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COMMUNICABLE DISEASES

High risk HPV persistence among HIV-infected young women in South Africa

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Background: High-risk Human papillomaviruses (HR-HPV) cause cervical cancer. While most infections with HR-HPV are transient some may persist for six months or longer. Persistence of infection with HR-HPV is associated with increased incidence of precancerous squamous intraepithelial lesions (SILs) of the cervix, decreased rates of regression of SILs, increased rates of progression of SILs, and increased risk of invasive cervical cancer. Infection with HIV significantly impacts the natural history of HPV infection. Among HIV-infected women rates of persistent HR-HPV infection are increased multifold. HIV-infected young women are physiologically and behaviorally different than adults and the impact of HIV on persistence of HR-HPV infections in this group is understudied.

Methods: Between October 2012 and January 2014 we enrolled 50 HIV-uninfected and 33 HIV-infected sexually active South African females age 17-21 into a longitudinal study in which self-collected vaginal swabs for HPV DNA analysis were obtained at six-month intervals. Participants were enrolled through the Masiphumelele Youth Centre in a township outside of Cape Town, South Africa. HR-HPV infections were assessed for type-specific persistence of any of the 13 HR-HPV genotypes. Chi-square tests for independence were used to examine overall and type-specific differences in persistence between HIV-uninfected and HIV-infected women.

Findings: Eighty-three prevalent (upon baseline testing) and incident (upon subsequent testing) individual HR-HPV infections were identified among 43 members of the cohort (23 HIV-uninfected and 20 HIV-infected). Overall, 27% of these infections were persistent at six months (21% among HIV-uninfected and 33% among HIV-infected, $p>0.10$). At twelve months 19% of HR-HPV infections continued to be present with a statistically significant difference between HIV-uninfected and HIV-infected participants (4% versus 31%; $p < 0.05$). At baseline types 16, 52, and 58 were most commonly identified. At six months types 16, 39, and 45 were most likely to found to be persistent, and at 12 months types 16 and 52 were most likely found to be persistent. Due to inadequate power we did not identify statistically significant differences in type-specific persistence between groups.

Interpretation: HIV-infected women in our cohort had a seven-fold increased rate of persistence of HR-HPV overall at 12 months. Non-vaccine types were more often persistent than vaccine types among all participants. HIV-infected young women are more likely to have persistent infections with HR-HPV, increasing their risk for incident and progressive precancerous lesions. HPV DNA testing may contribute to optimal cervical cancer screening among this population. Follow-up of this cohort with additional serial HPV DNA testing and cervical cytology testing will provide greater insight into the relationship between HR-HPV persistence and the incidence and progression of SILs.

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Antibiotic susceptibility patterns in an intensive care unit at a tertiary hospital in New Delhi, India

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Background: Antibiotic resistance is increasing worldwide and fewer antimicrobials are being developed to treat these resistant organisms. In order to decrease the deleterious effects of drug resistant organisms effective control programs are increasingly being recognized as an essential element for health care institutions. Surveillance programs which can assist in understanding and controlling resistance problems are essential in combating this challenge.

Methods: This study was a retrospective, single center study conducted at a tertiary hospital in New Delhi, India. The aim of the study was to identify bacteria isolated from intensive care unit (ICU) patients and to determine their in vitro susceptibility patterns. The study utilized the records of the microbiology laboratory to include bacteria isolated from respiratory, blood, pleural fluid and miscellaneous cultures from ICU patients. Data was obtained from the records of the microbiology laboratory from September 2012 to August 2013.

Findings: A total of 534 positive cultures were identified the majority of which were gram negative organisms. Pseudomonas aeruginosa (P. aeruginosa) (145/534) was the most commonly isolated organism followed by Staphlococcus aureus (S.aureus) (106/534). Linezolid resistance among S.aureus isolates was as high as 19%. P. aeruginosa had high rates of resistance to the commonly used anti-Pseudomonal antibiotics. S.aureus was the most commonly isolated pathogen from blood cultures (7/22). Most of the positive cultures were from respiratory specimens where P.aeruginosa (124/390), K.pneumoniae (64/390), E.coli (57/390), Acinetobacter sp (44/390) and S.aureus (40/390) were the dominant pathogens isolated.

Interpretation: In this study methcillin resistant Staphlococcus aureus (MRSA) was more common than linezolid resistant Staphlococcus aureus (LRSA); however, resistance to linezolid among S.aureus isolates was significant. The susceptibility pattern of the gram negatives in our study suggest that many of these organisms may be extended spectrum beta lactamases (ESBL) producers, a fact that correlates with findings from other studies indicating that ESBL producing organisms are more common in Asia then North America. Gram negatives displayed high rates of resistance to commonly used antibiotics such as cephalosporins, aminoglycosides, ciprofloxacin and Pipercillin/Tazobactam. The high rate of resistance to linezolid among S.aureus isolates may occur as linezolid is relatively inexpensive in India. The widespread availability of antibiotics prior to hospitalization is contributing to the development of drug resistant isolates. Strategies to prevent overuse of antibiotics are needed which should be balanced with timely administration of antimicrobials to treat severe infections. Surveillance and control programs are urgently needed not only for the sake of health care in India but globally since