005.5 A LONGITUDINAL STUDY OF THE VAGINAL MICROBIOTA AND HPV DETECTION

doi:10.1136/sextrans-2013-051184.0111

[1]**R M Brotman**, [2]M D Shardell, [1]P Gajer, [2]J K Tracy, [3]J M Zenilman, [1]J Ravel, [4]P E Gravitt. *[1]University of Maryland School of Medicine, Institute for Genome Sciences, Baltimore, MD, United States; [2]University of Maryland School of Medicine, Department of Epidemiology and Public Health, Baltimore, MD, United States; [3]Johns Hopkins Medical Institutions, Johns Hopkins Bayview Medical Center, Department of Medicine, Division of Infectious Diseases, Baltimore, MD, United States; [4]Johns Hopkins School of Public Health, Department of Epidemiology, Baltimore, MD, United States*

Background The vaginal microbiota can be clustered into six community state types (CSTs): 4 are dominated by *Lactobacillus iners, L. crispatus, L. gasseri, L. jensenni*, and 2 lack significant numbers of *Lactobacillus* spp. (termed CST IV-A and IV-B). CST IV-A is characterised by a diverse assemblage of strict anaerobes, while CST IV-B has higher proportions of the genera *Atopobium, Gardnerella,* among others. We sought to describe the relationship between vaginal microbiota and human papillomavirus (HPV) detection.

Methods Thirty-two reproductive-age women self-collected mid-vaginal swabs twice-weekly for 16 weeks (n = 937 samples). Participants reported behaviours on daily diaries. Vaginal bacterial communities were characterised by pyrosequencing of barcoded 16S rRNA genes (V1-V2 region). Each swab was tested for 37 types of HPV DNA using the Roche HPV Linear Array genotyping test. The effects of CSTs on the rate of transition between HPV-negative and HPV-positive states were assessed using continuous-time Markov models. Additive mixed effects logistic regression and additive mixed effects Poisson models were used to model high risk HPV (hrHPV) and count of HPV types, respectively, with normalised menstrual cycle time.

Results Participants had an average of 29 (range 25–33) samples tested for HPV, with point prevalence ranging from 58 to 77% and 16-week period prevalence of 84%. CST was significantly associated with changes in HPV status ($p < 0.001$). *L. gasseri*-dominated CSTs had the fastest HPV remission rate (HPV-positive to no detection) and CST IV-B had the slowest rate compared to *L. crispatus*-dominated CSTs (adjusted transition rate ratio (aTRR):7.58, 95% CI: 1.77–32.42 and aTRR:0.31, 95% CI: 0.09–1.05, respectively). Detection of hrHPV and count of different HPV types were highest in the middle of the menstrual cycle.

Conclusion Vaginal microbiota dominated by *L. gasseri* were associated with increased clearance of detectable HPV. A mid-cycle increase in HPV detection suggests a role for sex hormones in modulating latent infection.

005.6 ENDOMETRIAL *GARDNERELLA VAGINALIS* AND *ATOPOBIUM VAGINEA* ARE ASSOCIATED WITH HISTOLOGIC ENDOMETRITIS AMONG WOMEN WITH CLINICALLY DIAGNOSED PELVIC INFLAMMATORY DISEASE (PID)

doi:10.1136/sextrans-2013-051184.0112

[1,2]**S L Hillier**, [2]L K Rabe, [2]L Meyn, [2]I Macio, [3]G Trucco, [3]A Amortegui, [4]T Darville, [1,2]H C Wiesenfeld. *[1]University of Pittsburgh Departments of Obstetrics, Gynecology and Reproductive Sciences, Pittsburgh, PA, United States; [2]Magee-Womens Research Institute, Pittsburgh, PA, United States; [3]University of Pittsburgh Department of Pathology, Pittsburgh, PA, United States; [4]University of Pittsburgh Department of Pediatrics, Pittsburgh, PA, United States*

Objective While *Neisseria gonorrhoeae* (GC) and *Chlamydia trachomatis* (CT) are known to cause PID, many women with clinical signs and symptoms of PID and histologic evidence of endometritis have neither of these pathogens. Our objective was to describe microorganisms in the upper genital tract of women with PID, and to evaluate their association with histologic endometritis.

