the structural authenticity of MtPonA1was determined through Ramachandran plot analysis.

Results: The docking analysis showed the highest binding affinity of with anolide A (binding energy −10.7kcal/mol),followed by viscosalactoneB (binding energy −9.2 kcal/mol) and withaferinA (−9.0kcal/mol), against MtPonA1. The binding affinity of with anolide A to MtPonA1was higher compared to the 2 other bioactive compounds, and hence the 'MtPonA1-with anolide A'complex and the free components of the docked complex (ligand and protein alone) were subjected to MDS, authenticating their stable binding, due to low binding free energy (−110.17 kJ/mol) with RMS deviation 0.15 nm and maximum RMS fluctuation 0.055 nm.Pharmacokinetics prediction revealed the acceptability of the ligands as drug-like compounds.

Conclusion: This in silico study suggests the usefulness of Withaniasomnifera derived bioactive chemical compounds as suitable leads to manage Mycobacterium tuberculosis infection causing deadly tuberculosis in humans.

Biography

Dr Shyamapada Mandal, Professor, Department of Zoology, and Dean (Faculty of Science), University of Gour Banga, India, is interested on infectious diseases, probiotics, genomics and bioinformatics research, and in silico drug development. He did pre-PhD, PhD, and post-PhD research under the guidance of Professor Nishith Kumar Pal at Calcutta School of Tropical Medicine, India. He has published 117 articles with eight book chapters.He is life member of IAMM and IASR, India, and fellow member of SASS, India. Eight national academic and research awards have been conferred to him. He has guided 52 post graduate students; supervised three MPhil and three PhD students. Professor Mandal is among the world's top 2% scientists as per the survey of the Stanford University, published in PLOS (Public Library of Science) Biology (October, 2020).

Pooyan Afzali Harsini
University of Medical Sciences, Iran

Coronavirus and public health lessons

Coronavirus disease 2019 (COVID-19), brought on by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), has become a world health emergency. As of December 14, 2020, more than 71,503,614 confirmed cases and more than 1,612,833 deaths have been reported worldwide .The World Health Organization (WHO) announced the outbreak in China in December 2019, and since then, it has rapidly spread throughout the world The COVID-19 epidemic has proven that health infrastructure in some countries is inadequate. Higher health literacy levels in a society prevent the outbreak of infectious diseases. In some countries, failure to pay attention to the preventive policies provided by the health system endangers the lives of people. Some countries neglect health care graduates, such as public health experts, resulting in a decrease in the level of health literacy in society. Excessive attention to treatment, particularly threshold treatment, has weakened the health system. In fact, the prevention policy has always preceded the treatment policy. However, there are several questions to answer, including 'is it possible to control the disease only by providing treatment?', 'can treat patients become infected again?', and 'does prevention have priority over treatment?'. If so, 'why do people, authorities, and volunteer groups ignore the importance of preventive measures?'; and 'why nobody knows public health experts, disease specialists, environmental and professional health engineers, and public health service providers?' Public health mission, Public health's longstanding mission is to 'prevent diseases, prolong life, and encourage health' through coordinated efforts across societies, associations, and communities. The general public health community has tirelessly worked to attain the mission of combating infectious and chronic diseases through research, implementing public health plans, health communication actions, and policy modifications. After the emergence of Middle East Respiratory Syndrome-related Coronavirus (MERS-CoV) in Saudi Arabia in 2012, Covid-19 is the next coronavirus epidemic that has affected the Middle East.

What will audience learn from your presentation?

- The audience learn how public health literacy can reduce the infectious disease burden in societies
- How public health infrastructures are important to control epidemics
- How nutrition can reduce the time being admitted to the hospital
- How will this help the audience in their job? Is this research that other faculty could use to expand their research or teaching? In this review, I searched important papers that can help to improve health knowledge for health professions about Covid-19

Biography

Pooyan Afzali Harsini, Bachelor of Public Health Kermanshah University of Medical Sciences, Health researcher

magnus Group

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Rosalie Walinsundin
Jose N. Rodriguez Memorial Hospital and Sanitarium, Philippines

COVID-19 in pediatric patients with hematologic malignancies: A case series

The pandemic caused by the novel Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has affected all age groups, including the pediatric populationin3–5% of all cases. The growing knowledge with regards to the diagnosis and treatment of COVID- 19 has pointed out that children are also vulnerable to the disease. And among the susceptible pediatric populations identified are those with hematological tumors who are immunosuppressed and have special therapeutic characteristics. The outcomes of patient with hematologic malignancy infected with COVID-19 have not beenaggregated.

