12-month immunological changes in patients randomized to switch either to BIC/TAF/FTC or DTG/3TC (DEBATE Study)

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Background and Aim

Dolutegravir/lamivudine (DTG/3TC) is recommended either as initial or switch regimen by international guidelines; however, few data exist on the control of inflammation after switching to this regimen. The aim of the present study was to evaluate, in a randomized longitudinal study, the immunological impact of switching to bictegravir/emtricitabine/tenofovir alafenamide (BFTAF) or to DTG/3TC.

Methods

Open-label, prospective, randomized trial enrolling 66 patients on a triple-drug regimen and with a stable (>12 months) undetectable HIV RNA. Blood was obtained from patients treated with BFTAF (n=33) or DTG/3TC (n=33) longitudinally studied at time 0, after 6 (T6) and after 12 months (T12). By polychromatic flow cytometry, we characterized peripheral blood T cells, B lymphocytes and monocytes. Statistical analysis was performed by paired or unpaired Student’s t test.

Results

At T12, absolute number of T and B lymphocytes were similar in either group. However, differences were present in CD4+ T cells: the DTG/3TC group (yellow) showed a more marked increase with time in transitional memory lymphocytes (T0 vs. T6: p=0.0022; T0 vs. T12: p=0.0001), terminally differentiated T cells (T0 vs. T12: p=0.0007), exhausted cells (T0 vs. T12: p=0.0004) and T stem cell memory (T0 vs. T6: p=0.0014; T0 vs. T12: p=0.0019). Activated CD4+ T cells were more represented in BFTAF group (blue, T0 vs. T12: p=0.0367).

Conclusions

In this randomized study, switch to DTG/3TC was associated after 12 months with an increase both in CD4+ and CD8+ T lymphocytes with markers related to terminal differentiation and exhaustion, and in non-classical monocytes, a population of cells that has been recently associated with endothelial dysfunction. Taking into account the importance of endothelial cells in triggering inflammation and in sustaining such process, further studies are need to deepen our findings.