Introduction

- As people living with HIV (PLHIV) age, they may experience an increased prevalence of age-related comorbidities, which typically occur earlier in PLHIV than in the general population.

- Higher prevalence of comorbidities leads to polypharmacy, thus increasing the risk of drug–drug interactions (DDIs) and contraindications (CI).

- Different recommended antiretroviral therapy (ART) regimens have different DDI profiles, potentially impacting the clinical management of PLHIV when treated for several conditions by multiple clinicians.

Objective

- Estimate the risk of potential DDIs or CIs in patients prescribed non-ART comedication and ARTs based on real-world prescription patterns.

Methods

- This was a retrospective study with a cross-sectional, cohort design using claims from 2016 from the InGaM at the University of Gothenburg (InGaM) in Sweden and the German InGaM database.

- Adults aged ≥18 years in 2016 being treated with any ART and diagnosed with HIV infection in the overall population.

- Demographics, comorbidities, and prescription patterns of non-ART comedication were analyzed.

- Comedication and HIV diagnosis were identified using codes from the International Classification of Diseases, 10th Revision, or an OPS code.

- Non-ART comedication identified by Chemical Therapeutic Classification; only medicines reimbursed by the health insurance were included.

- Real-world prescription patterns from the cross-sectional analysis were subsequently analyzed by a DDI risk evaluation model established on a well-established DDI database (www.hiv-druginteractions.org).

Results

Population Characteristics

- 2680 patients were identified in the InGaM database, predominantly male (86.1%).

- Mean age of PLHIV receiving ART in 2016 was 45.6 years (range, 18-86; Table 1).

- PLHIV on ART ≥5 years were prevalent in the overall population; patients aged ≥50 years were prescribed on average 3.2 more non-ART medications per year, and patients taking ART for ≥25 years were prescribed on average 1 more non-ART medication per year when compared with the overall population in the same period (Table 1).

- 30% of the ART prescriptions were counted in 2016, nearly half of which were prescribed to patients aged ≥50 years.

Table 1. Population Characteristics of PLHIV in 2016 From the German InGaM Database

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Overall population</th>
<th>Age ≥50 years</th>
<th>≥15 years on ART</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, yrs</td>
<td>45.6</td>
<td>51.7</td>
<td>55.9</td>
</tr>
<tr>
<td>ART naive, n (%)</td>
<td>18-34</td>
<td>452 (16.9)</td>
<td>42 (15.3)</td>
</tr>
<tr>
<td></td>
<td>35-49</td>
<td>1316 (48.2)</td>
<td>391 (41.0)</td>
</tr>
<tr>
<td></td>
<td>≥50</td>
<td>910 (34.0)</td>
<td>910 (34.1)</td>
</tr>
<tr>
<td>Mean number of non-ART medications per patient</td>
<td>7.0</td>
<td>19.2</td>
<td>16.0</td>
</tr>
</tbody>
</table>

Total number of non-ART prescriptions: 39,947

- Mean age (years): 45.6
- Mean ART naive, n (%): 18-34, 452 (16.9); 35-49, 1316 (48.2); ≥50, 910 (34.0)
- Total number of non-ART prescriptions: 39,947

In OTA 2016, the ART regimens with the lowest proportion of patients with ≥1 DDI or CI were boosted, integrase strand transfer inhibitor (INSTI) regimens, namely raltegravir (RAL) + emtricitabine (FTC)/tenofovir alafenamide fumarate (TAF), closely followed by boosted (DTG)-based regimens, including DTG + lamivudine (3TC), DTG/abacavir (ABC)/3TC/DTG/FTC/TDF, and bictegravir (BIC)/FTC/TAF (Figure 1).

- Overall, approximately 1 out of 7 patients could potentially have a DDI or CI when prescribed RAL + FTC/TAF; 1 in 6 patients could potentially have a DDI with boosted RPV/FTC/TDF and approximately 1 in 5 patients could potentially have a DDI with boosted EVG/COBI/FTC/TAF and EVG/COBI/FTC/TAF (Table 2).

Conclusions

- Comedication with potential DDIs/CIs with ARTs is frequently prescribed among PLHIV in Germany.

- The potential risks for DDIs and CIs widely vary by ART regimen; the regimens with the largest number of potential DDIs were observed with EFV/FTC/TDF and boosted regimens.

- Potential weak DDIs would be uncommon and more frequent in non-nucleoside reverse transcriptase inhibitor regimens (Figure 2).

- The largest number of potential DDIs was observed with EVG/COBI/FTC/TDF and boosted regimens.

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