

Abstract

TUPE353 - Poster Exhibition

Parallel change of viral load at population level and reported number of new HIV diagnoses in Hong Kong

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Background: Studies in western countries have highlighted the inter-relationship between population viral load, HAART and new HIV diagnoses. The pattern, if characterised, may be useful for informing HIV control policies. We aimed to explore the annual change of monitored viral load (MVL) and its association with HAART and new diagnoses in Hong Kong, where HAART is accessible in public service.

Methods: Clinical data including demographics and viral load measurements of HIV-infected patients were collected longitudinally from a major HIV specialist clinic in Hong Kong. MVL was assessed in HIV positive heterosexual men and women, and men who have sex with men (MSM). MVL was expressed as total and mean viral load, and the percentage of non-suppressed viral load (NSVL) (>400 copies/mL). Generalized estimating equation (GEE) was applied to measure the variation of NSVL between transmission modes and treatment status across time. Linear regression models for MSM and heterosexual patients were used to examine the association between new diagnoses and MVL.

Results: In 1998-2012, clinical data of 2200 patients - 781 heterosexual men, 362 heterosexual women and 1057 MSM - were evaluated. Since the introduction of HAART in 1997, the proportion of patients on HAART had increased while NSVL decreased correspondingly over time. The difference between total MVL and in-care viral load, the latter incorporating missing viral load by estimation, was minimal. The total MVL of heterosexual men started to drop from 2008 alongside reported new diagnoses, while that of MSM had continued to rise. From GEE, measurements before 2000, MSM and not being on HAART were more likely to be associated with NSVL. In regression model for heterosexuals, there was no association between new diagnoses and MVL. However, in MSM, the number of new diagnoses was a predictor for MVL, NSVL and HAART for the respective years. In reverse, MVL and NSVL were predictors for new MSM HIV diagnoses after a 1- or 2-year lag.

Conclusion: The increasing number of patients on HAART was associated with decreasing viral load at individual and community levels. They were significantly associated with the number of new diagnoses.