

Poster presentation

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P04-50 LB. Prevalence of cross-reactive HIV-1 neutralizing activity in HIV-1 infected patients with rapid or slow disease progression

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Background

The native envelope gp160 trimer of HIV-1 is thought to shield vulnerable epitopes that could otherwise elicit effectively neutralizing antibodies. However, little is known about the prevalence of naturally occurring cross-reactive neutralizing activity in serum of HIV-1 infected individuals.

Methods

Here we studied 35 participants of the Amsterdam Cohort Studies on HIV-1 infection (20 long-term non-progressors (LTNP) and 15 progressors) for the presence of cross-reactive neutralizing activity in their sera at 2 and 4 years after seroconversion (SC). Neutralizing activity was tested in a pseudovirus assay, against a panel of HIV-1 envelope variants from subtype A, B, C, and D.

Results

Already at year 2 post-SC, 7 out of 35 individuals (20%) had cross-reactive neutralizing activity, which increased to 11 individuals (31%) at 4 years post-SC. There was no difference in the prevalence of cross-reactive neutralizing serum activity between LTNP and progressors. Interestingly, high plasma viral RNA load and low CD4+ cell count at set-point were associated with early development of cross-reactive neutralizing activity. Neutralization titers in serum increased during the course of infection for 91% of individuals studied here, albeit less rapidly for those who did not develop cross-reactive neutralizing activity.

Conclusion

Overall, we here demonstrate a relatively high prevalence of cross-reactive neutralizing activity in HIV-1 infected individuals, which increased with duration of infection. These data may imply that immunogenicity of the native envelope spike of HIV-1 for eliciting cross-reactive humoral immune responses may be better than previously anticipated.