10th International Conference on

Infectious Diseases, Bacteriology and Antibiotics

May 24-25, 2023 | Webinar

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Prevalence of antibiotic resistance genes in the oral cavity and mobile genetic elements that disseminate antimicrobial resistance: A systematic review

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Statement of the Problem: Across Europe in 2015, 33110 death were attributed to antibiotic resistant bacterial infections. UK dentists are responsible for 10% of all antimicrobial prescriptions and so appropriate prescribing to limit the spread and development of antimicrobial resistance is essential. Purpose of this study: To determine the prevalence of all known antibiotic resistance genes (ARGs) in the oral cavity and review what mobile genetic elements (MGEs) are important in disseminating them. Methodology: Studies describing the prevalence of ARGs in the oral cavity and the methods of spread of antimicrobial resistance were identified in the electronic databases Embase, Medline and the Cochrane Library using 'free text' and 'MeSH' terms from January 2000 to November 2020. Other journals were hand searched. Primary and secondary screening was completing using inclusion and exclusion criteria. Findings: From 1509 articles identified, 44 met the selection criteria. The most prevalent ARG in the oral cavity was tet(M). The mode of birth and a child's environment in early life can influence which genes are obtained. Countries with higher consumption of antibiotics generally have higher numbers of ARGs. Enterococcus faecalis is a reservoir of resistance especially in root canals indicating the need to consider other approaches in dentistry like CRISPR-Cas and phage therapy to remove ARGs. Poor oral hygiene can select for more pathogenic bacteria that carry ARGs, which can transfer to pathogenic organisms. The most common MGE that transfers ARGs is the conjugative transposon Tn916. Conclusion & Significance: 50% of the studies in the review were low quality. Recommendations for future work include: use of larger sample sizes, investigation of a broader range of ARGs, improved methodologies and reporting to improve quality of genetic testing in microbiology, randomization of subject selection.

Biography

Laura completed her undergraduate dental training at King's College London in 2010 and has since worked in general dental practice in the NHS in the UK and private practice abroad in Australia and Singapore as well as completing dental core training in Maxillofacial Surgery and Restorative Dentistry. In 2016 she completed a MSc in Conservative Dentistry from the Eastman's Dental Institute, University College London and is currently working in the Community Dental Service in East London as a senior dental officer.

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Substantial Efficiency of the Novel Spiramycin/Propolis Loaded Chitosan/Alginate Nanoformulation in the Treatment of Acute Experimental Toxoplasmosis

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Seventy-five male Swiss albino mice were divided into eight groups: normal uninfected control (I), infected untreated control (II), infected treated with spiramycin (III), infected treated with propolis (IV), infected treated with CS/Alg NPs (V), infected treated with spiramycin loaded CS/Alg NPs (VI), infected treated with propolis loaded CS/Alg NPs (VII) and infected treated with spiramycin/propolis loaded CS/Alg NPs in a dose of 400 spiramycin/150 propolis mg/kg/day. Except normal uninfected control, all mice were infected intraperitoneally with 2500 T. gondii RH strain tachyzoites. To assess the efficacy of the used drugs; parasite count in liver, spleen and brain as well as morphological study of tachyzoites via scanning electron microscope (SEM) were done.

Biography

Nancy Abd El-Kader Hagras received the B.Sc in Pharmacy and Biotechnology, from German University in Cairo, Egypt in 2010. She received the M.Sc and Ph.D degrees in Applied and Molecular Parasitology, Alexandria University, Egypt, in 2014 and 2018 respectively. She is currently an Assistant Professor in Pharos University in Alexandria. Her research interests cover several aspects across parasitology, nanotechnology and molecular biology aiming to create new diagnostic and treatment pathways in order to improve the health and wellbeing.

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Management of Infectious disease outbreak related to future CBRN threats and events

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Infectious disease management of future CBRN events aims at taking measures to reduce the outbreak of biological threats. The current approaches against these threats include establishing efficient and coordinated surveillance systems, ensuring rapid coordination of different communications, detecting and identifying various biological threats which can be due to accidental or intentional exposure of various infectious diseases. These approaches are beneficial but several limitations were observed including logistic challenges, delayed research of potential biological threats in the future, inadequate training, lack of global plans in addressing the epidemic and scarcity of specialized equipment. These constraints decrease the success of prevention and management of future biological threats. Emergency management including four components such as prevention, preparedness, response and regeneration and hospital disaster plan during any CBRN event have been developed for risk management. Here we have highlighted application of various strategies at national and international level that have been developed to overcome the limitations observed up till now due to lack of research in these areas. In the conclusion, effective management policies are needed focusing on intelligence, biodefense and investigation against various biological attacks. Risk assessment is required for mitigating future emergence of infectious diseases and their impact at economic and social level and also the psychological impact of these threats on general population are some of the concerns that needs to be addressed in the future.

