The impact of HIV on mortality in Nairobi - Kenya, 2015

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Introduction

• Declines in HIV prevalence and increases in antiretroviral therapy (ART) coverage have been documented in Kenya, but mortality associated with HIV has not been directly measured
• Adult HIV prevalence in Kenya’s capital city of Nairobi was 4.9% (Kenya AIDS Indicator Survey 2012)
• We conducted a study to determine HIV-related mortality at two of the largest mortuaries in Nairobi, which accounted for two-thirds of registered deaths in Nairobi in 2013

Materials and methods

• Study sites were;
  – Kenyatta National Hospital (KNH) and
  – Nairobi City mortuary
• Cadavers aged 15 years or older from the two mortuaries were sampled consecutively from Jan 29 – Mar 3, 2015
• Target sample size was calculated as 508 cadavers
• Cardiac blood was collected through a trans-thoracic approach
• HIV testing for the plasma samples was done using the national testing algorithm
• Viral load was quantified using the Abbott m2000 Real Time HIV-1 assay
• UNAIDS Spectrum model-based 2014 estimates of people living with HIV (PLHIV) for Nairobi were used to calculate standardized mortality ratio (SMR) and population-attributable fraction for mortality among the infected vs. uninfected population

Results

• A total of 610 cadavers (75.6% of all cadavers > 15 years) were tested

Fig 1: Specimen testing and viral suppression among cadavers at KNH and City Mortuaries, Nairobi, 2015

- The overall HIV prevalence was 19.5% (95% CI: 16.4 - 22.9%) which differed significantly by sex, mortality and place of death

Fig 2: HIV prevalence by sex, mortality and place of death in Nairobi, 2015

*Place of death data is for City mortuary only

Additional Findings

- The SMR for HIV infection was 4.12 (95% CI: 3.47 - 4.90)
- The attributable fraction in PLHIV was 0.753 (95% CI: 0.707 - 0.792)
- The population attributable fraction was 0.148 (95% CI: 0.119 - 0.177)

Discussion

• Higher prevalence in females is similar to results from the Kenya AIDS Indicator Survey 2012
• Higher prevalence at KNH may result from it being a referral hospital
• HIV positivity among deaths outside the hospital was closer to the general population prevalence (7.3 vs 4.9%)
• Poor viral suppression may indicate many PLHIV who do not know their HIV status, have not accessed ART, had treatment failure or did not adhere to treatment
• In spite of a recent reduction in HIV prevalence and 73% of adult PLHIV receiving ART in Nairobi, the risk of death in HIV-infected persons is four-fold greater than in the uninfected persons
• 14.8% of all adult deaths in Kenya’s capital city can be attributed to the impact of HIV infection

Limitations

• Not all HIV-positive samples were tested for viral load due to hemolysis, resulting in missing information

Conclusion

• Routinely estimating the impact of HIV on mortality is feasible and will contribute to understanding the public health impact of ART

Further information

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