Results The sensitivity, specificity, PPV and NPV of new multiplex qPCR was 98.80%, 100%, 100% and 99.69% respectively compared to uniplex qPCR. The discordant result of multiplex qPCR was detected in 1 sample. Developed multiplex qPCR showed 100% sensitivity, specificity, PPV and NPV for *C.trachomatis* and *N.gonorrhoeae* respectively. The sensitivity, specificity, PPV and NPV for *M.genitalium* were 97.78%, 100%, 100% and 99.72% respectively. No cross-reactions were detected between target organisms or with related species.

Conclusions Multiplex In house qPCR in this study has shown high sensitivity and specificity for detection of *C.trachomatis*, *N.gonorrhoeae* and *M.genitalium* in infertility patients which facilitate the opportunity to be used as a rapid diagnostic tool and for initiation of early treatment in resource poor settings where syndromic approach is being followed. This assay needs to be performed on the larger sample size and using different specimens prior to large-scale screening.

P1.55 DETECTION OF GENITAL MYCOPLASMAS IN WOMEN VISITING THE INFERTILITY CLINIC OF AN ACADEMIC HOSPITAL, PRETORIA, SOUTH AFRICA

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Introduction Sexually transmitted infections (STIs) continue to be a significant public health problem with a high burden in women of reproductive age. Rates of *Chlamydia trachomatis*, *Neisseria gonorrhoeae* and *Trichomonas vaginalis* are frequently tested for and rates of infection are generally high in African settings, but the prevalence of other genital STIs is largely unknown. The aim of this study was to determine the prevalence of genital mycoplasmas (*Mycoplasma genitalium*, *M. hominis*, *Ureaplasma parvum* and *U. urealyticum*) in women visiting the infertility clinic of a tertiary academic hospital in South Africa.

Methods In this pilot evaluation self-collected vaginal swabs were obtained from 51 women visiting the infertility clinic. The genomic DNA was extracted from the swabs using the ZR Fungal/Bacterial DNA Miniprep (Thermo Scientific, USA) and analysed using the Anyplex II STI-7 (Seegene, Korea) real-time PCR assay for the simultaneous detection and identification of seven STIs including the four mycoplasma species.

Results The real-time PCR assay detected the following genital mycoplasmas and co-infections in the 51 women: *U. parvum* [55% (28/51)], *M. hominis* [20% (10/51)] and *U. urealyticum* [16% (8/51)]; none of the specimens tested positive for *M. genitalium*. Among the nine patients where mixed infections were observed, *M. hominis* and *Ureaplasma* spp. were frequently detected together [67% (6/9)]. In addition to the mycoplasmas, one woman tested positive for *C. trachomatis; N. gonorrhoeae* and *T. vaginalis* were not detected.

Conclusion This pilot study demonstrated an unexpectedly high rate of genital mycoplasma infections among women visiting an infertility clinic. The burden of genital mycoplasma infection is largely unknown and warrants further investigation, in particular with regards to the prevalence and clinical significance in different population groups.

Support: *Anyplex II STI-7 kits provided by Seegene, Korea*

P1.56 PREDICTORS OF CARDIOVASCULAR RISK AND ATHEROGENIC INDICES AMONG ADULT HIV SEROPOSITIVE PATIENTS ON HIGHLY ACTIVE ANTIRETROVIRALS IN WESTERN NIGERIA: A CASE-CONTROL STUDY

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Introduction Cardiovascular risk factors place HIV-infected patients at increased risk for cardiovascular diseases (CVDs) due to complex interactions between traditional CVD risk factors, antiretroviral therapy (ART) and HIV infection itself. The report of the 2012 National Reproductive Health Survey Plus indicated that the prevalence of HIV/AIDS in Nigeria is about 3.4% while Ondo State has a prevalence of 4.3%. This study was therefore designed to evaluate the CD4+ T-cell count, atherogenic indices and risk score of adult HIV seropositives on Highly Active Antiretroviral Therapy (HAART), those not yet started on HAART and HIV seronegative control subjects. Hypothesis tested was the effect of the various drugs on the indices determining the risk level.

