

increasing rates of rectal gonorrhoea and Chlamydia. Overall, 820 (65%) of the cases had no microbiologic aetiology identified and nearly half were among HIV-infected men. Two-hundred sixty-three (21%) had gonorrhoea, 205 (16%) had Chlamydia, 53 (4.2%) had both gonorrhoea and Chlamydia, 28 (2.2%) had syphilis and 105 (8.3%) had herpes. Cases in which no microbiologic aetiology was identified were not more likely to have a repeat clinic visit within 14 days of diagnosis compared with those with Gonorrhoea or Chlamydia (6.3% vs. 6.8%).

Conclusion STD clinics can be sentinel sites to assess proctitis trends. No microbiologic diagnosis was identified in almost half of proctitis cases evaluated during the study interval and these cases were not more likely to experience treatment failure, suggesting that current empiric treatment guidelines are effective. Future studies should use advanced molecular techniques to evaluate the role of novel and emerging pathogens in the aetiology of proctitis.

014.5 OCCURRENCE OF VACCINE AND NON-VACCINE HUMAN PAPILLOMAVIRUS (HPV) TYPES IN THE FEMALE POPULATION BEFORE AND AFTER THE HPV VACCINATION

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Understanding type replacement following HPV vaccination is important.

We studied the occurrence of specific HPV types in a large cohort of young women from Finland who participated in a population-based HPV vaccination trial. A total of 4,808 16- to 17-year-old women were enrolled in the randomised PATRICIA efficacy trial of HPV16/18 vaccine (Cervarix) compared to hepatitis A virus (HAV) vaccine. HPV infection was assessed from cervical samples obtained every 6 months for 4 years post-vaccination and tested for 14 high-risk HPV types and 2 low-risk HPV types. HPV16/18 vaccination coverage varied from 1% to 22% by participating community. HPV incidence rate ratios (IRRs) in baseline positive women vs. baseline negative women were calculated. In the control arm, baseline HPV18-positive women showed an increased risk of acquiring other clade A7 HPV types (39/45/59/68) (IRR 1.8, 95% confidence interval = 1.01–3.1). No excess risk of non-vaccine HPV types was observed in the baseline HPV DNA-negative HPV16/18-vaccinated women compared to the baseline HPV DNA-negative control women. Similarly, no excess risk was observed in the baseline HPV-16/18-positive HPV16/18-vaccinated women compared to the baseline HPV16/18-negative women. In conclusion, we found no increased rates of non-vaccine HPV types suggestive of type-replacement up to 4 years post-vaccination among HPV16/18-vaccinated young women. However, surveillance of clinical trial cohorts and other populations in countries with HPV vaccination programmes implemented with focus on vaccination coverage rates are warranted.

014.6 AETIOLOGY OF INFECTIOUS PROCTITIS DIFFERS BY HIV STATUS

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Background Sexually acquired rectal infections are common among men who have sex with men (MSM) and increase the risk of HIV acquisition. We aimed to compare the spectrum of pathogens responsible for infectious proctitis between HIV positive and HIV negative MSM.

Methods We undertook a study of MSM who presented to Melbourne Sexual Health Centre with symptomatic proctitis between March 2003 and December 2011. Men with proctitis were tested for gonorrhoea by culture, chlamydia by strand displacement assay, and herpes simplex virus (HSV) by PCR. Chlamydia positive specimens were genotyped for lymphogranuloma venereum (LGV).

Results Among the 279 men in the study, 141 were HIV positive and 138 were HIV negative. The median CD4 count among HIV positive men was 423 (range 189–1026). The prevalence of infections among HIV positive and HIV negative men respectively was: chlamydia (23.4% versus 21.7%, $p = 0.7$); gonorrhoea (13.4% versus 10.8%, $p = 0.5$); HSV-1 (14.2% versus 6.5%, $p = 0.04$); HSV-2 (22% versus 12.3%, $p = 0.03$); and LGV (7.8% versus 0.7%, $p = 0.004$). HIV positive men were more likely to have multiple infections (17.7% versus 8.6%, $p = 0.017$). Only 32% of men with HSV associated proctitis had visible anal ulceration.

