Prevalence of antiseptic resistance genes in *Staphylococcus aureus* and coagulase-negative staphylococci from ATM machine in Hong Kong

M. Zhang1,*, M. Boost1, M. O’Donoghue2, 1Department of Health Technology & Informatics, the Hong Kong Polytechnic University, HKSAR, China, 2School of Nursing, the Hong Kong Polytechnic University, HKSAR, China

**Background:** Widespread use of antiseptic agents has led to the emergence of *Staphylococcus aureus* and coagulase-negative staphylococci (CNS) with decreased antiseptic susceptibility. This has been associated with the presence of several genes including qacA/B and smr. This study determined the prevalence of antiseptic resistance genes in *S. aureus* and CNS from ATM machine.

**Methods:** Swabs were collected from 400 ATM machines, cultured for the presence of *S. aureus* and CNS and identified by standard methods. PCR was used to detect 16S rRNA genes for staphylococci, MeCA, qacA/B and smr. Univariate analyses were used to compare the prevalence of antiseptic resistant gene among different isolates.

**Results:** 15.5% (62/400) of ATM machines were contaminated with *S. aureus* and 95.3% (381/400) with CNS. Overall MRSA carriage rate was low (0.5%, 2/400) with one SCCmed type IVa and one type V. There was a higher prevalence of qacA/B (26.0%, 99/381) and smr (13.9%, 53/381) in CNS compared to *S. aureus* (11.3% in qacA/B, 1.6% in smr). There was a significantly higher prevalence of qacA/B (27.3%, 27/99) in MRCNS strains than 11.7% (33/282) in MSCNS isolates (p < 0.05). Likewise, higher prevalence of qacA/B (28.6%, 2/7) in MRSA compared to MSSA (0%).

**Conclusion:** This is the first report of antiseptic resistance genes in environmental isolates outside the hospital. Both qacA/B genes and smr genes had higher prevalence in CNS than in *S. aureus*. The increased proportion of antiseptic resistance gene positivity in meCA positive isolates suggests co-selection of these genes. Contamination of ATM machines with strains with reduced antiseptic may increase risks of infection in the community. Increasing resistance to antiseptics, especially in MRSA may increase difficulties in infection control in the environment.

Etiology and antibiotic resistance patterns in urinary tract infections among Nepalese patients

J.L. Pathak1,*, P. Deo1, I.L. Shrestha2, 1Department of Clinical Test and Diagnostics, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Hubei, China, 2Department of Clinical Microbiology, Siddhi Polyclinic Research Lab, Kathmandu, Nepal

**Objectives:** Urinary tract infections (UTIs) are the most common infections in outpatients and hospitalized patients. Multi Drug Resistant (MDR) and Extended-Spectrum β-Lactamase (ESBL) producing bacteria are leading to inappropriate use of antibiotics and treatment failure. We aimed to study the etiology and antibiotic susceptibility patterns of bacterial isolates from UTI patients in Nepal as well as identification of ESBL producers among them.

**Methods:** A prospective study was carried out over 22 months (03–2006 to 07–2008) at Siddhi Polyclinic Research Lab, Nepal. Urinary isolates from symptomatic UTI cases from different tertiary level hospitals were identified, and antimicrobial susceptibility testing was performed by following the manual of American Society for Microbiology. Isolates resistant to third generation cephalosporin were tested for ESBL production by double disk combination test method.

**Results:** Out of the 1745 tested sample 466 samples showed growth of pathogens among which the most prevalent were *E. coli* (65.8%) followed by *Klebsiella* spp. (13.9%). 69.7% of the isolates were from female (P = 0.05), while the remaining were from male. Ampicillin and co-trimoxazole were highly resistant among the Gram-negative and cloxacillin was highly resistant among Gram-positive isolates. Drugs which retained effectiveness for Gram-negative isolates were amikacin and nitrofurantoin. Similarly gentamycin and vancomycin were effective for Gram-positive. High recovery of isolates was noted from May to September. 63.73% of isolates were MDR, most of them having resistance to more than 4 drugs. 22.96% of Gram-negative isolates were ESBL producing.

**Conclusion:** Result of the study highlights the etiology of UTIs and emergence of drug resistance in Nepal. Increasing resistance to Co-trimoxazole and increasing percentage of MDR and ESBL production among UTI pathogens are challenging problems in Nepal. Current knowledge on etiology and antibiotic susceptibility pattern is essential for empirical therapy among practitioners.

**Myotic aneurysm due to Salmonella**

A. Kumar1,*, S. Sudhindran1, V. Vivek1, K. Dinesh1, S. Karim2, 1Amrita Institute of Medical Sciences, India

**Methods:** Microbiology culture records were retrieved from 2005 to 2008 and retrospective data analyzed for cases of myotic aneurysm who were culture or serologically positive to *Salmonella* spp. The site of aneurysm, comorbid factors, treatment and outcome were recorded.

**Results:** We found four cases of myotic aneurysm due to *Salmonella* spp. of which three were due to *Salmonella typhimurium* involving the right common iliac artery, the superior femoral artery and infra renal aorta whereas one was due to *Salmonella typhi* involving the right common iliac artery. All isolates were pan sensitive. Advanced age, previous vascular intervention, hypertension and diabetes were risk factors predisposing for *Salmonella* spp. endovascular infection. Main presenting symptoms were fever and abdominal and back pain.

The most frequent site involved was the right common iliac artery. All patients were treated with intravenous antibiotics and also underwent surgery, one with aorto unifemoral and the other with aorto bifemoral bypass while two with in situ grafts. One of the four patients died on the eighth post operative day due to cardiac arrest while the rest survived. The use of bactericidal antibiotics, together with early surgical intervention and long term suppressive antibiotic therapy, was found to improve survival.

**Conclusion:** We conclude that patients >50 years old, with previous vascular intervention, diabetes and hypertension presenting with fever, back and/or abdominal pain, or chest pain, should be investigated for aortitis due to *Salmonella* and aneurysm formation for early diagnosis so as to reduce subsequent morbidity and mortality. Surgical resection with wide debridement and extraanatomic bypass grafting should follow once adequate antibacterial therapy has been started. High dose bactericidal therapy should be maintained for 6 weeks. Subsequently, long-term suppressive therapy with antibiotic should be used to improve the outcome in affected patients.