Research news in clinical context

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MEN WHO HAVE SEX WITH MEN IN THE NETHERLANDS ENGAGE IN MORE RISKY SEXUAL BEHAVIOUR AND EXPERIENCE A HIGHER RATE OF GONORRHOEA DIAGNOSES AFTER STARTING HIV PRE-EXPOSURE PROPHYLAXIS

The effect of pre-exposure prophylaxis (PrEP) use, on sexual behaviour and STI transmission risk among men who have sex with men (MSM) is debated. Investigators in the Netherlands quantified the rate and distribution of gonorrhoea, chlamydia and syphilis diagnoses before and after the introduction of PrEP among 630 HIV-negative MSM in a prospective cohort study and developed a sexual behaviour risk score predictive of STI diagnosis.1 Between 2009 and 2019, participants prospectively completed questionnaires about sexual behaviour and underwent STI screening biannually (n = 10 677 visits). After starting PrEP, mean sexual risk behaviour score increased from 0.7 (SD = 0.66) to 0.93 (SD = 0.8). Rates of gonorrhoea in the cohort increased from 4% to 6%, while maintaining a similar distribution as observed before PrEP. Rates of chlamydia (4%) and syphilis (1%) remained stable but after the introduction of PrEP showed a greater concentration within subgroups. The findings help direct STI prevention efforts among PrEP users.

ACROSS SUB-SAHARAN AFRICA, HEAVY RAINS ARE ASSOCIATED WITH INCREASED ODDS OF HIV AND STIS AND A HIGHER NUMBER OF SEXUAL PARTNERS

Extreme precipitation has been associated with poor health outcomes resulting from socio-economic disruption.2 Using survey data from 21 African countries (2005–2017), investigators analysed how heavy rainfalls influenced HIV prevalence and self-reported STIs and the number of sexual partners in the previous 12 months.3 Although the effect was not uniform across Africa, among 288 333 participants (age 15–59 years, 60% women) each year of heavy rainfall increased prevalent HIV infection by 14%, STIs by 11% and the number of sexual partners by 12%. The odds of HIV and STIs were greater among participants >20 years and those living in rural areas. Proposed mechanisms may include worsened food security increasing the risk of transactional sex and damage to public health infrastructure reducing access to HIV and STI education and care.

LOW LEVELS OF MATERNAL VACCINE-INDUCED ANTIBODIES IN HIV-NEGATIVE INFANTS EXPOSED TO HIV

HIV-negative infants exposed to HIV are at increased risk of severe infections, but the causes are not known. This study analysed antibodies to 14 antigens in paired maternal and umbilical cord samples from 352 Ugandan women, including 176 (50%) women living with HIV and receiving antiretroviral therapy (ART).4 The ratio of umbilical to maternal antigen-specific IgG levels were similar regardless of HIV status, indicative of intact placental transfer function. However, individual antibodies showed significant differences: women with HIV had lower levels of antibodies to tetanus, Haemophilus influenzae type b and polio and higher levels of antibodies to herpesviruses. HIV viraemia, low CD4 cell counts and post-conception (rather than earlier) ART initiation increased the likelihood of unbalanced antibody profiles. Maternal vaccination may help address the unbalance and protect children against early life infections.

THE THREAT AND SPREAD OF EXTENSIVELY DRUG-RESISTANT SHIGELLA SONNEI AMONG MSM IN THE UK

A worrisome cluster of 72 cases of infection with extensively drug-resistant plasmid-mediated extended spectrum beta-lactamase (ESBL)-producing Shigella sonnei was identified in the UK between September 2021 and February 2022.5 Cases occurred largely in England (65/72, 90%) and among men (70/72, 97%). Most infections with available information occurred among MSM taking HIV PrEP and nearly one in four cases required hospitalisation due to severe symptoms. Sexual transmission was likely in all but two severe cases that occurred in immunocompromised individuals. The isolates showed resistance to seven different antibiotic classes and susceptibility to ertapenem, meropenem, temocilllin and fosfomycin. Urgent measures, including better awareness of shigellosis among MSM, are needed to limit the transmission of this hard-to-treat pathogen and the potential spread of the identified plasmid-mediated ESBL production to other Shigella species, Enterobacteriaceae and the wider gut microbiota.

THE INTERPLAY BETWEEN THE VAGINAL MICROBIOME AND HPV-RELATED DISEASE

This cross-sectional study applied 16S rRNA sequencing to characterise the vaginal microbiome of 546 Brazilian women attending routine cervical screening in 2013–2015.6 Using stepwise logistic regression, two scores were developed to predict infection with high-risk human papilloma virus (hrHPV): one based on sociodemographic, behavioural and clinical (SBG) characteristics and one microbiome-based (MB). Overall prevalence of hrHPV was 16%. Six characteristics (age, marital status, new sex partner, hormonal contraception use, body mass index and smoking) were retained in the SBC score and 30/116 bacterial taxa in the MB score. While both scores predicted hrHPV positivity, the MB score was more accurate (area under the curve = 0.8022 vs 0.7027; p < 0.001). The strong association between certain bacterial species and hrHPV highlights the potential use of the vaginal microbiome as a predictor of HPV-related disease.

DOLUTEGRAVIR IN PREGNANCY IS ASSOCIATED WITH HIGH RATES OF VIRAL SUPPRESSION AT DELIVERY

Viral suppression at delivery and birth outcomes were studied among 1257 participants of two multisite cohort studies whose first ART regimen recorded in pregnancy included dolutegravir (n = 120), atazanavir/ritonavir (n = 464), darunavir/ritonavir (n = 185), rilpivirine (n = 243), raltegravir (n = 86) or elvitegravir/cobicistat (n = 159), in combination with abacavir or tenofovir (disoprox fumarate or alafenamide) plus lamivudine or emtricitabine.7 Overall, 51% of participants started ART before conception. Viral suppression rates were highest with dolutegravir (97%) and significantly lower with atazanavir/ritonavir (84%) or
raltegravir (89%). In adjusted analysis, the risk of adverse birth outcomes (risk of preterm birth, low birth weight or being small for gestational age) was not significantly different with dolutegravir versus other regimens. Although the sample size was small, the data provide reassurance about the efficacy and safety of dolutegravir in pregnancy.

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REFERENCES