Conclusion Among MSM presenting with proctitis, HSV, LGV and multiple infections are more common among HIV positive men than among HIV negative men. MSM presenting with proctitis require comprehensive testing and treatment for possible pathogens including herpes in the absence of anal ulceration.

0.15 - For lab rats and other mice and men

015.1 SUB-OPTIMAL CD4 T-CELL RECOVERY IN HIV-1 SUBTYPE C PATIENTS ON ANTIRETROVIRAL THERAPY: A SEARCH FOR PREDICTIVE BIOMARKERS AND BASELINE CHARACTERISTICS

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Background Despite receipt of combination antiretroviral therapy (cART) and subsequent viral suppression some 15–30% of treated HIV infected patients fail to achieve optimal CD4 T-cell reconstitution. Sub-optimal CD4 recovery has been associated with unfavourable outcomes for patients on cART. We assessed markers of immune activation, microbial translocation and patient baseline characteristics for associations with sub-optimal CD4 T-cell recovery post cART initiation.

Methods This was a retrospective case control analysis of CD4 T-cell recovery from a completed (2002–2007) clinical trial, the Adult Antiretroviral Treatment and Drug Resistance (“Tshepo”) Trial, in Gaborone, Botswana. Cases (sub-optimal CD4 response) were defined as CD4 ≤ 200 cells/ μ l at 12 months post ART initiation, with virologic suppression achieved within 6 months. Microbial translocation (sCD14) and immune activation (interferon-gamma) markers were quantified using Enzyme Linked Immuno-Sorbent Assays on a subset of 30 cases and 30 controls gender matched baseline and 12 month plasma samples. Univariate and logistic regression analysis were used to assess predictors of sub-optimal CD4 T-cell recovery.

Results Fifty-one cases (21%) from 249 virologically suppressed patients had sub-optimal CD4 recovery. The median age was 33.39 years and 69.9% were female. Baseline CD4 count < 100 cells, haemoglobin and aspartate transaminase were associated with sub-optimal CD4 recovery (adjusted OR (aOR) = 3.03 95% CI [1.65, 5.57], $p < 0.001$; aOR = 0.81 [0.67, 0.99], $p = 0.038$ and aOR = 1.03 [1.00, 1.05], respectively). sCD14 levels were significantly different between cases and controls, $p = 0.0011$, at 12 months. Baseline Tuberculosis infection, body-mass-index, interferon-gamma, alanine transaminase and age were not associated with poor CD4 T-cell response.

Conclusion Low baseline CD4 T-cell count, haemoglobin, aspartate transaminase and sCD14 levels are predictive of suboptimal CD4 T-cell recovery in this cohort of HIV-1 subtype C infected patients. These markers are potentially useful in identifying patients who need frequent clinical monitoring to minimise unfavourable outcomes associated with poor CD4 T-cell recovery.

015.2 COMPARISON OF THE ROCHE COBAS 4800 CTNG TEST WITH MICROBIAL CULTURE FOR DETECTING *NEISSERIA GONORRHOEA* IN GENITAL AND NON-GENITAL SPECIMENS IN NEW ZEALAND

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Background In New Zealand it has been usual practise to detect *Neisseria gonorrhoeae* (NG) by culturing endocervical and urethral specimens obtained by pelvic examination. However there is a significant false negative rate. The use of newer nucleic acid amplification tests (NAATS) increases the detection of NG and allows testing of non-invasively collected samples. A large retrospective audit was performed on 18,913 microbial culture and cobas 4800 NG PCR results with the aim to determine if urogenital and non-genital specimens could be screened without the need for supplementary testing of positive results.

Methods Results from culture and PCR were compared; discrepancies were resolved by clinical correlation and/or an in-house assay targeting the *opa* gene and the *porA* pseudogene.

Results NG PCR diagnosed 33% more urogenital and 25% more rectal infections than culture; and testing of non-invasive specimens by PCR resulted in 37% more patients being screened for infection. Female urine is not suitable as a sole screening specimen by this assay as sensitivity was only 86.7%. There were insufficient pharyngeal or eye swabs available for the study to rule out the need for supplementary testing by additional DNA targets.

This study also showed an association between 'failed' cobas 4800 results and NG positive culture results, likely caused by mucopurulent discharge. Treating specimens with 1.4% Dithiothreitol enabled resolution of 89% of these specimens, of which 18% were positive for CT and/or NG.

