Uptake and Effectiveness of Two-drug Compared to Three-drug Antiretroviral Regimens among HIV-positive Individuals in Europe


Although two-drug antiretroviral regimens (2DR) have been assessed in several randomized controlled trials, there is little information on uptake and outcomes of these regimens in routine clinical practice. We investigated the use of 2DR in the EuroSIDA cohort.

METHODS

• Study population: Individuals who started a 2DR containing darunavir/r, and Tenofovir/Emtricitabine or Abacavir/Lamivudine and Tenofovir/Emtricitabine and were part of the EuroSIDA cohort.

• Exclusion criteria: Individuals with a VL measurement available at 6 or 12 months after starting the 2DR regimen (treatment failure: VL ≥400 copies/ml or no VL at 6 or 12 months ≥16 weeks, change of ARV regimen, AIDS or death).

• Immunological response was defined as a 100 cell/μl increase or a 25% increase in CD4 count at 12 months ≥16 weeks.

RESULTS

1. Characterisation of ART regimens used

- 423 individuals started a 2DR after 01 July 2010, and 4347 started a 3DR consisting of two NRTIs and an anchor drug. The regimens used are summarised in Figure 1.

2. Uptake of 2DR

- Characteristics of individuals on 2DR or 3DR are shown in Table 1. Compared to those starting a 3DR, those on 2DR tended to be older, have higher CD4 counts and controlled VL, and were more likely to experience a greater cumulative exposure to all the ARV classes. Only 6 individuals starting a 2DR (2%) were ARV naive; most switched to the 2DR with controlled VL (Figure 2). Individuals on 2DR also had less patient comorbidities and clinical conditions (Table 1).

3. Effectiveness of 2DR

- Outcomes were assessed in individuals with 6 or 12 months follow-up available. More than 93% of individuals with data available had a controlled VL 6 or 12 months after starting their 2DR or 3DR. Virological responses by the FDA snapshot and immunological responses (involving ≥100 cells/μl CD4 increase) were similar for 2DR and 3DR (Figure 3) and logistic regression modeling showed similar odds of a virological or immunological response for individuals on 2DR and 3DR (Figure 4).

CONCLUSIONS

2DR were largely used by individuals with well-controlled viremia and high CD4 counts who tended to be older and have more comorbidities. Virological and immunological outcomes were in line with results from clinical trials and support immunological and virological responses to 2DR were similar to 3DR, although confounding by indication cannot be excluded.

References


2. See: https://nchp.who.int/EuroSIDA

Table 1. Baseline characteristics of individuals starting a 2DR or 3DR after 30 June 2010.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>2DR (N=4347)</th>
<th>3DR (N=4347)</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>47.2 (43.0–51.5)</td>
<td>46.4 (43.0–51.5)</td>
<td>1.00 (0.99–1.01)</td>
</tr>
<tr>
<td>Gender – Male</td>
<td>60.2%</td>
<td>59.1%</td>
<td>1.01 (0.99–1.03)</td>
</tr>
<tr>
<td>Region of Europe **</td>
<td>61.3% (50–70)</td>
<td>51.3% (38–60)</td>
<td>1.00 (0.98–1.02)</td>
</tr>
<tr>
<td>Ministry of Health – South</td>
<td>66% (56–75)</td>
<td>56% (46–66)</td>
<td>1.00 (0.98–1.02)</td>
</tr>
<tr>
<td>Integrase inhibitors – Virological suppression</td>
<td>66% (56–75)</td>
<td>56% (46–66)</td>
<td>1.00 (0.98–1.02)</td>
</tr>
<tr>
<td>CD4 increase by ≥100 cells/μl</td>
<td>66% (56–75)</td>
<td>56% (46–66)</td>
<td>1.00 (0.98–1.02)</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>66% (56–75)</td>
<td>56% (46–66)</td>
<td>1.00 (0.98–1.02)</td>
</tr>
</tbody>
</table>

Figure 1. Characterisation of the ART regimens used

Figure 2. Treatment status and baseline VL on starting a 2DR or 3DR

Figure 3. Virological control, FDA snapshot and immunological responses 6 or 12 months after a 2DR or 3DR

Figure 4. Adjusted odds ratios for virological or CD4 cell responses for 2DR compared to 3DR

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The EuroSIDA Study Group. EuroSIDA, Global Health Institute, Institute of Clinical Medicine, University of Oslo, PO Box 1173, Blindern, N-0317 Oslo, Norway, and Department of Clinical Sciences, University of Copenhagen, Denmark, and Department of General Practice, Aarhus University, Denmark, and the Danish AIDS Foundation, Denmark, and Department of Infectious Diseases, Hospital LMH, Aarhus University, Denmark, and the Luxembourg Institute of Health, Luxembourg, Luxembourg.

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