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Poster presentation

P18-10. Ability of HIV antigens-pulsed monocyte-derived dendritic cells to induce HIV-specific T cell response: potential use in therapeutic vaccine

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Background

Despite 20 years of effort, the design of an effective HIV-1 vaccine remains an enormous challenge. In this scenario, new immunological approaches must be considered. Dendritic cells-based vaccines have been widely used in cancer therapy showing interesting successful results. More recently, Lu et al. (2004) described large reductions on virus load in untreated HIV-infected patients immunized with autologous DC pulsed with inactivated viruses. Although encouraging, these results showed sustained virus reduction in only half of vaccinees. Besides, isolating virus from each patient is a rather laborious and expensive process. Based on that monocyte-derived dendritic cell (Mo-DC) vaccine model we evaluated the use of alternative HIV products in order to simplify the process of vaccine production, reduce costs and achieve protective immune responses on a greater number of individuals.

Methods

Monocytes from HIV-serodiscordant couples were differentiated *in vitro* into dendritic cells, pulsed with a pool of aldrithiol-2-inactivated HIV-1 subtypes or the HIV-1IIIB p55Gag protein and then cultured with autologous lymphocytes for 7 days. At day 7, the culture received a boost of fresh Mo-DCs pulsed with the same antigens. The T lymphocyte immunological response was determined by proliferation assay, IFNγ production and cellular activation. The Mo-DC phenotype was also evaluated.

Results

Mo-DCs were shown to be fully matured and activated ($CD11c^{+}HLA\text{-}DR^{hi}CD86^{hi}CD80^{hi}CD83^{+}$) in both antigen-pulsing protocols. IFNγ production by T CD4+ and CD8+ lymphocytes, as well as the percentage of CD38+ cells, was always higher when stimulated with pulsed Mo-DCs compared to non-pulsed cells. The T lymphocyte proliferation of pulsed Mo-DCs was also significant greater compared to the non-pulsed condition, being slightly but not significantly higher in p55Gag-pulsed cells.

Conclusion

This easier and cheaper Mo-DC vaccine model elicited in vitro detectable cellular immune responses in HIV-uninfected subjects, which suggests a broader range of action and represents a viable and promising alternative of therapeutic vaccination.