This case series describes 5 patients ages 3 to 13 years old, 4 out of 5 with known hematologic malignancies and 1 undiagnosed case. All were co-infected with Sars-COV 2 virus with unknown exposure and were admitted to a COVID referral hospital from March2020 to May 2021. All of them presented with fever, with no other associated symptoms attributable to COVID 19, such as respiratory symptoms, difficulty of breathing, loss of smell or taste. Diagnostics done were complete blood count serial monitoring, inflammatory markers, septic and tumorlysisworkup. 4 out of 5 patients received antibiotic therapy and blood transfusion. As their COVID 19 infection resolved after 7 to 14 days of isolation, evidenced by a negative repeat Reverse Transcription Polymerase Chain Reaction(RTPCR) nasopharyngeal swab of Sars-COV2, it was surmised that their extended hospital stay could be attributed to the routine management and complications of the leukemia perse.

This case series highlights the demography, clinical course and outcome of pediatric patients diagnosed with hematologic malignancies with concurrent COVID-19 infection, who were admitted in a COVID referral center in Caloocan City.

Biography

Dr Walinsundin a graduate of Bachelor's degree in Medical technology as her pre-medicine course as well as her Medical Decree in Far Eastern University- Dr. Nicanor Reyes Medical Foundation, Philippines on 2017. She passed the medical board examination on 2018 and is currently a second year Pediatric resident in Dr. Jose N. Rodriguez Memorial Hospital and Sanitarium in Caloocan City, Metro Manila, Philippines.

Jyacinth Lucille Y. Siapno
Jose N. Rodriguez Memorial Hospital and Sanitarium, Philippines

A case series of tuberculosis in confirmed COVID-19 patients

The high prevalence of Tuberculosis (TB) worldwide and increasing burden of Coronavirus disease 2019 (COVID-19) is both a major health concern. Both are infectious respiratory diseases with common clinical signs and symptoms. However, limited studies have been reported on the concurrence of these two disease entities and their impact on the clinical course among pediatric patients. In this case series, eight (8) children diagnosed with tuberculosis, either pulmonary, extra pulmonary, or both, have been co-infected with SARS-CoV-2 virus. The age of the patients ranges from 7 months-18 years old and all were males. Body mass index (BMI) of the patients showed z-scores below <2. All patients had an unknown exposure to COVID-19 and three (3) had a history of pulmonary tuberculosis exposure. Five (5) patients presented with fever and cough, both common symptoms of COVID-19 and TB. TB diagnosis was based mainly on Xpert MTB/RIF, chest radiography (CXR) and computed tomography CT scan. On the other hand, COVID-19 diagnosis was based on the results of Reverse Transcription Polymerase Chain Reaction (RT-PCR) for SARS-CoV-2 from nasopharyngeal swabs. All patients have a common finding of pneumonia in their chest x-rays. 5 out of 6 patients showed pulmonary tuberculosis in Chest CT scan. All children were treated with antibiotics and anti-tuberculosis drugs. 7 out of 8 patients were discharged improved. This case series presents the demography, signs and symptoms, clinical course and treatment outcome of confirmed COVID-19 pediatric patients with tuberculosis co-infection admitted in a COVID-19 Referral Center from April 2020 to January 2021.

Biography

Dr Siapno studied B.S. Biology as her pre-medicine course and graduated at University of Santo Tomas, Philippines in 2012. She then finished Doctor of Medicine in 2017 at Far Eastern University- Nicanor Reyes Medical Foundation, Philippines. Currently, she is pursuing residency in Pediatrics at Dr. Jose N. Rodriguez Memorial Hospital and Sanitarium, Philippines.