In our population, 8% of NG positives were *porA* negative, and 22% were *opa* negative. Confirmatory testing of a pharyngeal specimen identified a cross-reacting commensal *Neisseria* which gave a false positive cobas 4800 NG result.

Conclusion The cobas 4800 NG test is acceptable for urogenital and rectal specimens without supplementary testing in our low prevalence (< 1%) population, however other non-genital sites require confirmation.

015.3 EVALUATION OF AN IMMUNOCHROMATOGRAPHIC POINT-OF-CARE TEST FOR THE SIMULTANEOUS DETECTION OF NONTREPONEMAL AND TREPONEMAL ANTIBODIES IN PATIENTS WITH SYPHILIS

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Background We described the evaluation of the DPP Syphilis Screen and Confirm Assay, a point-of-care test (POC) for the simultaneous detection of nontreponemal and treponemal antibodies for the serological diagnosis of patients with syphilis.

Methods A total of 248 samples from patients with active syphilis (173), past syphilis (15) and from individuals considered as no infected by *Treponema pallidum* (60) were studied with the DPP

Syphilis Screen and Confirm, Rapid Plasma Reagin (RPR), and fluorescent treponemal antibody absorption (FTA-Abs) tests. In addition patients with active syphilis cases (36) primary, (39) secondary, and (98) latent, were evaluated. The DPP Syphilis Screen and Confirm device consists of a plastic cassette with a recombinant *T. pallidum* and a synthetic nontreponemal test line antigens and a procedural control line.

Results The sensitivity of the DPP Syphilis Screen and Confirm, nontreponemal and treponemal tests was 97.6% and 96.8% while the specificity was 94.7% and 93.1% respectively, when compared to the predicates RPR and FTA-abs tests. The treponemal and nontreponemal clinical sensitivity of primaries was 100% (36/36), for both and for secondary syphilis was also 100% (39/39), for both test and predicates. For patients with latent syphilis the sensitivity was 97.96% (96/98) for the treponemal test and 98.98% (97/98) for the nontreponemal test while for the predicates FTA-ABS and RPR was 100% (98/98) and 98.98% (97/98), respectively. With patients without syphilis the specificity of the DPP Syphilis Screen and Confirm test was 91.66% (55/60) for the treponemal line and 96.66% (58/60) for the nontreponemal line.

Conclusion These results indicates that the DPP Syphilis Screen and Confirm POC test could be a useful tool for the serological diagnosis of syphilis, including resource-poor settings where there is a need to provide counselling and treatment on site and thus prevent the further spread of the disease.

015.4 FIELD PERFORMANCE OF THE ALERE DETERMINE HIV COMBO ASSAY IN A LARGE AUSTRALIAN MULTI-CENTRE STUDY IN A SEXUAL HEALTH CLINIC SETTING

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Background Rapid HIV testing has been available to gay and other men who have sex with men (MSM) overseas for many years. Alere's Determine HIV Combo 'fourth generation' rapid test containing antibody and antigen components is now available in Australia, but field performance data for this assay are limited.

Methods From September 2011, MSM attending four Sydney public sexual health clinics were offered rapid HIV testing using the Determine HIV Combo and also had sexually transmissible infection screening and conventional HIV serology. Rapid test sensitivity, specificity, and positive and negative predictive values (PPV, NPV) were calculated by comparing results to reference tests (Abbott Architect HIV Ag/Ab Combo, Biorad Genscreen HIV antigen and HIV Western blot).

Results In 15 months, 1716 men had 2043 rapid tests performed with four invalid rapid tests (0.2%) excluded from analysis. Of 34 men confirmed as HIV-positive by national HIV case definitions, 29 had reactive rapid tests (sensitivity = 85.3%, 95% CI: 68.2–94.5). With 29 true reactive rapid tests from a total of 44 reactive tests, PPV overall was 65.9% (50.0–79.1). Of five men with false non-reactive tests, four were seroconvertors. Rapid tests were non-reactive in 1990 out of 2005 cases where laboratory HIV testing was negative; hence, overall specificity was 99.3% (95% CI: 98.7–99.6) and NPV was 99.8% (99.4–99.9). Of 15 men with false reactive rapid tests, four had