Reviewer's report

Title: Durability of switch regimens based on rilpivirine or on integrase inhibitors, both in association with tenofovir and emtricitabine, in HIV-infected, virologically suppressed patients

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Reviewer: Delphine Sculier

Reviewer's report:

This is an interesting observational study comparing rilpivirine and INSTI use along with NRTI backbone in virologically suppressed patients in routine clinical practice.

Eligible patients were those with at least one HIV-RNA assessment while on study drug regimen. However, virological failure was defined as two consecutive HIV-RNA measurements > 50 copies/ml. The authors included 675 patients but it is not stated how many had only one HIV-RNA measurement and therefore not possibly meeting the definition of virological failure. According to the number of patients with only one HIV-RNA measurement, virological failure could possibly be underestimated. Therefore, the denominator would preferably be patients with at least 2 HIV-RNA measurements while on study drug regimen.

The definition of viral blip should be more precise: does "unconfirmed HIV-RNA > 50 copies/ml" mean one sample available not confirmed thereafter (i.e. in patients with only one HIV-RNA measurement during study period) or followed by one measurement < 50 copies/ml?

The proportion of time with residual viremia expressed as a % is not very intuitive. Discussing about time with residual viremia, one may expect a unit of time. The equation described in the methods section may warrant additonal statistical review from my point of view.

Table 1- baseline characteristics: some described characteristics are not really relevant in routine clinical pratice or could be ommitted (too many information in the table): CD8, CD4/CD8 ratio, ALP, AST, direct or indirect bilirubin, platelets, FIB-4, proteinuria, calcium, phosphates, diabetes, history of malignancy.

In the same table, authors should clarify what they mean by "higher HIV-RNA before starting ART"
Table 2 - patients' characteristics at virological failure: there are two columns with CD4 at failure. It would be interesting to know which resistance mutations were already present at time of switch and which ones occurred while on treatment.

Side effects: it would be interesting to have more details on the non-tenofovir related toxicity in the rilpivirine and INSTI groups.

Treatment failure was independently associated with baseline total/HDL ratio. In the discussion, the authors mentioned that patients with higher baseline total/HDL cholesterol ratio may have been switched from RIL or INSTI in attempt to normalize dyslipidemia. This is surprising as RIL and INSTI are quite "lipid-friendly" compared to older regimens.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I recommend additional statistical review

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Yes, the study entitled "Rilpivirine use in the Swiss HIV cohort: a prospective cohort study" and published in BMC Infectious Diseases 2017 Jul 6;17(1):476 received a grant from Gilead Sciences.

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