Maria Joriselle Origenes-Manalo
Jose N. Rodriguez Memorial Hospital and Sanitarium, Philippines

Pediatric encephalitis in the setting of COVID-19: A case series

It was recently noted that, in addition to systemic and respiratory symptoms, a certain number of patients with COVID-19 develop neurological symptoms. In this case series, 3 children who presented initially with prominent neurological symptoms are described. All 3 patients had seizure, abnormal movements, and changes noted on cranial MRI. No guidelines regarding the treatment of these patients are published yet, and treatment options are currently based on limited case reports and small case series of adult and pediatric patients. In the present series, two of the patients were given IVIG, and all three had methylprednisolone. Although the course of illness of these patients were prolonged, the outcomes were very good, with which 2 out of 3 patients recovered completely several months afterdischarge.

Learning Points

- Encephalitis is not commonly encountered in clinics and hospitals. As of writing, there are only limited published studies on Encephalitis in children with COVID-19, making it quite a challenge when faced with such a case. This study may aid clinicians in the recognition, diagnostic investigations and management of pediatric patients with encephalitis, in the setting of COVID-19, enabling better care for these patients.
- This study provides an overview of how encephalitis affects our country, by providing information on what we currently know about the problem.
- This study also highlights the deficiencies in our current literature which may pave way for researchers to further examine the subject matter.

Biography

Maria Joriselle Origenes-Manalo studied Medicine at the Our Lady of Fatima University and graduated in 2017. She then had her internship at Fatima Univerity Medical Center. After passing the Physician Licensure Examination, she started her residency training at Dr. Jose N. Rodriguez Memorial Hospital and Sanitarium and is currently on her third year of training.

Jenalyn S Salasac
Jose N Rodriguez Memorial Hospital and Sanitarium, Philippines

COVID-19 in children with rheumatic heart disease: A case series

Background: Rheumatic Heart Disease (RHD) is the most commonly acquired heart disease in the young population, affecting morethan 33million persons around the world. The onset of the COVID- 19 pandemic has poseda significant challenge for this group of patients because they are highly vulnerable to respiratory infections and to the complications that can occur with signs and symptoms of both cardiac and respiratory conditions overlapping. COVID-19, which is primarily a respiratory infection, may potentially trigger worsening of symptoms of this group of patients, leading to heart failure decompensation. At the other end of the spectrum, the increased severity of RHD may also result to poor outcome and mortality of a COVID-19 patient. Not with standing the interplay of symptoms of the said diseases, this case series highlights the clinical courseand outcome of COVID-19 in children with RHD admitted at one of the COVID-19 referral centers in Metro Manila, Philippines.

Case Presentation Summary: This is a case series of three patients, two (2) female and one (1) male, aged 10 to 15 years old, who wereadmitted in a COVID-19 referral center from March 2020 to April 2021, diagnosed with RHD and reported to havecontracted COVID-19 after being tested through Reverse Transcription Polymerase Chain Reaction. Only one (1) outof our three (3) patients had fever upon admission. All patients showed common symptoms of COVID-19 which werecough and difficulty of breathing. They likewise experienced orthopnea which was one of the symptoms of RHD. Thecommon finding in their chest X-ray results was pneumonia which is a potential complication of COVID-19. Allpatients had elevated Anti-Streptolysin O and one had elevated white blood cells. The three (3) patients had elevated inflammatory marker such as C-Reactive Proteinand Erythrocyte Sedimentation Rate, butit was difficult to distinguish their primary cause because they were both present in RHD and COVID-19.Two(2)out of three(3)patients had more severe RHD as evidenced by having more heart valve damage and higher New York Heart Association classificationof heart failure. This is further supported by the longer stay in the hospital of one of the two patients due to furthermedical needs and the demise of the other patient as a result of congestive heart failure despite oxygen support, inotropes, medications, and high-quality resuscitative measures.

Learningpoints/Discussion: In this case series, the author describes the clinical course and outcome of COVID-19 infection in three (3)pediatric patients with RHD. While there are some international publications on the characteristics and clinical course of children diagnosed with RHD who contracted COVID-19, no studies on such subject matter have been published in the Philippines. Additionally, little is known thus far about the effect of COVID19 in children with RHD. At the outset, after prudentre search on the course of illness and outcome of COVID-19 on children with RHD, no local or international case reports and case series on the subject matter per se were found. What were only gatheredwere general reviews and studies on the risk factors of RHD for COVID-19. Due to the limited studies on theestablishment of the course of illness and outcome of COVID-19 on children with RHD, the notion that the increased severity of RHD may result to poor patient out come mortality should still be further studied.This case series may pavethe way for the conduct of an exhaustive research there on.