Methods Women presenting with symptoms and meeting the CDC diagnosis of PID had an endometrial biopsy obtained by Pipelle, and the tissue was split for microbiological and histological assessment. Cultivated microorganisms were identified using phenotypic and genotypic characteristics. Fisher's exact tests were used to assess the association between microorganisms and endometritis (plasma cells ± neutrophils).

Results Of 136 women with clinical PID, 55 (40%) had histologic evidence of endometritis, and endometrial GC and/or CT was associated with endometritis (29% vs. 6%, $P < 0.001$). In addition to STIs, a broad range of bacteria representing 63 different species were recovered from 53 (39%) of the endometrial biopsy samples, including 8 novel species. The recovery of any non-GC/non-CT organisms from the endometrium was associated with histologic endometritis (53% vs. 30%, $P = 0.008$). Both *G. vaginalis* (35% vs. 16%, $P = 0.01$) and *A. vaginae* (22% vs. 3%, $P < 0.001$) were associated with histologic endometritis. Other anaerobic bacteria associated with bacterial vaginosis including *Prevotella timonensis, P. amnii* and *Peptoniphilus harei* were also more frequent in the endometrium of women having endometritis (11% vs. 3%, $P = 0.06$) but this did not reach statistical significance. After excluding women having GC and/or CT, *A. vaginae* was still independently associated with endometritis (17% vs. 3%, $P = 0.03$).

Conclusions The recovery of non STIs from the endometrium is associated with histologic endometritis among women with clinically diagnosed PID. *A. vaginae* may play an etiologic role in PID and merits further evaluation for its role in nongonococcal/nonchlamydial PID.

O.06 - Clinical issues and potential solutions

006.1 EVALUATION OF 5 DIFFERENT TESTS FOR TRICHOMONAS VAGINALIS (TV) INFECTION AND COST EFFECTIVE PLANNING FOR CLINICAL IMPLEMENTATION

doi:10.1136/sextrans-2013-051184.0113

[1]**B Nathan**, [2]J Appiah, [1]D Heron, [2]P Saunders, [1]R Brum, [2]S Alexander, [1]P Baraitser, [2]C Ison. *[1]King's College Hospital NHS Trust, London, UK; [2]Health Protection Agency, London, UK*

Background TV is the most common non-viral STI in the world. Despite this, TV infection in UK Genitourinary clinics is mainly (and often exclusively) diagnosed by wet mount microscopy alone. Microscopy is known to have a low and variable sensitivity and therefore greatly underestimates the true prevalence of TV infection.

Objectives A clinical trial was conducted to evaluate the performance of five methods for detecting TV: an in-house PCR; the Aptima TV kit; the OSOM Trichomonas Rapid Test (POCT); culture and microscopy to diagnose infection in symptomatic women. The results of the study were used to power a financial model for clinical implementation of a molecular test.

Methods Symptomatic women were recruited for testing. Results and resource costs from the study were extrapolated to calculate the cost of implementing POCT and in house PCR compared to wet mount microscopy in the clinic.

Results A composite reference standard of 2 more or more positives was used. 246 women were recruited of which 24 had a positive test by 2 or more of the 5 methods. Aptima TV kit, POCT, Real-time PCR and culture (sensitivities 92, 92, 88 and 88%) all out performed wet-mount microscopy (sensitivity 38%). The prevalence based on two tests as reference standard was 9.75%.

Conclusions Cost modelling showed although initial outlay costs for PCR and POCT were high, savings were made in labour costs. PCR and POCT would improve the rate of TV diagnosis in this group and therefore reduce repeat visits due to false positive results. PCR requires additional clinical time for recalling the patient for a further visit to give a positive result, treatment and contact tracing. Implementation of newer tests could potentially reduce clinical cost and improve patient outcomes in the long term.