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Polyfunctional T-cell profile and its association with antibody titers in HIV-infected individuals with low CD4-nadir after seasonal influenza vaccination (FLUvaccHIV)

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BACKGROUND INFORMATION

Influenza-vaccination is one of the most potent preventive measures to protect vulnerable populations, e.g. HIV-infected patients. Nevertheless it is unknown if the immune system in HIV-infected patients is restored upon HIV treatment (HAART) to generate a protective cross-reactive cellular influenza-specific immune response (=polyfunctional immune response characterized by the secretion of multiple cytokines upon pathogen encounter and associated with viral clearance / control). A preliminary evaluation performed at our Division suggests that the timing of HIV treatment initiation that is directly associated with the CD4-nadir influences the polyfunctionality of the cellular immune response after vaccination, possibly derogating protective immune responses despite CD4 cell count recovery under HIV treatment.

OBJECTIVES

We hypothesize that the functionality of the influenza-specific immune response is dependent on CD4-nadir despite CD4 cell recovery under HIV treatment.

We aim to evaluate the change (Δ) of the polyfunctional influenza-specific T-cell profile before and after recommended seasonal influenza vaccination.

Secondary endpoints include the detailed description of the T-cell functionality and its association with a protective influenza-specific humoral immune response.

STUDY DESIGN AND PROCEDURES

Exploratory controlled prospective observational non-interventional cohort study AND basic research project / proof-of-concept assessment, evaluating the change of influenza-elicited immune responses in HIV-infected individuals stratified by CD4-nadir, and healthy controls.

Immune responses will be evaluated in eligible and consenting individuals before and after recommended seasonal influenza vaccination ex vivo.

ASSESSMENT OF

- polyfunctional influenza-specific T-cell profile elicited by seasonal influenza vaccination ex vivo;
- cytotoxic and proliferative capacities of influenza specific T-cell subsets after vaccination ex vivo;

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- association between influenza-specific T-cell polyfunctionality and humoral vaccine-elicited immunity;
as a function of CD4-nadir.

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