Biography

Dr Salasac graduated from Far Eastern University- Dr. Nicanor Reyes Medical Foundation, Philippines with the degree of Bachelor of Science in Medical Technology. She then took her Medical Degree in the same institution.After graduating, she had her post graduate internship at Department of Health - Philippine Centers for Specialized HealthCare. Currently, Dr.Salasacis on her 3rdyear of residency training, specializing in Pediatrics, at Department of Health-Dr.JoseN.Rodriguez Memorial Hospital and Sanitariumin Metro Manila, Philippines.

Tatenuma Katsuyoshi*, Kinase Yoshiaki, Endo Koichi, Spaziani Fabio, Yabuta Toshiyo, Takakuwa Hiroki, Otsuki Koichi

Kaken Inc, Japan

Iodox: A granular scatter disinfectant characterized by quick effectiveness and long-lasting durability. Application as a disinfectant against livestock infectious diseases and infectious pathogens

Since the end of 20th century, outbreaks of such emerging and re-emerging infectious diseases as avian influenza, classical swine fever (CSF), African swine fever (ASF), severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), and Coronavirus disease 2019 (COVID-19) have successively occurred in the world. These diseases are causing serious consequences both to animals and humans, and also triggered economic and social crises. Since all of these diseases are zoonosis, causative agents are transmitted from animals to humans, and it is needed to establish disease control strategies other than ones involving only human-to-human transmission. In Japan, since 1949, in compliance with the "Act on Domestic Animal Infectious Diseases Control", slaked lime has been used as exclusive treatment for livestock quarantine (and now 70 years have passed). Although its efficacy due to the strong alkalinity is acknowledged, after spread in the environment slaked lime readily reacts with carbon dioxide in the air (carbonation), undergoing a pH decrease and a fall of disinfection efficiency. Therefore, the development of an alternative disinfectant capable to overcome the disadvantages of slaked lime is an important challenge. In order to achieve this objective, we produced an innovative disinfectant material called Iodox, made by binding iodate on volcanic pumice rocks pebbles (for example Hyuga-Soil, Kanuma-soil, etc.). Such pebbles, being commonly used for gardening, are cheap and an all-natural component for our material. Iodox disinfectant shows a long-lasting sanitizing efficiency (antibacterial and antiviral) when exposed to air, which is not compromised if short rains occur. Indeed, even if the disinfectant component of Iodox elutes from the pebbles due to rainfall, the sanitizing function persists since it will bind to the surrounding soil. According to the test conducted on the H5 avian influenza virus, Iodox can reduce the viral titer to 1/10,000,000 in just 10 minutes. Our research showed that novel approaches and strategies can be applied to the management and the control of infectious diseases spreading. In addition to farming and veterinary medicine purposes, Iodox may be applied to human medicine applications and environmental hygiene.

What will audience learn from your presentation?

- Biochemical properties of Iodox disinfectants
- Fields of application and uses of Iodox disinfectants
- Applicability of Iodox treatment in zoonotic diseases management

Biography

Dr Tatenuma Katsuyoshihas been managing Kaken Inc.,a research and developmental company in the chemical field, in Mito Japan, for 40 years over. The favorite R&D fields of Dr. Tatenuma are mainly chemical analysis, nuclear medicine and its materials, and recently he is developing a new type of disinfectant and environmental purifier materials.