Methods Serum levels of CD4+ cell count of adult HIV seropositive subjects on HAART, HAART naïve subjects and seronegative controls were determined using flow cytometry while their atherogenic indices and Framingham risk score were determined from enzymatic spectrophotometrically determined lipids and lipoproteins. Ethical approval was obtained from the Ondo State Ministry of Health Research Ethics Committee, Akure, Nigeria. All data were expressed as Mean ± Standard Deviation and analysed with Analysis of Variance (ANOVA) while multiple comparisons were done using Post Hoc Bonferonni test.

Results The average duration (in months) of the use of HAART in the group 1 subjects is 25.63±19.99 while the average duration (in months) of cotrimoxazole use for subjects in group 2 is 7.10 ±4.89. There was a significant mean increased weight in the control subjects as compared with that of the other two groups. The mean serum cardiac risk ratio (CRR), atherogenic index of plasma (AIP), atherogenic coefficient (AC) and Framingham Risk Score (FRS) were significantly increased in the HAART group as compared with those of the two other groups.

Conclusion HIV appears to have negatively altered the exogenous and endogenous synthesis and metabolism of lipids and lipoproteins in the liver, with ultimate effect on the atherogenic indices and risk score. This is worsened by antiretroviral therapy as the increased levels of these indices were mainly seen in the HAART group, constituting a major risk for cardiovascular diseases in these patients, thus increasing mortality rate.

P1.57 HOW TO FACILITATE AND IMPROVE SCREENING OF SEXUALLY-TRANSMITTED INFECTIONS IN WOMEN POPULATION

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Introduction Sexually Transmitted Infections (STIs) are increasing worldwide. Innovative approaches are required to eliminate barriers to STIs testing such as home-based self-sampling for patients that are difficult to reach or for whose that refuse

to go for clinical collection. Aim of this study was to evaluate the performance of a new Home–based Self Vaginal FLOQSwab™ (HBSVF - COPAN Italia, Brescia) in combination with a commercially available real-time PCR assay, Anyplex II STI-7 (Seegene, Seoul, Korea) which detects seven major pathogens in a single reaction (*Chlamydia trachomatis* - CT, *Neisseria gonorrhoeae* - NG, *Trichomonas vaginalis* - TV, *Mycoplasma hominis* - MH, *Mycoplasma genitalium* - MG, *Ureaplasma urealyticum* - UU, and *Ureaplasma parvum* - UP).

Methods A total of 78 asymptomatic donors, employees of a private industry (aged 18 to 45 years) were voluntarily enrolled to STIs screening. The subjects answered to a standardise anonymized questionnaire regarding the easy of use of self vaginal collection. The new HBSV swab was collected in a domestic context by following the detailed "how to use it" instructions. After collection, the HBSV swabs were shipped at room temperature to the laboratory in Pievesestina and processed within five weeks. The threshold cycle value (Ct) of a human genomic target (internal control, IC) and Ct of pathogens (CT, NG, TV, MH, MG, UU, UP) were taken as parameters to assess respectively, the efficiency of self-sampling and presence of any inhibitor effects, the stability of nucleic acids on dry swabs.

Results no failure results have been observed, the IC of all samples were amplified (average Ct 30). The real time PCR assay was able to identified 2/78 CT, 4/78 UU, 40/78 UP, 6/78 MH, 1/78 TV positive patients. No MG and NG positive patients have been detected. Women reported self-collection with HBSV easy and comfortable (100%).

Conclusion the new HBSV device showed excellent recovery and stability of nucleic acid of STI pathogens up to 5 weeks at room temperature. The HBSV is suitable for screening of STIs with real-time PCR assay.

