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IMPACT OF UNIVERSAL TESTING AND TREATMENT IN ZAMBIA AND SOUTH AFRICA: HPTN071 (POPART)

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Background:

Universal testing and treatment was proposed as a strategy to achieve steep reductions in HIV incidence in generalized epidemics, yet prior trials showed inconsistent results. We report the results of HPTN071(PopART), the largest HIV prevention trial ever conducted.

Methods:

In this community-randomized trial (2013-18), 21 urban communities in Zambia and South Africa were arranged in 7 matched triplets and randomized within triplets to: Arm A (full PopART intervention including universal ART), B (PopART intervention with ART per local guidelines) and C (standard of care). Local guidelines adopted universal ART in 2016. The PopART combination prevention intervention comprised annual rounds of home-based HIV testing by Community HIV-care Providers (CHiPs) who supported linkage to care, ART adherence and other HIV services. Impact was measured in a Population Cohort (PC) comprising one randomly selected adult (aged 18-44y) from a random sample of ~2,000 households per community, surveyed at baseline, 12m, 24m and 36m. Viral load (VL) was measured in all HIV+ PC participants at 24m. The primary outcome was HIV incidence between 12-36m compared between arms. Intervention data on HIV testing and ART uptake were collected by CHiPs in Arm A and B communities.

Results:

A total of 48,301 adults were enrolled in the PC. Baseline HIV prevalence was similar across arms (A:21.2%; B:21.1%; C:22.4%). Between 12-36m, 553 incident HIV infections were observed in 39,733 person-years (1.4/100py). The adjusted HIV incidence rate ratio for Arm A compared with C was 0.93 (95%CI:0.74-1.18, p=0.51, Table) and for Arm B compared with C was 0.70 (95%CI:0.55-0.88, p=0.006). Intervention data indicated that the first two 90s were achieved in Arms A and B after three annual rounds. Viral suppression (VS: VL<400 copies/mL) at 24m was 72.1% in Arm A, 67.9% in Arm B and 62.5% in Arm C, with lower rates in men and younger adults (<25y).

Conclusion:

The PopART intervention achieved the 90-90-90 targets and high rates of VS (~70%). The intervention, with ART delivered according to local guidelines (Arm B), reduced HIV incidence by 30%. The lack of effect in the full intervention arm (Arm A), where universal treatment was delivered prior to change in guidelines, was surprising and not explained by observed rates of VS. Phylogenetic and qualitative analyses may shed light on this dissonant finding. Community-based HIV testing and linkage is a key component of combination prevention in efforts to achieve effective HIV control.