Flavien Marguerie*, Bassotti Gabrio, Marconi Pierfrancesco, Fettucciari Katia
University of Perugia, Italy

Molecular mechanisms involved in TNF-a and IFN-γ enhancement of apoptosis induced by clostridioides difficile toxin B in enteric glial cells

Introduction: Clostridioides difficile (C. difficile) is the leading cause of hospital/antibiotic-associated diarrhoea and pseudomembranous colitis, with dramatic incidence/mortality worldwide. C. difficile produces two toxins, Toxin A and B (TcdB) which cause cytopathic/cytotoxic effects and inflammation in different cell types and TcdB is generally more potent (1000-fold) than TcdA. Recently, we have demonstrated that also enteric glial cells (EGCs) are susceptible to TcdB cytotoxicity, and that inflammatory cytokines (TNF- plus IFN-) increased apoptosis of EGCs induced by TcdB, which was correlated with an increased caspase-3, -7, -9 and PARP activation without changes in Bax and Bcl-XL expression. These results were suggestive because: a) TcdB lead to pro-inflammatory activity, b) cells localized in the intestinal wall, including EGCs, are subjected to the action of the TcdB in a environment characterized by pro-inflammatory cytokines such as IL-1 , TNF- and IFN- ; c) EGCs, which are key regulators of enteric nervous system, gut homeostasis, the immune and inflammatory responses, and digestive and extradigestive diseases, could undergo an enhancement of the cytotoxic activity by the synergistic interaction of TcdB with pro-inflammatory cytokines. Therefore, we analyzed the role of proteases (caspases, calpains and cathepsins) in the enhanced susceptibility to apoptosis of EGCs induced by TcdB plus TNF- and IFN- .

Methods: Rat-transformed EGCs were treated with 0.1ng/ml TcdB for 1.5h then stimulated for 24h with TNF- (50ng/ml) plus IFN- (50ng/ml). In some experiments, the cells were pretreated with proteases inhibitors BAF (pan-caspase inhibitor), z-DEVD-fmk (effector caspase inhibitor) z-IETD-fmk (caspase-8 inhibitor), PD150606 (calpain inhibitor) or CA-074Me (cathepsin B inhibitor). After 24h were analyzed: the percentage of apoptosis by flow cytometry, the caspase-3 and PARP activation by western blot.

Results: Apoptosis induced by TcdB plus TNF- and IFN- (TcdB+CK) was prevented by BAF, strongly reduced by PD150606, only partially reduced by z-IETD-fmk and CA-074Me indicating that apoptosis is caspase-, calpain- and cathepsin-dependent. The involvement of calpains was confirmed by analysis of fragments of α-spectrin specifically generated by activation of calpains. Indeed, TcdB alone and TcdB+CK induced a strong activation of calpains and also of caspases and the use of PD150606 reduced the generation of both α-spectrin fragments, suggesting that calpains are also involved in caspase activation. We found that caspase-3 activation was strongly increased by TcdB+CK in EGC (2-fold increase) and was significantly inhibited by PD150606 and Z-IETD.fmk, not affect by z-DEVD-fmk and increased by BAF. PARP activation was significantly inhibited by all inhibitors used. Surprisingly, the cathepsin inhibitor CA-074Me increased caspase-3 and PARP activation.

Conclusions: These results indicate that the enhanced susceptibility of EGCs to TcdB induced apoptosis byTNF- and IFN- is mediated by caspases, calpains, and cathepsins that which mutually regulate their activation and the activation of the final effectors. These data could have important implication for C. difficile infection in vivo and could offer a rational for interventions of regulation/modulation of pro-inflammatory responses during this infection.

What will audience learn from your presentation?

- These data highlight a new possible mechanism of pathogenesis of Toxin B of C.difficile.
- They offer a rational for interventions of regulation/modulation of pro-inflammatory responses during C. difficileinfection.
- This research must also extend to the possible involvement of other pro-inflammatory cytokines such as IL-1, IL-6, and IL-8 in the pathogenesis of Toxin B of C.difficile.

Biography

Flavien Marguerie graduated with a Master's in fundamental biology course in Physiology, Immunity, Differentiation and Genetics at the University of Caen Normandie, France in 2018. Then, he joined the PhD course "Systems Biology in Immune and Infectious Pathologies" of the University of Perugia, Italy. He is carrying out his research activity at the Biosciences & Medical Embryology Section, Department of Medicine and Surgery supervised by Dr. Katia Fettucciari. He is studying the molecular mechanisms responsible of the increase susceptibility of enteric glial cells to cytotoxic effects of Clostridioidesdifficileoxin B in synergy with proinflammatory cytokines (TNF-α and IFN-γ).