Biography

Dr. Shivi Uppal has completed her MBBS (Bachelor of medicine and bachelor of surgery) at the age of 24 years from school of medical science and research, greater Noida. She is currently working as researcher at INMAS (Institute of nuclear medicine and applied sciences), Ministry of defence, India. She published 3 international publications and recently self-published her book 'Autoimmune diseases early diagnosis and remission'. She is also part of module writing as author on 'CBRN' at INMAS hospital and working as junior doctor. She recently won the best paper award at national conference on topic 'Current strategies for prevention and treatment of acute radiation syndrome in CBRNe disasters'.

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Phylogenetic Groups, Pathotypes and Antimicrobial Resistance of Escherichia coli Isolated from Western Lowland Gorilla Faeces (Gorilla gorilla) of Moukalaba-Doudou National Park (MDNP)

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Terrestrial mammals in protected areas have been identified as a potential source of antimicrobial-resistant bacteria. Studies on antimicrobial resistance in gorillas have already been conducted. Thus, this study aimed to describe the phylogroups, pathotypes and prevalence of antimicrobial resistance of Escherichia coli isolated from western lowland gorilla's faeces living in MDNP. (2) Materials and Methods: Ninety-six faecal samples were collected from western lowland gorillas (Gorilla gorilla) during daily monitoring in the MDNP. Sixty-four E. coli isolates were obtained and screened for phylogenetic and pathotype group genes by polymerase chain reaction (PCR) after DNA extraction. In addition, antimicrobial susceptibility was determined by the disk diffusion method on Mueller Hinton agar. (3) Results: Sixty-four (64%) isolates of E. coli were obtained from samples. A high level of resistance to the beta-lactam family, a moderate rate for fluoroquinolone and a low rate for aminoglycoside was obtained. All E. coli isolates were positive in phylogroup PCR with a predominance of A (69% ± 11.36%), followed by B2 (20% ± 19.89%) and B1 (10% ± 8.90%) and low prevalence for D (1% ± 3.04%). In addition, twenty E. coli isolates (31%) were positive for pathotype PCR, such as EPEC (85% ± 10.82%) and EPEC/EHEC (15% ± 5.18%) that were obtained in this study. The majority of these MDR E. coli (DECs) belonged to phylogenetic group A, followed by MDR E. coli (DECs) belonging to group B2. (4) Conclusion: This study is the first description of MDR E. coli (DECs) assigned to phylogroup A in western lowland gorillas from the MDNP in Gabon. Thus, wild gorillas in MDNP could be considered as asymptomatic carriers of potential pathogenic MDR E. coli (DECs) that may present a potential risk to human health.

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Dengue Clinical Approach and treatment in Times of Pandemic

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Background: Dengue is a major mosquito-borne viral disease, with an important feature that is hyper endemic in Colombia, with a higher incidence rate in each major outbreak. , Dengue case fatality rates (CFR) ranged from 0.051 to 0.161 between 2012 and 2020. Although death rates since 2015 have been higher in those over 65

Methods: Structuring the diagnosis and treatment of dengue with warning signs and severe dengue, The duration of unusual fever in the course of a suspected dengue can be considered as a warning sign for the identification of a confection

Results: In triage, patients with Dengue with warning signs (DCSA) should be prioritized for the risk of progressing to shock Requires attention and treatment in a time less than 30 minutes. The patient with dengue who presents warning signs should not wait for the result of laboratory tests (blood count) or cabinet to start treatment, Early and immediate parenteral hydration Parameters to be evaluated during the critical phase: Warning signs Vital signs Hemodynamic status Diuresis Modify do Fluid systems according to the patient's response Everything should be recorded in the clinical record, The goal of hospitalization: Management of existing hypovolemic, Prevent imminent compensated shock and consequently irreversible shock, Prevent complications and death

Conclusions: Improvement is indicated by: Progressive disappearance of warning signs, Progressive remission of general symptoms, Stable vital signs, Normal or increased diuresis, Good tolerance to the oral route, Recovery of appetite, Decrease of hematocrit below the base value in a stable patient (does not replace the presence of all previous clinical findings

Biography

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