Background

MSM still being a key population on HIV-1 epidemiology [1]. MSM with high-risk sexual behaviours are at great risk of exposure to infection [2]. Better intervention strategies are urgently needed, such as biomedical research to develop new options for prevention and treatment. The study of seronegative MSM with high-risk behaviours represents an important opportunity to better understand HIV-1 infection and immune response to improve the current intervention strategies [3,4].

Methods

Prospective descriptive study in 45 MSM of Medellin-Colombia-South America. Sociodemographic and sexual behavior data were collected through a structured survey. The basal activation profile of T cells was evaluated from PBMCs by the expression of CD38, HLA-DR, CD69 and Ki67 by flow cytometry. To evaluate the functional response of T lymphocytes against HIV-1, PBMCs were cultured overnight in the presence of Staphylococcus aureus Enterotoxin B (positive control) or HIV-1 Gag peptides; the percentage of cells that produce TNFα, IFNγ, MP1β and Granzyme B was quantified by intracellular flow cytometry.

Results

We included 44 MSM with high and low risk of exposure (14 and 30, respectively). The high-risk group presented a higher frequency of sexual partners in the 3 months prior to the inclusion of the study (Me=31 vs Me=2; p<0.05), sexual partners throughout life (Me=900 vs Me=30; p<0.005) and unprotected anal intercourses, showing higher risk behaviours compared to other international MSM cohorts (Tables 1 and 2).

Although no differences were found in the specific CTL response against HIV-1 between both groups, four individuals were found who exhibited a specific response to HIV-1 by production of TNFα, IFNγ or both, after overnight stimulation with Gag peptides. HIV-1 One of them showed this specific response in two measurements one year apart (Figure 2).

Conclusion

Taking together, our results can show a protective profile with low activation of T cells in MSM with high-risk behaviours and specific CTL response to HIV-1 peptides without evidence of infection. It is necessary to continue the study of MSM in high risk of exposure to HIV-1 to better understand their natural response to the virus and improve the prevention and therapy strategies against HIV-1.

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