Research news in clinical context

Rayner K J Tan,[1,2] Marina Daskalopoulou ,[3] Rebecca Thomson-Glover [4]

BONE LOSS IN YOUNG WOMEN LIVING WITH HIV RECEIVING INTRAMUSCULAR DEPOT MEDROXYPROGESTERONE ACETATE AND INITIATING TDF-CONTAINING ANTIRETROVIRAL THERAPY

Tenofovir disoproxil fumarate (TDF) and intramuscular depot medroxyprogesterone acetate (DMPA-IM) are independently associated with bone loss.[1 2] This cohort study conducted in Uganda in 2016–2017 assessed the combined effects of DMPA-IM and TDF initiation on bone mineral density (BMD) in women aged 18–35.[3] Participants (n=521) were classified based on HIV status, TDF use and DMPA-IM use. Compared with use of TDF alone, concurrent use of DMPA-IM resulted in greater BMD decline over 24 months at all sites (–2.677% for lumbar spine, –2.518% for total hip and –2.907% for femoral neck) after adjusting for age, body mass index and baseline BMD ($p<0.0001$ for all). While fracture risk could not be assessed, contraception choice and bone-sparing antiretroviral therapy options for women living with HIV need to be prioritised.

QUADRIVALENT HPV VACCINE OFFERS LONG-TERM PROTECTION FROM DISEASE RELATED TO HPV 6, 11, 16 AND 18 IN YOUNG MEN

This follow-up study of a 3-year international, randomised trial of the quadrivalent human papillomavirus (HPV) vaccine investigated the durability of protection in men aged 16–26 years at the time of vaccination.[4] Ten years on, compared with placebo, there were no new HPV 6-related or HPV 11-related cases of external genital warts (0.0 incidence per 10 000 person-years (95% CI 0.0 to 8.7) vs 137.3 (95% CI 83.9 to 212.1)), or external genital lesions related to HPV 6, 11, 16 or 18 (0.0 (95% CI 0.0 to 7.7) vs 140.4 (95% CI 89.0 to 210.7)). Among men who have sex with men, the incidence of anal intraepithelial neoplasia or anal cancer related to HPV 6, 11, 16 or 18 was 20.5 (0.5–114.4) vs 906.2 (553.5–1399.5). Catch-up vaccinations offered to placebo recipients at the end of the base study at months 36–48 also protected against HPV-related anogenital disease compared with before vaccine, suggesting men with previous exposure to one or more HPV types benefit from vaccination.

WOMEN AT HIGH RISK OF HIV NEED HIGHER LEVELS OF PLASMA TENOFOVIR TO ACHIEVE HIV PROTECTION COMPARED WITH MEN

This study pooled individual longitudinal pharmacokinetic (PK) and HIV outcome data from the active daily oral and topical tenofovir arms of phase III HIV pre-exposure prophylaxis (PrEP) trials *iPrEx*, *VOICE* and *Partner PrEP*.[5] Of 7440 participants, 3213 (43.2%) provided at least one PK measurement and 2950 (39.7%) were included in the analysis, of whom 243 (8.2%) seroconverted. Individual-level data pooled analysis was performed to develop a population exposure–outcome model describing tenofovir plasma concentrations and the probability of HIV seroconversion over time for participants with varying HIV risk levels. After accounting for probabilities of being adherent to daily PrEP, the study found that among moderate-risk to high-risk individuals, women needed a higher tenofovir concentration (45.8 ng/mL) than men (16.1 ng/mL) for protection against HIV acquisition. Strategies to ensure PrEP adherence (eg, long-acting injectables, counselling, etc) among moderate-risk to high-risk individuals, and especially among women, are needed.

GLOBAL SYSTEMATIC REVIEW SHOWS THAT LESS THAN A THIRD OF ORAL PRE-EXPOSURE PROPHYLAXIS (PREP) INITIATORS USE PREP PROPERLY WITHIN 6 MONTHS OF INITIATION

A systematic review of oral pre-exposure prophylaxis (PrEP) discontinuation and suboptimal adherence included 59 longitudinal studies or randomised trials globally (n=43 917).[6] The pooled proportion of PrEP discontinuation within 6 months of initiation was 41% (95% CI 19% to 64%; 32% among gay, bisexual and other men who have sex with men, 43% among cisgender girls and women, 72% among heterosexual men and women, and 62% among people who inject drugs). Pooled suboptimal adherence (fewer doses than required to reach protective drug concentration according to type of sexual exposure and dosing schedule) within 6 months was 38% (95% CI 8% to 67%) and was highest among adults ≤24 years (62%) and in settings with high HIV incidence. Pooled reinitiation was 47% (95% CI 31% to 64%) at more than 12 months after discontinuation. A variety of strategies (eg, counselling, long-acting injectables, etc) should be considered to encourage PrEP reinitiation for those at risk of HIV.

