MANAGEMENT OF HIV-2 INFECTED INDIVIDUALS IN THE NORTH EAST LONDON HIV NETWORK

Dr Penelope Sellers
Barts Health NHS Trust

Dr Jane Deayton, Professor Jane Anderson Dr Rageshri Dhairyawan, Dr Simon Limb, Dr Iain Reeves.
None
HIV-2 BACKGROUND

- **HIV-2**
  - Minority species, genetically distinct from HIV-1
  - Mainly West Africa

- **Differences between HIV-1 and HIV-2**
  - Natural history
  - Plasma viral load
  - Transmissibility
  - CD4 count
  - Susceptibility to current ART
  - Genetic barrier to resistance
  - Response to therapy
HIV-2 ART

- No RCTs:
  - when to start ART
  - the choice of 1ST/2ND therapy for HIV-2
  - Non-Nucleoside Reverse Transcriptase inhibitor (NNRTI)
  - innate resistance
  - HIV-2 active boosted PI-containing regimens
    - favourable virologic and immunologic responses cf. 2 or 3-NRTI-based regimens
  - Two NRTIs plus an HIV-2 active boosted PI or II

2010 BHIVA HIV2 Guidelines

Table 1. Preferred first-line regimens

<table>
<thead>
<tr>
<th>Regimen</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred</td>
<td>Lopinavir/ritonavir</td>
<td>Tenofovir*</td>
<td>Emtricitabine*</td>
</tr>
<tr>
<td>Alternative</td>
<td>Darunavir/ritonavir</td>
<td>Zidovudine†</td>
<td></td>
</tr>
</tbody>
</table>

*Coformulated as Truvada (Gilead, Cambridge, UK).
†May be coformulated as Combivir (ViiV Healthcare UK Ltd, Uxbridge, Middlesex, UK).
Choose one drug each from columns A, B and C [Licensing is based on the European Medicines Agency (EMEA)].
AIMS

• Information on HIV-2 limited to observational cohort studies

• North East London: largest cohort in the UK and one of the larger, non-African cohorts globally
  • UK 137 cases since 2011*
    – North East London: 58 known HIV-2 cases

• Aims
  – Define cohort
  – Document management strategies
  – Assess clinical outcomes of ART

*PHE: Personal Communication, 2018
METHOD

• Cohort Study
  • well-defined, consented cohort established in North East London.
    • Barts Health NHS Trust
    • Barking, Havering and Redbridge University Hospitals NHS Trust
    • Homerton University Hospital NHS Foundation Trust
  • Basic demographics, Diagnostic information, ART management, SEs, regimen changes, VL/CD4
**BASIC DEMOGRAPHICS**

**Age and Gender**
(n=54)

- Frequency
- Age (Years)
  - 20 - 35
  - 35 - 50
  - 50 - 65
  - > 65

- Gender
  - F
  - M

**Origin**
(n=54)

- Africa, 45
- Europe, 6
- Asia, 3

**Country of origin (Africa)**
(n=45)

- Ghana
- Guinea Bissau
- Other

- 10
- 13
- 21
**DIAGNOSIS**

- 43 HIV-2
- 11 Dual HIV-1 / HIV-2 infection
- 86% heterosexual

**LOCATION**

N=42

<table>
<thead>
<tr>
<th>Location</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenatal</td>
<td>7</td>
</tr>
<tr>
<td>GUM</td>
<td>10</td>
</tr>
<tr>
<td>GP</td>
<td>2</td>
</tr>
<tr>
<td>Hospital</td>
<td>8</td>
</tr>
<tr>
<td>OP</td>
<td>9</td>
</tr>
<tr>
<td>Vertical</td>
<td>3</td>
</tr>
<tr>
<td>Outside UK</td>
<td>3</td>
</tr>
</tbody>
</table>
# ART TREATMENT OUTCOME

## ART Group

<table>
<thead>
<tr>
<th>ART Group</th>
<th>Viral load (log c/ml)</th>
<th>CD 4 median (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline:</td>
<td>55% undetectable</td>
<td>404 (47-1372)</td>
</tr>
<tr>
<td></td>
<td>4.13 (2.79-5.56)</td>
<td></td>
</tr>
<tr>
<td>On treatment:</td>
<td>91% undetectable</td>
<td>507 (172-1372)</td>
</tr>
<tr>
<td>Outcome:</td>
<td>93% had reduction in VL*</td>
<td>81% individuals demonstrated improvement</td>
</tr>
<tr>
<td></td>
<td>0 (0-4.05)</td>
<td>39 (0-845)</td>
</tr>
</tbody>
</table>

Viral load (log c/ml) | CD 4 median (range)
--- | ---
0 (0-5) | 703 (336-1611)

*of those individuals with detectable VL at baseline.
Adherence issues for remaining 7%
TREATMENT CHOICE

- 25 complied with 1st regimen as per BHIVA guidelines
- Boosted PI (100%)
  - Darunavir (38)
    - BD (26) OD (12)
  - Truvada most common co-prescribed (31)
- Darunavir/Ritonavir/Truvada (23)
- 10 Integrase inhibitors added: viral rebound
  - 5 Raltegravir
  - 5 Dolutegravir
INTEGRASE INHIBITORS FOR HIV-2

• Raltegravir and Elvitegravir have similar activity in HIV-1 and HIV-2 in vitro

• *In vivo*, Raltegravir inhibits HIV-2 if used with virologically active drugs
  • Successful salvage therapy

• Dolutegravir potent HIV-2 inhibition *in vitro*
  • Some activity against II resistant HIV-2

S. Requena et al. J Antimicrobial Chemother 2017; 72 2083-2088
SUMMARY

- Largest cohort HIV-2 in UK
  - Female, >50 y, heterosexual
- Majority had undetectable VL
- Majority cohort on ART
  - CD4 Gain limited and not observed in some individuals
- Consensus of HIV-2 treatment, shows regimens in use:
  - 2 x PI (majority BD dosing) **plus:**
  - 2 x NRTIs
  - +/- Integrase inhibitor
CONCLUSION

• Cohort studies are valuable in HIV-2
• Need for treatment
  • Despite low VL patients do progress with HIV-2
  • Early initiation ART regardless of plasma HIV-2 load
• HIV-2 Guidelines update welcomed
Acknowledgements:

Dr Jane Deayton, Professor Jane Anderson, Dr Iain Reeves
Dr Rageshri Dhairyawan, Dr Simon Limb

References:

BHIVA guidelines for antiretroviral treatment of HIV-2-positive individuals 2010


Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents Living with HIV H-30:
Considerations for Antiretroviral Use in Special Patient Populations. Downloaded from https://aidsinfo.nih.gov/guidelines
MANAGEMENT OF HIV-2 INFECTED INDIVIDUALS IN THE NORTH EAST LONDON HIV NETWORK

Dr Penelope Sellers
Barts Health NHS Trust

Dr Jane Deayton, Professor Jane Anderson Dr Rageshri Dhairyawan, Dr Simon Limb, Dr Iain Reeves.