Research news in clinical context

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HIV AND ACTIVE TB MAY SKEW IMMUNE RESPONSES TO SARS-COV-2

The HIATUS consortium in South Africa analysed SARS-CoV-2 specific immunity in 95 patients hospitalised with COVID-19 and 38 controls without COVID-19. One aim was to assess immune responses in a small subset of people with HIV (n=44) and/or active TB (n=20). People with HIV (66% on antiretroviral therapy) displayed lower CD4 T-cell frequencies than HIV-negative patients, which was associated with lower magnitudes of CD4 T-cell and antibody responses to SARS-CoV-2. Among those with both HIV and active TB and those with severe lymphopenia, only a minority had SARS-CoV-2 specific responses. Results suggest that in people with HIV, untreated infection or poor CD4 reconstitution despite therapy may impede the generation of T cell and/or antibody responses against SARS-CoV-2, with a potential aggravating role of active TB. Results illustrate important reciprocal interactions between infections, requiring confirmation in larger cohorts.

Riou C, du Bruyn E, Stek C, *et al*. Relationship of SARS-CoV-2-specific CD4 response to COVID-19 severity and impact of HIV-1 and tuberculosis coinfection. *J Clin Invest* 2021;131:e149125.

SYSTEMATIC REVIEW UNDERSCORES THE DISPROPORTIONATELY HIGH BURDEN OF SYPHILIS AMONG MSM

The WHO Global Health Sector Strategy aims to reduce worldwide incidence of syphilis by 90% between 2018 and 2030.[1] To help the global community set priorities, investigators compiled syphilis point prevalence estimates from studies done among men who have sex with men (MSM) in 2000–2020. Data from 275 studies in 77 countries, totalling 606 232 participants, yielded a global pooled prevalence of 7.5% (95% CI 7.0% to 8.0%), ranging regionally from 1.9% (Australia and New Zealand) to 10.6% (Latin America and the Caribbean). Prevalence was 8.7% versus 5.8% in countries with HIV prevalence among MSM above or below 5%, respectively. Placing the findings into perspective, WHO previously estimated that the global syphilis prevalence among all men was 0.51% in 2016,[2] which clearly illustrates how syphilis disproportionately affects MSM. Reducing incidence will require high rates of targeted screening and treatment.

Tsuboi M, Evans J, Davies EP, *et al*. Prevalence of syphilis among men who have sex with men: a global systematic review and meta-analysis from 2000 to 20. *Lancet Glob Health* 2021;9:e1110–e1118.

PUBLISHED IN *STI*—THE EDITOR'S CHOICE: A SURVEY OF MSM IN IRELAND REVEALS OPPORTUNITIES FOR IMPROVING KNOWLEDGE OF HIV AND STIS

Poor knowledge of HIV and STIs is one recognised determinant of risk among MSM. Using data from a self-completed online national survey available to MSM living in Ireland in 2015, researchers analysed factors associated with having lower knowledge of HIV and STI transmission, testing and treatment. Among 2905 participants, 1055 (36%) were classed as having lower knowledge (ie, knowing ≤10/13 statements). HIV testing was less common among those with lower knowledge. Multiple factors were associated with lower knowledge, notably being aged 18–24 years (vs >40 years), being born in Ireland and not being out to contacts. Knowledge was also lower among those who never visited a national MSM-specific sexual health promotion website. The findings highlight the need to promote knowledge of HIV and STIs among young MSM and suggest the potential utility of dedicated websites.

Carey C, O'Donnell K, Davoren M *et al*. Factors associated with lower knowledge of HIV and STI transmission, testing and treatment among MSM in Ireland: findings from the MSM Internet Survey Ireland (MISI) 2015. *Sex Trans Infect* 2021; 97:351–356.

HPV VACCINATION PREVENTS PENILE HPV INFECTIONS IN MSM AND TRANSGENDER WOMEN IF ADMINISTERED AT AGE ≤18 YEARS

To assess vaccine effectiveness against penile HPV infections, a cross-sectional study recruited 687 participants aged 18–26 years. Most (97%) self-reported as non-straight male, with a small number (0.9%) identifying as female or transgender female. Using self-collected penile swabs, HPV prevalence was compared in 348 people who self-reported ever receiving ≥1 dose of the quadrivalent HPV vaccine (4vHPV) versus 339 participants with no/unknown vaccination history. HIV-positive status was reported by 3.7% and 0.6%, respectively. HPV vaccination administered at >18 years was ineffective, probably reflecting pre-vaccination HPV exposure. In contrast, the adjusted prevalence ratio was 0.15 (95% CI 0.04 to 0.62) among those vaccinated at age ≤18 years relative to those with no/unknown vaccination history, supporting the benefit of early vaccination in highly sexually active populations.

Winer RL, Lin J, Querec TD, *et al*. Effectiveness of human papillomavirus (HPV) vaccination against penile HPV infection in men who have sex with men and transgender women. *J Infect Dis* 2021 Jul 28.

HPV INFECTION INCREASES THE RISK OF HIV ACQUISITION IN YOUNG AFRICAN WOMEN

Whether HPV infection increases the risk of HIV acquisition remains unclear.[3 4] In a substudy of a HIV prophylaxis trial (VOICE) conducted in South Africa, Uganda and Zimbabwe, HPV prevalence in cervicovaginal swabs was retrospectively compared in 138 women who acquired HIV versus 412 controls. While high in both groups, prevalence was higher in those who acquired HIV: 84% versus 65% for any HPV type, 66% versus 48% for low-risk types and 74% versus 55% for high-risk types (p<0.001). After adjusting for parameters that included sexual history and other STIs, HPV infection was associated with a 2.6 times higher risk of HIV seroconversion, and the risk increased with the number of HPV types detected. Expanding HPV vaccination coverage offers the potential added benefit of reducing HIV acquisition.

Liu G, Mugo NR, Brown ER, *et al*. Prevalent HPV infection increases the risk of HIV acquisition in African women: advancing the argument for HPV immunisation. *AIDS* 2021 Jun 24.

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GROWING CONCERN OF GONOCOCCAL STRAINS WITH REDUCED SUSCEPTIBILITY TO EXTENDED-SPECTRUM CEPHALOSPORINS

Neisseria gonorrhoeae (NG) strains associated with treatment failure to ceftriaxone, the recommended treatment for uncomplicated gonorrhoea, have been reported worldwide. Investigators conducted a whole genome analysis of 813 NG isolates collected between 2005 and 2017 and analysed results in the global context to characterise circulating lineages in the USA. Results showed distinct NG lineages with reduced extended-spectrum cephalosporin (ESC) susceptibility, which resulted from repeated importation, clonal expansion and extensive recombination events; several were long established and persisting in circulation through the years within multiple sexual networks. The results underline the need for ongoing surveillance of NG susceptibility to ESCs, improved availability of point-of-care antimicrobial susceptibility tests and development of antimicrobial drugs with novel mechanisms of action.

Thomas JC, Joseph SJ, Cartee JC, *et al*. Phylogenomic analysis reveals persistence of gonococcal strains with reduced-susceptibility to extended-spectrum cephalosporins and mosaic penA-34. *Nat Commun* 2021;12:3801.

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