

O078

1-hour Oral Session

Vaccination: experimental and clinical correlates

Five-year follow-up of serological responses to primary vaccination with 1 versus 2 doses of 7-valent pneumococcal conjugate vaccine in HIV-infected patients receiving combination antiretroviral therapy

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**Objectives:** Longitudinal follow-up studies of serological responses to primary vaccination with 7-valent pneumococcal conjugate vaccine (PCV7) are scarce among the HIV-infected patients. We aimed to compare the serological responses annually for 5 consecutive years to primary vaccination with 1 versus 2 doses of 7-valent PCV among HIV-infected adults receiving combination antiretroviral therapy (cART).

**Methods:** Two hundred and twenty-one HIV-infected patients who had undergone primary vaccination with 1 (n=109) or 2 doses (n=112) of PCV7 between 2008 and 2010 were longitudinally followed for evaluation of significant serological responses that was defined as 2-fold or greater increase of antibody titers following vaccination to 2 or more of the 4 serotypes (serotypes 6B, 14, 19F, and 23F) studied. Sequentially collected blood samples were determined for anti-capsular antibody titers against the 4 serotypes at baseline and annually for 5 years using ELISA after absorption with 10 µg/ml cell-wall polysaccharide and 30 µg/ml 22F polysaccharide. The generalized estimating equations (GEE) to account for the interdependence among observations were used to compare mean response rate to different PCV doses, with adjustments made for other variables such as CD4 count or plasma HIV RNA load at vaccination.

**Results:** The two groups of HIV-infected patients were well matched for age (35.8 vs 36.1 years), sexual orientation (male homosexuals, 86.1 vs 80.6%), receipt of cART (70.6 vs 72.3%), CD4 count (437 vs 453 cells/mm<sup>3</sup>) and plasma HIV RNA load (2.8 vs 2.6 log<sub>10</sub> copies/ml), and the proportion of patients on cART (70.6 vs 72.3%) at vaccination. At the beginning of the 5th year of follow-up, the CD4 count has increased to 582 and 602 cells/mm<sup>3</sup> in the 1- and 2-dose group, respectively; and the proportion of patients with plasma HIV RNA load <20 copies/ml was 83.0 vs 81.6%, respectively, when nearly 100% of the two groups of the patients were receiving cART. Throughout the 5 years of longitudinal follow-up, the overall serological response rate to serotype 19F remained the lowest. In multivariate analysis, vaccination with 2 doses of PCV7 was statistically significantly associated with achievement of significant serological response than vaccination with 1 dose (adjusted odds ratio, 1.73 [95% confidence interval, 1.04-2.89]).

**Conclusions:** Primary vaccination with 2 doses of PCV7 achieves a significantly better serological responses than that with 1 dose of PCV7 among HIV-infected patients throughout the 5 years of follow-up in the era of cART.