Occurrence of AmpC beta-lactamases among MDR gram negative urinary tract isolates in Nepal

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Objectives: AmpC beta-lactamases are clinically important cephalosporinases that confer resistance to wide variety of beta-lactam drugs, which result in considerable treatment failure and cannot be detected by routine antibiotic sensitivity screening methods. Research was designed to estimate emergence of AmpC beta-lactamase (AmpC) producing strains among multi-drug resistant (MDR) urinary tract isolates in Nepal.

Methods: 2837 urine samples were obtained for culture from clinically suspected urinary tract infection (UTI) patients from July, 2005 to March, 2007. Isolates were tested to detect antibiotic susceptibility. MDR gram negative isolates were screened for AmpC producers by modified double disk approximation method (MDMM) and confirmed by three dimensional extract method as described by American Society for Microbiology (ASM) and National Committee for Clinical Laboratory Standard (NCCLS).

Results: Among 2837 urine samples, 31.4% (891/2837) had significant bacterial growth with B25 (92.6%) non-revert gram-negative isolates. Out of gram-negative isolates 67.1% (554/825) were MDR. 5.4% (30/554) of MDR were AmpC positive. Among Individual MDR isolates species, E. coli, 8.3% Klebsiella, 3.1% Pseudomonas and 4.0% Proteus were AmpC producing.

Conclusion: These data confirm that AmpC is emerging cause of MDR in Nepal. We need to subject these strains for genetic study to acquire genetic make up. Failure to detect AmpC can contribute their uncontrolled nosocomial transmission, therapeutic failures and increased cost of management. Our results suggest to start screening of AmpC among MDR gram negative isolates in routine hospital practices in order to guide the choice of empirical therapy for such infections.

Phytochemical and antibacterial studies on the seed coat of Detarium microcarpum Guill and Sper

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Objectives: To investigate the antibacterial and phytochemical properties of the seeds coat of Detarium microcarpum. 

Methods: Extraction was by exhaustive cold maceration in 90% aqueous methanol. Silica gel 60G TLC separation done with Butan-2-one: chloroform: acetic acid: water (40:40:2:1v/v) as mobile phase. Bands were visualised in daylight and UV light. Band B1 was further purified by precipitating with acetone to obtain the acetone soluble A5 and insoluble AP isolates. Phytochemistry was by using standard phytochemical screening reagents, and UV spectroscopy. Antibacterial screening was by the agar diffusion method.

Results: On TLC, the ES fraction gave eight constituents B1 (Rf=0.000), B2 (Rf=0.079), B3 (Rf=0.250), B4 (Rf=0.286), B5 (Rf=0.500), B6 (Rf=0.686), B7 (Rf=0.814), and B8 (Rf=1.000). B1 contained steroidal saponins and the lead optimisation of Mr Okposo of the University's Pharmaceutics Department.

PP-015 Sika deer as a new source of human infection by brucella

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Background: The prevalence of brucellosis is increasing in China over the past several years. The purpose of this study was to investigate whether the sika deer serves as a source of human infection by brucella in Jilin Province of Northeast China.

Methods: Brucellosis was diagnosed in 57 patients during the periods from June 2007 through December 2008 in our hospital. The sources of infection and routes of transmission were investigated. Blood samples from these patients and 6 sika deer were obtained for Brucella antibody testing and cultivating bacteria.

Results: Of the 57 patients, 3 (1 man and 2 women) were sika deer breeders. They were from two families, and each family has a herd of approximately 60 sika deer. They observed several abortions in their deer before they were sick. All 3 patients had prolonged intermittent fevers, night sweats, body aches, arthralgia, and weakness. Blood samples from these patients were negative for brucella culture, but positive for brucella antibodies in the agglutination test. In the 6 relevant sika deer (3 males and 3 females) examined, 1 presented with orchitis, 1 had right knee arthritis, and 1 showed progress body weight loss. However, all 6 sika deer were positive for brucella antibodies as determined by an agglutination test, and 1 of them was also positive for brucella bovis in the blood culture.

Conclusion: Sika deer can be infected with Brucella bovis, and serve as a bacteria reservoir and transmit the infection to human in Northeast China.

PP-016 Molecular epidemiology of Pseudomonas aeruginosa in a burn unit, Tehran

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Background: The burn wound represents a site susceptible to colonization of opportunistic pathogens, e.g. Pseudomonas aeruginosa. This study was planned to investigate drug susceptibility and routes of transmission by molecular epidemiology in P. aeruginosa isolated in a Burn unit.

Methods: To study the drug susceptibility and molecular epidemiology of P. aeruginosa colonization in the burn unit of Shahid Motahhari Hospital (Tehran), 127 clinical and 2 environmental P. aeruginosa isolates were collected during 6 months. All P. aeruginosa isolates were analyzed for drug susceptibility by the agar diffusion method and molecular epidemiology assessment were done by random amplified polymorphic DNA (RAPD) analysis.

Results: Drug susceptibility tests were shown high resistance for cefotaxime (86.8%), aztreonam (80.6%), kanamycin (79.8%), tetracycline (78.3%), and ceftazidime (75.2%), furthermore, high susceptibility for some antibiotics like imipenem (69.8%), piperacillin/tazobactam (65.9%), and amikacin (58.9%) was showed. In this study, 42 multidrug-resistant (MDR) P. aeruginosa isolates were recovered from clinical specimens and also, one isolate was recovered from environment. Molecular typing revealed eight different profiles that include two profiles, RAPD1