INTRODUCTION

- The southern US has the highest incidence of new HIV diagnosis.1
- Southern states account for approximately 45% of all people living with HIV.1
- US estimates indicate resistance rates of 10-17% to one antiretroviral (ARV) medication and 5-8% to more than one ARV drug class.2
- Previous studies conducted in southern states (South Carolina and North Carolina) reported drug resistance rates of 14.4% to 17.8% respectively.1,4
- There has not been an evaluation of transmitted antiretroviral drug resistance in Alabama or trends since the wide availability of single tablet regimens and ART regimens with high barriers to resistance.

OBJECTIVES

- In a treatment-naïve HIV-infected population, in a single center in central Alabama to evaluate incidence:
  - Incidence of transmitted antiretroviral drug resistance (TDR)
  - Individual and multi-drug class resistance rates
  - Relationship between demographics and risk of baseline resistance
  - Resistance trends over ten years
  - Influence of drug development on trends of resistance

METHODS

- IRB approval obtained from Auburn University
- Patient charts were reviewed using the electronic medical record (EMR)
- Retrospective chart review:
  - Demographic information
  - Genotype performed before initiation of ART
  - Statistical Analysis
  - Chi squared
  - Fisher Exact Test
  - Logistic Regression

RESULTS

Incidence of Transmitted Drug Resistance (TDR) (n=51)

- Single, major mutation: 51/238 (21.4%)
- Possible or complete ARV resistance: 47/238 (19.7%)
- Single ARV class resistance: 45/47 (95.7%)
- NNRTI mutations were (74.5%)
- NNRTI K103N majority (42%)
- Dual ARV class resistance: 2/47 (4.3%)
- 25 out of 28 counties served had genotype information available (60% had patients with TDR)

Baseline Characteristics (n=238)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male vs Female</td>
<td>1.08</td>
<td>(0.40 to 2.80)</td>
</tr>
<tr>
<td>Age 30 – 49 vs ≥ 50</td>
<td>1.70</td>
<td>(0.56 to 5.13)</td>
</tr>
<tr>
<td>Age &lt;30 vs ≥ 50</td>
<td>1.85</td>
<td>(0.61 to 5.65)</td>
</tr>
<tr>
<td>HIVO vs MSM</td>
<td>7.25</td>
<td>(3.16 to 15.36)</td>
</tr>
<tr>
<td>MSM/IVDU vs MSM</td>
<td>2.39</td>
<td>(1.20 to 6.28)</td>
</tr>
<tr>
<td>Heterossexual vs MSM</td>
<td>3.18</td>
<td>(0.42 to 3.36)</td>
</tr>
<tr>
<td>Not specified vs MSM</td>
<td>1.56</td>
<td>(0.58 to 4.18)</td>
</tr>
<tr>
<td>Caucasian vs African American</td>
<td>0.58</td>
<td>(0.19 to 1.83)</td>
</tr>
<tr>
<td>Hispanic vs African American</td>
<td>&lt;0.001</td>
<td>(&lt;0.001 to &lt;999.99)</td>
</tr>
</tbody>
</table>

Number of Patients with TDR Trends 2006 to 2016 (n=47)

- Incidence of Transmitted Drug Resistance (TDR) from 2006 to 2016

- Trends 2006 to 2016 (n=47)

CONCLUSIONS

- Compared to national statistics and previous studies in southern states our study indicated a higher TDR rate of (19.7%).
- Similar to previous studies, NNRTI resistance was the most prevalent.
- No significant difference between individuals with or without TDR related to gender, age, mode of transmission, race/ethnicity (p>0.05).
- Based on logistic regression, gender, age, mode of transmission, and ethnicity was not associated with whether or not individuals had TDR (p>0.05).
- Increased TDR trends in recent years in this single clinic representing 28 counties in central Alabama may reflect more frequent genotypic evaluation rather than different resistance trends.
- Antiretroviral class resistance reflects mutations associated with older regimens rather than therapies with higher genetic barriers.
- TDR was evident in four rural counties of the top counties medically served indicating notable risk in these areas.
- These data highlight the importance of routine baseline genotypic evaluation prior to initiation of antiretroviral therapy in this southern state.

Limitations

- Retrospective EMR chart review
- Small sample size accounted by the fact that not every treatment-naïve had a baseline genotype performed prior to 2012.
- Database represents quality assurance data and under represent the complete cohort.

Disclosure

- Joi Jacobs, Pharm.D. Candidate 2018: Nothing to disclose
- Chiahung Chou, Ph.D.: Nothing to disclose
- Carlos Reyes-Sacin, M.D., AAHIVS: Nothing to disclose
- E. Kelly Hester, Pharm.D., FCCP, BCPS, AAHIVP: Nothing to disclose

REFERENCES


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