Insufficient PrEP monitoring and HIV drug resistance

V. Tittle, M. Boffito, K. Gedela, T. Suchak, S. Patel, A. McOwan, G. Whitlock

Chelsea and Westminster Hospital
NHS Foundation Trust

701
M184V/I and K65R

- M184V/I – Emtricitabine/FTC
- K65R – Tenofovir disoproxil fumarate/TDF
- UK HIV drug resistance database
  - ART-naïve patients = 3.2% NRTI (2014)
  - ART-experienced = 14.7% NRTI (2014)

PrEP resistance...what we know

Type of resistance found in PrEP studies:

FTC-related
- PROUD/iPrEX

TDF/FTC
- TDF2 (one patient)

Acute HIV infection at risk

PrEP resistance...what we know

Case report of transmitted resistance

**JAMA review, 2018**

- Resistance doesn’t occur in adherent patients
- Resistance occurs <0.1%

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95 previous PrEP users/ 3721 new diagnoses
26% vs 2% had M184I/V/I/V/MV (p=<0.0001)
4 pts had K65R – but none in PrEP group

PrEP at 56 Dean Street

& Monitoring at baseline and during usage
Aims

• Review of newly Dx HIV
  – baseline resistance of M184V/I or K65R
  – AND pre-PrEP use
• Review patient journeys
• Review management of these patients
Methodology

• Newly Dx HIV database - July 2015- January 2019
• Retrospectively reviewed case notes

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly Dx HIV</td>
<td>Transfer of care/previously known</td>
</tr>
<tr>
<td>MI84V/I at baseline</td>
<td>HIV diagnosed at PEP f/up</td>
</tr>
<tr>
<td>K65R at baseline</td>
<td>&lt;18 yr olds</td>
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<tr>
<td>Documented PrEP use &lt;6/12</td>
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</tbody>
</table>
Results

- 991 new HIV positive patients, 10 patients M184V/I
- 5 patients with M184V and/or I AND previous PrEP-use
- 0 = K65R

= 0.5 %

(Nil from IMPACT or PrEP shop)
Results 2

- All cis male, MSM
- Ages 28-45 years old
- CD4 430-1480
- Duration on PrEP
  - <3/12 x 3
  - <12/12 x2
- Range of months since last negative HIV test
  = 2-12 months
## Patient journeys

<table>
<thead>
<tr>
<th>Patient</th>
<th>PrEP source</th>
<th>Dosage</th>
<th>Adherence</th>
<th>Baseline HIV test</th>
<th>RITA</th>
<th>HIV Viral load (cpm)</th>
<th>VRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Online</td>
<td>Event-based</td>
<td>Poor</td>
<td>Unknown</td>
<td>&gt;4/12</td>
<td>2190</td>
<td>M184I</td>
</tr>
<tr>
<td>2</td>
<td>Online</td>
<td>Daily</td>
<td>Poor</td>
<td>No</td>
<td>&lt;4/12</td>
<td>&lt;20 *16 days later = 368</td>
<td>MI184VI</td>
</tr>
<tr>
<td>3</td>
<td>Online</td>
<td>Daily</td>
<td>6/7 pills before UPAI</td>
<td>Failed test</td>
<td>&lt;4/12</td>
<td>2415</td>
<td>M184I</td>
</tr>
<tr>
<td>4</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>No</td>
<td>&gt;4/12</td>
<td>70768</td>
<td>MI184 V/I</td>
</tr>
<tr>
<td>5</td>
<td>Online</td>
<td>Daily</td>
<td>Stopped 2/12 prior to Dx</td>
<td>No</td>
<td>&lt;4/12</td>
<td>523</td>
<td>M184V</td>
</tr>
</tbody>
</table>
Management

• All (n=5) = TDF/FTC
  + Rezolsta (4)
  + DTG (1) due to DDI with Seretide
• Number of days from Dx to Rx
  – median 9 days, range 6-50 days
• VL at 3/12
  – 3 x <20
  – 2x LTFUP
Conclusions

• Patients still became undetectable on treatment
• The importance of ‘attending’ for a test
• If HIV +, should patients be intensified instead of stopping TDF/FTC
Limitations

• Retrospective
• Unable to determine time and nature of acquisition
• Small number of patients
• Not yet able to obtain denominator of those taking PrEP
• Missing data
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