Spaziani Fabio*, Yabuta Toshiyo, Takakuwa Hiroki, Otsuki Koichi, Kinase Yoshiaki, Tatenuma Katsuyoshi,

ENEA, C R Casaccia, Italy

Applications of an iodine-based disinfectant with immediate and long-lasting efficiency. Avianinfluenza virus inactivation effect by iodine-doped activated carbon

Since the end of 20th century, outbreaks of such emerging and re-emerging infectious diseases as avian influenza, classical swine fever (CSF), African swine fever (ASF), severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), and Coronavirus disease 2019 (COVID-19) have successively occurred in the world. These diseases are causing serious consequences both to animals and humans, and also triggered economic and social crises. Since all of these diseases are zoonosis, causative agents are transmitted from animals to humans, and it is needed to establish disease control strategies other than ones involving only human-to-human transmission. In Japan, since 1949, in compliance with the "Act on Domestic Animal Infectious Diseases Control", slaked lime has been used as exclusive treatment for livestock quarantine (and now 70 years have passed). Although its efficacy due to the strong alkalinity is acknowledged, after spread in the environment slaked lime readily reacts with carbon dioxide in the air (carbonation), undergoing a pH decrease and a fall of disinfection efficiency. Therefore, the development of an alternative disinfectant capable to overcome the disadvantages of slaked lime is a crucial priority. We replied to this urgency by producing an innovative material called IodAC, characterized by a high concentration of elemental iodine stably impregnated on activated carbon. The disinfecting components, indeed, do not volatilize up to 150°C and do not easily elute if the material is soaked in water. IodAC has a proven long-lasting antiseptic efficiency bacteria and viruses are trapped in the pores of activated carbon granules, where elemental iodine, having a very broad antimicrobial spectrum, kills them.As reported by our laboratory experiments on the H5 avian influenza virus, IodAC showed the ability to reduce the viral titer to 1/10,000,000 in 10 minutes. IodAC has the potential to be employed to control livestock infectious zoonoses by using it as feed additive (for example, adding it to poultry feed to prevent avianinfluenza). Indeed, IodAC will inactivate the pathogens directly inside the intestinal tractof the animal, according to the abovementioned attributes of the material, and, lastly, will be expelled with the feces. These results open up a wide range of applications in the life sciences and medical technology (both veterinary medicine and human medicine).

What will audience learn from your presentation?

- Biochemical properties of iodine-doped activated carbon
- Application fields of iodine-doped activated carbon
- New prospects for zoonotic diseases management

Biography

Dr Spaziani studied Environmental Sciences at the Tuscia University (Viterbo, Italy). From 2004 to 2011 he joined the Environmental Chemistry research group of ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development) in Roma (Italy). He received his Ph.D. degree in 2010. From mid-2011 to late-2018 he worked in Japan and joined the research group of Kaken Inc. in Mito, where he focused on the development of innovative materials for environmental and nuclear-fusion energy applications.

Tatenuma Katsuyoshi*, Natori Yuri, Yano Makiko, Kinase Yoshiaki, Spaziani Fabio

Kaken Inc, Japan

Iodox-spray: A versatile and multipurpose spray disinfectant. Anti-bacterial, anti-viral, anti-fouling, antimold applications, for pathogen-free environments

During history, numerous infectious diseases have emerged, and human movements always played a key role in the spread of pathogens. Therefore, since in recent years, from daily local commuting to long-range international travels, we are experiencing a continuous growth of human mobility, guaranteeing safe and pathogen-free environments is extremely important. Moreover, pathogens can survive on the surfaces for a prolonged time, then effectiveness and long-lasting sanitation ability are the crucial characteristics of an ideal disinfectant. Chlorine-based sanitizers, such as hypochlorites, are the most commonly employed (typically used as a spray). However, although effective, they show a merely short-term (momentary) disinfection efficiency. Iodate is a compound having a wide range of application opportunities, thanks to its chemical and biological properties. Indeed, it can act as an oxidizing agent, has antibacterial, antiviral, antifouling, antimould, deodorizing characteristics. Iodate is consequently suitable to control the spreading of infectious diseases. According to our researches, it can be bound as an example to volcanic rock pebbles (to be used as granular scatter disinfectant), or to floor-mat fibers (to be used as a disinfectant of the soles of shoes at airports). Here we introduce Iodox-spray, an innovative disinfectant material based on iodate and developed as a sprayable liquid. Being a spray, it can be easily applied practically on any surface. Our tests, carried out on many types of surfaces and pathogens showed an efficient and enduring sanitizing potential Moreover, Iodox-spray is also suitable as an outdoor environment disinfectant, and this application especially highlights the long-lasting efficiency. Indeed, the iodate component can bind to the soil grains elements (such as calcium), where it will be retained long enough to assure durable disinfectant effectiveness. Iodox-spray can be also used to avoid mold outbreak. It can be applied to walls or on building panels. Due to its composition, Iodox-spray does not damage the surface where it is applied, therefore it can be used also on valuable materials (such as historical walls or marble).

