Identifying Heavily Treatment-Experienced Patients in the OPERA Cohort

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BACKGROUND

• Definition of HTE: patients with a prior history of ≥4 ART line changes (ART therapy, patient non-compliance to treatment regimens, and drug intolerance) can lead to decreased efficacy of multiple classes of ART

• Heavily treatment-experienced patients (HTE) can be challenging to most effectively and cost-effectively triage to appropriate regimens

• Investigation of the demographics and characteristics of HTE patients is needed to support and guide development of new triage regimens for this unique and under-served population

OBJECTIVE:

To describe the baseline demographics and clinical characteristics of HTE patients in a real-world setting

METHODS

Study Population & Statistical Analysis

• Observational cohort study utilizing prospectively electronic medical record (EMR) data from the OPERA (Operational Databases) Network, following patients at 19 locations across 15 US states

• All patients ≥18 years of age having a ≥1 clinic visit or telephone contact in the previous 12 months from the OPERA database

• An index patient was defined as any patient with ≥1 clinic visit or telephone contact in any of the 15 months from 1 Jan 2016 to 31 Dec 2016

A total of 41,939 adult patients were identified as active in care on 31 Dec 2016 and included in the analysis

**Sensitivity analysis:**

• Performing a sensitivity analysis restricting the population to patients who initiated ART in OPERA

• Inclusion criteria: HIV-1 positive patients ≥18 years of age and active in care (defined as ≥1 clinic visit or telephone contact in the previous 12 months from 1 Jan 2016)

• ART was defined using 3 definitions of HTE (Table 1)

**RESULTS**

Table 1. Predefined Definitions of HTE Patients Using Real World Data in the Absence of Resistance Testing

<table>
<thead>
<tr>
<th>Definition</th>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Definition 1</td>
<td>On 4th line of ART; a change in core agent = a change in line of therapy</td>
</tr>
<tr>
<td>2</td>
<td>Definition 2</td>
<td>≥3 core agent classes; started and discontinued core agents from at least three separate ART classes including PI, NNRTI, INSTI, AI, or FI</td>
</tr>
<tr>
<td>3</td>
<td>Definition 3</td>
<td>Specified core agent(s)</td>
</tr>
</tbody>
</table>

For all patients, ∼25% of all patients initiated ART on the 4th line of care and ∼2% started on a new core agent (Table 2)

**Key findings:**

- Defined by a ≥4 line change to ART
- Defined by a ≥3 core agent class change
- Defined by a change to a specific core agent(s)

Table 2. Baseline Demographic and Clinical Characteristics of Various HTE Definitions

**DISCUSSION**

• Sensitivity analysis: analysis including patients with missing ART history (n=10,523) prevalence for each definition was similar to the original estimate (5.5% [95% CI: 5.2, 5.8], 2.6% [95% CI: 2.3, 2.8], and 3.3% [95% CI: 3.2, 3.5] for Def 1, 2, and 3, respectively)

- Definition 1: 5.5% (95% CI: 5.2, 5.8)
- Definition 2: 2.6% (95% CI: 2.3, 2.8)
- Definition 3: 3.3% (95% CI: 3.2, 3.5)

• Prevalence estimates with 95% confidence intervals were calculated as the number of patients meeting the criteria for HTE of all adult patients active in care on 1 Jan 2016

- Drug resistance and clinical characteristics were described for each definition

- A sensitivity analysis was performed restricting the population to patients who initiated ART in OPERA or who started on a new core agent (≥1 clinic visit or telephone contact in the previous 12 months from 1 Jan 2016)

**RESULTS**

Table 3. Prevalence and Response to Regimens by Various HTE Definitions

**OBJECTIVE:**

To assess the prevalence and describe the baseline demographics and clinical characteristics of HTE patients

**METHODS:**

• Methods: Sensitivity analysis was performed restricting the population to patients who initiated ART in OPERA

• Inclusion criteria: HIV-1 positive patients ≥18 years of age and active in care (defined as ≥1 clinic visit or telephone contact in the previous 12 months from 1 Jan 2016)

• Art was defined using 3 definitions of HTE (Table 1)

**RESULTS**

Table 4. Regimens indicative of HTE

**DISCUSSION**

• This research would not be possible without the generosity of the OPERA HIV caregivers and their patients. Additionally, we are grateful to the following individuals: Robin Beckerman (SAS programming), Jeff Briney (QA), Ted Ising (Database Arch & Mgmt), Bernie Stooks and Dean Lasher (Site Support & Data Analyst), Debra J. Breeden, Dan Healy (IT), and Judy Johnson (Med Terminology Classification), Rodney Mood (Site Support & Data Analyst)

• Key findings:

- New pre-defined definitions for identifying patients in an observational cohort setting is needed to capture such complex patient illness in real-world practice.

- Minor cohort of patients identified outside of these criteria suggests that overall population may be at risk for future definitions and approaches.

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**CONFLICTS OF INTEREST**

- All authors report no conflicts of interest.

**ADDITIONAL INFORMATION**

- More information can be found at http://www.opera-研究.org

- Supporting information can be found in the online version of this article

**Supplementary Information**

- Supporting information can be found in the online version of this article

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