Real-world persistence with antiretroviral therapy for HIV in the United Kingdom: a multi-centre retrospective cohort study

JM Lewis¹,¹⁰, C Smith², A Torkington³, C Davies³, S Ahmad³, A Tomkins³, J Shaw⁴, M Kingston⁴, G Muqbill⁵, P Hay⁵, L Mulka⁶, D Williams⁶, L Waters⁷, N Brima⁷, N Marshall⁸, M Johnson⁸, M Chaponda¹, M Nelson⁹

¹ Royal Liverpool University Hospital; ² University College London; ³ North Manchester General Hospital; ⁴ Manchester Centre For Sexual Health; ⁵ St Georges Hospital, London; ⁶ Brighton and Sussex University Hospital; ⁷ Mortimer Market Centre, London; ⁸ Royal Free London; ⁹ Chelsea and Westminster Hospital, London; ¹⁰ Wellcome Trust Liverpool Glasgow Centre for Global Health Research, Liverpool.
Background: regimen persistency

• Adherence
  • The extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen.

• Persistence
  • The duration of time from initiation to discontinuation of therapy.

• Data on persistence of an ARV regimen can inform us on effectiveness, durability, tolerability and costs associated with switches.

Aims

Compare persistence of different antiretroviral (ARV) regimens in ARV-naïve individuals according to:

• NRTI backbone

• Third agent

• Single tablet regimen (STR) vs multiple tablet regimens (MTR)
Methods

• Retrospective cohort study across 9 UK centres
• Aggregate data extracted from local treatment databases
• Inclusion criteria: ARV naïve patients starting ARVs between January 2012 and June 2015
• Considered regimens were:
  • Co-formulated EFV/TDF/FTC or RPV/TDF/FTC OR
  • Co-formulated TDF/FTC or ABC/3TC WITH
    • DRV/r, ATV/r, EFV or RAL
• Patients followed from ART start date until last available viral load
• Incidence rates used to compare time to discontinuation
Results: patient demographics

<table>
<thead>
<tr>
<th></th>
<th>Number [%] or median [IQR]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1682 [86%]</td>
</tr>
<tr>
<td>Age</td>
<td>37 [30-45]</td>
</tr>
<tr>
<td>MSM risk</td>
<td>1,368 [70%]</td>
</tr>
<tr>
<td>White ethnicity</td>
<td>1,371 [70%]</td>
</tr>
<tr>
<td>VL &gt; 100,000 c/ml</td>
<td>729 [37%]</td>
</tr>
<tr>
<td>CD4 &lt; 200 cells/mm³</td>
<td>399 [20%]</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,949</td>
</tr>
</tbody>
</table>

2 centres were unable to contribute any data for 902 patients taking EFV/TDF/FTC as data could not be extracted as to whether they were taking MTR or STR; these patients are excluded from the analysis.
Results: regimens

* 2 centres were unable to contribute any data for 902 patients taking EFV/TDF/FTC as data could not be extracted as to whether they were taking MTR or STR; these patients are excluded from the analysis.
Results: rates of discontinuation

Rate of switch of 3rd agents and STR

P < 0.01
Results: backbone discontinuation

Rate of switch of co-formulated TDF/FTC vs ABC/3TC

<table>
<thead>
<tr>
<th>Drug Combination</th>
<th>Number of Patients</th>
<th>Number of switches</th>
<th>Total follow up (person-years)</th>
<th>Rate of discontinuation of NRTI backbone per person-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDF/FTC</td>
<td>643</td>
<td>63</td>
<td>550</td>
<td>0.002</td>
</tr>
<tr>
<td>ATV/r</td>
<td>302</td>
<td>23</td>
<td>212</td>
<td>0.002</td>
</tr>
<tr>
<td>EFV</td>
<td>97</td>
<td>15</td>
<td>67</td>
<td>0.002</td>
</tr>
<tr>
<td>RAL</td>
<td>163</td>
<td>23</td>
<td>196</td>
<td>0.002</td>
</tr>
<tr>
<td>TDF/FTC</td>
<td>41</td>
<td>11</td>
<td>61</td>
<td>0.002</td>
</tr>
<tr>
<td>ATV/r</td>
<td>89</td>
<td>14</td>
<td>88</td>
<td>0.002</td>
</tr>
<tr>
<td>EFV</td>
<td>147</td>
<td>22</td>
<td>105</td>
<td>0.002</td>
</tr>
<tr>
<td>ABC/3TC</td>
<td>1939</td>
<td>292</td>
<td>1025</td>
<td>0.002</td>
</tr>
<tr>
<td>All TDF/FTC*</td>
<td>2215</td>
<td>339</td>
<td>254</td>
<td>0.002</td>
</tr>
<tr>
<td>All ABC/3TC</td>
<td>1949</td>
<td>339</td>
<td>1949</td>
<td>0.002</td>
</tr>
</tbody>
</table>

* Single tablet regimens (STR) excluded
Reasons for discontinuation

![Bar chart showing reasons for discontinuation]

- **Toxicity**
- **Simplification/patient choice**
- **Virologic failure**
- **Other**
- **Not recorded**
Reasons for discontinuation: backbone

- Toxicity
- Simplification/patient choice
- Virologic failure
- Other
- Not recorded

Bar chart comparing switches for TDF/FTC (excl. STR) and ABC/3TC.
Limitations

• **Retrospective, observational** data with all the drawbacks that entails

• **Aggregate** data – unable to provide more detail on time of switch

• **902 patients** taking EFV/TDF/FTC **excluded**

• High proportion of **missing data** for reasons for **switching ARVs**
Conclusions

- Persistency of all regimens similar except co-formulated RPV/TDF/FTC for which the rate of discontinuation was **significantly lower**.
  - Reasons for switching not well recorded so reasons not clear.
  - Perhaps low toxicity and STR?
  - Selection bias towards adherent patients?
- Rate of discontinuation of co-formulated TDF/FTC **significantly lower** than ABC/3TC
  - Again, reasons not clear from our data.
- **Similar rates** of switching between STR and MTR EFV/TDF/FTC
Thank you