What will audience learn from your presentation?

- Chemical reactivity of iodate and Iodox-spray characteristics
- Multipurpose potentials of Iodox-spray disinfectant for pathogen control
- Applicability of Iodox-spray disinfectant in the management of indoor and outdoor environment hygiene

Biography

Dr Tatenuma Katsuyoshi has been managing Kaken Inc., a research and developmental company in the chemical field, in Mito Japan, for 40 years over. The favorite R&D fields of Dr. Tatenuma are mainly chemical analysis, nuclear medicine and its materials, and recently he is developing a new type of disinfectant and environmental purifier materials.

Spaziani Fabio*, Tomohiko Kawakami, Natori Yuri, Kinase Yoshiaki, Tatenuma Katsuyoshi

ENEA, C R Casaccia, Italy

Iodine-doped activated carbon as innovative tool for water sanitation and treatment

Access to safe drinking waters is essential to health. Contaminated water can carry various hazardous agents, from pathogens to contaminants (both inorganic and organic), resulting in a wide span of diseases ranging from diarrhea to serious problems such as increased risk of cancer. Sometimes, the hazard has a natural origin, so it is not the result of lack of hygiene; it is the case of arsenic, that can naturally occur in groundwater as a consequence of particular geological conditions. Water are routinely analyzed by local administrations in developed countries. However, in order to ensure that drinking water standards are met, treatment is sometimes necessary (such as removal of arsenic in the area where it naturally occurs). Moreover, due to natural disasters, such as earthquakes and floods, safe water may be unavailable or may become suddenly contaminated. Above all, special attention must be paid for the developing countries, where the low wealth conditions strongly restrict access to efficient and advanced sanitation and treatment technologies. An ideal water treatment technology should be effective and easy to use, in order to be applicable in any area and conditions. To meet such requirements, we propose an innovative technology based on iodine-doped activated carbons (IodAC). The iodine can inactivate human viruses and kill bacteria, assuring a sanitation power. In addition, the oxidizing power of IodAC promotes the conversion of the water dissolved arsenite to arsenate, which is the arsenic chemical form easiest trapped by adsorber beds (that have proven to be the most reliable and easiest dearsenification method). Iron-based adsorbents have low cost and offer promising results for arsenic removal; therefore, the water treatment by IodAC followed by iron-impregnated activated carbon, combined in a top-down system, represents a well-organized and complete solution for water purification. In addition, the solid shape of IodAC also assures easy handling, transport and also safety, since the use and dosage of potentially harmful chemicals (such as NaClO or Chlorine) is not necessary. IodAC can be both implemented in small-scale and large-scale water treatment plants. It can also be used to manufacture portable and emergency treatment devices, including "on the fly" water sanitizing cartridges, therefore it also suits applications in remote areas and developing areas.

What will audience learn from your presentation?

- Iodine-doped activated carbons can be used to produce safe drinking waters.
- Iodine-doped activated carbons canbe used to reduce the reduce the spread of waterborne diseases.
- Iodine-doped activated carbons can be used in developing countries and in emergency scenario management (such as natural disaster area).

Biography

Dr Spaziani studied Environmental Sciences at the University of Viterbo (Italy). From 2004 to 2011 he joined the Environmental Chemistry research group of ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development) in Roma (Italy). He received his Ph.D. degree in 2010. From mid-2011 to late-2018 he worked in Japan and joined the research group of Kaken Inc. in Mito, where he focused on the development of innovative materials for environmental and nuclear-fusion energy applications.

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