Dolutegravir-based regimens are associated with weight gain over two years following ART-initiation in ART-naïve people living with HIV (PLWH)

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BACKGROUND

• Weight gain is common among people living with HIV (PLWH) after antiretroviral therapy (ART) initiation
• PLWH who initiate integrase inhibitor-based regimens may gain more weight than those who initiate other regimens
• Previous studies have examined classes not individual agents, been small, combined PLWH who were ART-experienced and naïve, and did not address potential confounders, such as anti-psychotic medications, which impact weight
• Previous studies have not included data assessing differences in regimen backbones, such as TDF vs. TAF
• This study evaluated weight change among PLWH initiating their first ART regimen

METHODS

• Study conducted in the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS) and included previously ART-naïve PLWH in clinical care at eight sites across the US from 2012-2018
• CNICS data repository captures comprehensive clinical information from outpatient and inpatient encounters including medication data, diagnoses, and historical clinical information collected at initial clinic visit
• The 10 most common regimens with a minimum of 90 PLWH initiators were included in analyses

RESULTS

• Baseline weight was similar among all regimens
• Dolutegravir showed the lowest average nadir CD4 count (297 cells/mm³; DTG/TDF: 323 cells/mm³; DTG/TAF: 364 cells/mm³; DTG/ABC: 387 cells/mm³; overall: 380 cells/mm³)
• Age, sex, and race were similar among DRV, DTG/TDF, DTG/TAF, and DTG/ABC

Table 1. Short-term weight gain (6 months) comparing different ART regimens

<table>
<thead>
<tr>
<th>Regimen</th>
<th>n</th>
<th>Δ kg/6 mos</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRV</td>
<td>943</td>
<td>0.32</td>
<td>-1.00</td>
<td>1.45</td>
</tr>
</tbody>
</table>

Table 2. Long-term weight gain (mean follow-up 2-3 years) comparing different ART regimens

<table>
<thead>
<tr>
<th>Regimen</th>
<th>n</th>
<th>Δ kg/2 Years</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRV</td>
<td>943</td>
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Figure 1. GAM plots of short-term weight gain (6 months) of select ART regimens

Figure 2. GAM plots of long-term weight gain (mean follow-up time=2-3 years) of select ART regimens*  

**TDF regimens not included as mean follow-up time is shorter due to more recent approval**

LIMITATIONS

• This study had limited follow-up, which varied by each regimen, limiting comparisons of regimens over time
• ART adherence data was not included, and differential non-adherence by regimen could affect interpretation of results

STRENGTHS

• All participants were ART-naïve at baseline
• The strict regimen inclusion criteria provides clear associations
• The models incorporated anti-psychotic medication use, a known contributor to weight gain, and regimen backbone which may be particularly important in the current treatment era

CONCLUSIONS

• Dolutegravir-based regimens showed greater weight gain compared to other integrase inhibitor-based regimens in both the long- and short-term models, although the differences become smaller in the long-term
• Regimens with TAF showed greater weight gain in the first 6 months after ART initiation than the same regimen with TDF
• Dolutegravir showed the greatest weight gain in the long-term model, but not in short-term
• GAM plots suggest that most weight gain occurs early after ART initiation, then plateaus

Acknowledgements: This project was supported by a grant from ViiV Healthcare, additional support came from NIAID [CNICS R24AI067309], NHLBI (R01HL12653) and UW CFAR (NH grant P30 A027757).