P1.58 LACTIC ACID EXERTS ANTI-*CHLAMYDIA TRACHOMATIS* ACTIVITY ON THE EPITHELIUM BY REDUCING HOST CELL PROLIFERATION

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Introduction Epidemiological studies have demonstrated that the vaginal microbiota can significantly impact the risk of acquiring sexually transmitted infections. The human vagina often contains *Lactobacillus* spp., which produce lactic acid and create an acidic environment (pH 3.5–4) thought to reduce vaginal STIs. Unlike high d-lactate producers, *Lactobacillus* spp. that produce low amounts or no d-lactate, while achieving low pH do not reduce *Chlamydia trachomatis* infectivity. Further, exposure to culture supernatants from d-lactate producing *Lactobacillus* spp. reduces epithelial cell proliferation. We tested if low proliferation affects infection.

Methods A 3D model of A2EN cervical epithelial cells was exposed to lactic acid (D, L or D/L) at concentrations that produce pH 7, 5.5 and 4 or to several *Lactobacillus* spp. conditioned media (LCM) and infected with *C. trachomatis* serovar L2. Lysates from these A2EN cells were used to infect HeLa cells, and IFUs counted to determine infectivity. 2D A2EN cells were exposed to lactic acid, proliferation chemical inhibitors or LCM followed by infection with *C. trachomatis* L2. Proliferation and infectivity were evaluated by microscopy.

Results At pH 4, d-lactate and LCMs from high d-lactate producing vaginal *Lactobacillus* spp. afforded maximal protection compared to l-lactate. Interestingly, high infectivity was observed with HCl at pH 4, indicating that pH alone is not responsible for this protection. Exposure to d-lactate or LCMs reduced cell proliferation. Chemical cell proliferation inhibitors dramatically reduced *C. trachomatis* infectivity.

Conclusion These results suggest a differential role for vaginal *Lactobacillus* spp. in protecting against *C. trachomatis* infections and potentially other STIs. This protection is driven by the production of d-lactate, which acts on epithelial cells by inhibiting cell proliferation, which appears to be required for infection.

P1.59 GENOMIC CHARACTERISATION OF URETHRITIS-ASSOCIATED *NEISSERIA MENINGITIDIS*

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Introduction Mainly case reports have shown that *N. meningitidis*, typically a resident of the oropharynx and the causative agent of meningococcal meningitis and meningococcemia, is capable of invading and colonising the urogenital tract. This can result in urethritis, akin to the syndrome caused by *N. gonorrhoeae*, the etiologic agent of gonorrhoea. Recently, meningococcal strains associated with outbreaks of urethritis were reported to share genetic characteristics with gonococcus, raising the question of the extent to which these strains contain features that promote adaptation to the genitourinary niche, making them "gonococcus-like" and distinguishing them from other *N. meningitidis*.

Methods A total of 31 urethritis-associated *N. meningitidis*, representing multiple serogroups and independently collected over a decade and 3 continents, underwent genome sequencing and analysis. The genomes were compared with serogroup-matched *N. meningitidis* strains isolated from carriage and invasive disease and *N. gonorrhoeae* strains isolated from men with urethritis.

Results Intact nitrite reductase (AniA), disrupted factor-H binding protein (fHbp), and the lack of capsule are features previously speculated to promote urogenital colonisation. However, we found that a considerable number (n=11) of meningococcal urethritis isolates harbour mutations in AniA predicted to result in truncated peptides and a minority (n=4) of these isolates contained alleles associated with frameshifted fHbp. We noted substantial diversity in the capsule biosynthetic locus, including intact, disrupted, and absent capsules, indicating urogenital colonisation is possible across a range of capsular phenotypes.

Conclusion The meningococcal urethritis strains in this study do not share the allelic patterns of AniA, fHbp, or the capsule locus previously reported for urethritis-associated *N. meningitidis*. The allelic patterns likely reflect diversity in the underlying meningococcal population, rather than novel adaptation to the urogenital tract.