NRTI-sparing regimens: renal safety

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Introduction

The aging of HIV-population causes an increase in comorbidities and polypharmacy; the burden of comorbidities is enhanced by the toxicities of the nucleoside reverse transcriptase inhibitors (NRTIs). Current dual treatments could help avoiding the drawbacks, and in particular the worsening of renal function, caused by the NRTIs, while maintaining virological efficacy.1,2,3

Study Design

The aim of this study is to assess the virological efficacy and renal safety of NRTI-sparing regimens in a cohort of HIV-infected patients, in consideration of their previous ART, their individual characteristics (age, sex and race) and their comorbidities (diabetes, arterial hypertension and co-infection with HBV or H BV).

Methods

- This is an observational retrospective study on 94 HIV-infected patients who underwent NUC-sparing antiretroviral therapy from January 2009 to March 2017.
- We collected data on age, sex, race and comorbidities (diabetes, arterial hypertension, HBV or HCV-co-infection) and immunological status.
- The cohort included both naive and experienced patients, regardless of the HIV RNA detectability pre-switch and we studied the virological success at last visit and, if available, at 48 weeks.
- We evaluated the eGFR using CKD-EPI and the proteinuria/creatininuria ratio (Up/Uc) at baseline, at 4, 24 and 48 weeks. Through a multivariate analysis, we correlated renal function with sex, age, race, comorbidities and previous ART.

Results

The NUC-sparing regimens distribution in our cohort from January 2009 to March 2017 is described by Figure 1.

- Reasons for the choice of these NUC-sparing regimens were: altered renal function (29 pts), osteopenia/osteoporosis (19 pts), cardiovascular risk and/or dyslipidaemia (23 pts), virological failure (37 pts), pill burden reduction (6 pts) and intolerance/side effects (14 pts).
- Mean age of the population was 50 ± 9.9 years, with 63 males (67%).
- 12 patients had diabetes (12.8%), 40 had hypertension (42.6%).
- Only 2 patients (2.1%) were HbsAg positive, while 21 patients (22.3%) had detectable HCV RNA.
- At baseline 58 patients had undetectable HIV RNA, 36 patients had detectable viral load.
- ART regimens before the switch included TDF in 65 patients (69%), ABC in 13 patients (14%) and others NRTI in 14 patients (15%).

Table 1: Baseline characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Baseline (n=94)</th>
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<tbody>
<tr>
<td>Mean age</td>
<td>50 ± 9.9 y</td>
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<tr>
<td>Male gender</td>
<td>63 (67%)</td>
</tr>
<tr>
<td>White race</td>
<td>85 (90.4%)</td>
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<tr>
<td>Body mass Index</td>
<td>23 (24.7%)</td>
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<tr>
<td>HbsAg</td>
<td>2 (2.1%)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>12 (12.8%)</td>
</tr>
<tr>
<td>Arterial Hypertension</td>
<td>40 (42.6%)</td>
</tr>
<tr>
<td>eGFR before the NUC-sparing regimen</td>
<td>58 (62%)</td>
</tr>
<tr>
<td>Previous ART</td>
<td>TDF-experienced</td>
</tr>
<tr>
<td></td>
<td>ABC-experienced</td>
</tr>
<tr>
<td></td>
<td>other NRTI</td>
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</tbody>
</table>

Conclusions

Efficacy

At last visit 86 patients (81%) had HIV RNA undetectable: 58 patients of them maintained the virologic suppression and 28 patients gained the undetectability. The virological follow-up at 48 weeks was achieved for 65 patients (25 of them had HIV RNA detectable at baseline): all of them gained the virological success.

Safety

- A correlation between eGFR and age, sex, race was not found (p 0.33).
- As expected, hypertension caused lower eGFR (p 0.0013) and higher Up/Uc (p<0.05), while diabetes caused only higher Up/Uc (p=0.05) but it was not correlated with lower eGFR (p>0.08).
- Patients with detectable HCV RNA had higher Up/Uc (p<0.05).
- Renal function improved in those patients who stopped TDF (p=0.033) rather than others NUCs.
- The renal function of the cohort remained stable during the 48 week-long follow-up (Figure 2).

Conclusion

NRTI-sparing regimens are valid therapeutic options in patients with HIV since they help preventing and reducing kidney disease progression, while maintaining a virological efficacy even in multi-experienced patients. The same result is confirmed with HIV patients at higher risk of kidney disease, such as those with hypertension, diabetes and HCV infection.

Reference