PUBLISHED IN *SEXUALLY TRANSMITTED INFECTIONS*, THE EDITOR'S CHOICE: *MYCOPLASMA GENITALIUM* MAY BE ASSOCIATED WITH AN INCREASED RISK OF PRETERM BIRTH

The prevalence of *Mycoplasma genitalium* (MG) among pregnant women is estimated to be about 1% in high-income countries, but as high as 12% in South Africa and Papua New Guinea.[7 8] A systematic review was conducted to examine the associations between MG infections identified during pregnancy with adverse outcomes, including spontaneous abortion, preterm birth, premature rupture of membranes, low birth weight and perinatal death.[9] Overall, 10 studies were included out of 116 records found. Women with MG were more likely to experience preterm birth (pooled adjusted OR=2.34, 95% CI 1.17 to 4.71; two studies). No other significant associations were identified for other outcomes. More prospective studies are needed to determine whether MG is causally associated with adverse outcomes during pregnancy. Current evidence is insufficient to recommend screening and treatment for asymptomatic MG infection in pregnancy.

UNIVERSAL HEPATITIS B VACCINATION RECOMMENDED FOR ALL ADULTS AGED 19–59 YEARS IN THE USA

Prevailing hepatitis B virus (HBV) vaccination recommendations in the USA included vaccinating adults aged 19–59 years if they had risk factors for HBV exposure. The US Advisory Committee on

[1]University of North Carolina Project-China, Guangzhou, China
[2]Saw Swee Hock School of Public Health, National University of Singapore and National University Health System, Singapore, Singapore
[3]Institute for Global Health, University College London, London, UK
[4]Sexual Health Department, St Helens and Knowsley Teaching Hospitals NHS Trust, Prescot, UK

Correspondence to Dr Rayner K J Tan, University of North Carolina Project-China, Guangzhou, Guangdong, China; rayner.tan@u.nus.edu

Hepatitis Vaccination conducted a systematic review on HBV incidence, morbidity and mortality, and vaccine-related adverse events.[10] From 2011 to 2019, the rate of acute HBV cases increased by over 42% among those aged 40–59 years. Vaccination coverage among adults over 19 years was low (self-reported 30% in 2018) and lower for adults aged ≥50 years (19.1%), even among those with risk factors. Acute HBV leads to chronic HBV disease in up to 6% of cases. The committee thus recommended universal HBV vaccination for all adults aged 19–59 years and for ≥60 years with known risk factors. Universal vaccination recommendation eliminates barriers to vaccination, such as non-disclosure of potentially stigmatising risk factors.

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Twitter Rayner K J Tan @raynerkjtan and Marina Daskalopoulou @drdaska

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ORCID iDs
Marina Daskalopoulou http://orcid.org/0000-0001-9927-0358
Rebecca Thomson-Glover http://orcid.org/0000-0002-7040-0603

REFERENCES

1 Baranek B, Wang S, Cheung AM, *et al*. The effect of tenofovir disoproxil fumarate on bone mineral density: a systematic review and meta-analysis. *Antivir Ther* 2020;25:21–32.
2 Bachrach LK. Hormonal contraception and bone health in adolescents. *Front Endocrinol* 2020;11:603.
3 Kiweewa Matovu F, Kiwanuka N, Nabwana M, *et al*. Intramuscular depot medroxyprogesterone acetate accentuates bone loss associated with tenofovir disoproxil fumarate-containing antiretroviral therapy initiation in young women living with HIV (the BONE: CARE study): a prospective cohort study in Uganda. *Lancet Glob Health* 2022;10:e694–704.
4 Goldstone SE, Giuliano AR, Palefsky JM, *et al*. Efficacy, immunogenicity, and safety of a quadrivalent HPV vaccine in men: results of an open-label, long-term extension of a randomised, placebo-controlled, phase 3 trial. *Lancet Infect Dis* 2022;22:413–25.
5 Garcia-Cremades M, Vučićević K, Hendrix CW, *et al*. Characterizing HIV-preventive, plasma tenofovir concentrations. A pooled participant-level data analysis from HIV pre-exposure prophylaxis (PrEP) clinical trials. *Clin Infect Dis* 2022. doi:10.1093/cid/ciac313. [Epub ahead of print: 26 Apr 2022].
6 Zhang J, Li C, Xu J, *et al*. Discontinuation, suboptimal adherence, and reinitiation of oral HIV pre-exposure prophylaxis: a global systematic review and meta-analysis. *Lancet HIV* 2022;9:e254–68.
7 Baumann L, Cina M, Egli-Gany D, *et al*. Prevalence of *Mycoplasma genitalium* in different population groups: systematic review andmeta-analysis. *Sex Transm Infect* 2018;94:255–62.
8 Scoullar MJL, Boeuf P, Peach E, *et al*. Mycoplasma genitalium and other reproductive tract infections in pregnant women, Papua New Guinea, 2015-2017. *Emerg Infect Dis* 2021;27:894–904.
9 Frenzer C, Egli-Gany D, Vallely LM, *et al*. Adverse pregnancy and perinatal outcomes associated with *Mycoplasma genitalium:* systematic review and meta-analysis. *Sex Transm Infect* 2022;98:222–7.
10 Weng MK, Doshani M, Khan MA, *et al*. Universal Hepatitis B Vaccination in Adults Aged 19-59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices - United States, 2022. *MMWR Morb Mortal Wkly Rep* 2022;71:477–83.