Fat distribution and density in PLWH with ≥5% weight gain

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Objective

The objective was to assess ectopic fat quantity and density in virally suppressed ART-experienced people with HIV (PLWH) who had weight gain (WG) after switching to INSTI-based ART (INSTI-s) vs remaining INSTI-naive (INSTI-n) on stable ART.

Methods

• This was an observational cohort study from 2007 to 2019 at Modena HIV Metabolic Clinic.
• PLWH were grouped as INSTI-s vs INSTI-n.
• Body composition (BC) was assessed at 1st visit and at last evaluation.
• In the INSTI-n group, the 1st visit was prior to switch.

Outcome was significant WG was defined as an increase of ≥5% weight from 1st visit over follow-up.

Fat quantity at baseline

Fat quality at baseline

Clinical characteristics

Subcutaneous adipose tissue (SAT), cm², mean (SD)
Visceral adipose tissue (VAT), cm², mean (SD)
Visceral adipose tissue (VAT), d, mean (SD)
Liver-to-spleen ratio (V/S), mean (SD)

Baseline characteristics

Fat quantity at baseline

Fat quality at baseline

Results

Fat quantity was assessed with:

- DXA:
  - weight
  - total lean mass
  - total fat mass

Fat quality was assessed with CT:

- VAT-d
- SAT-d
- EAT-d
- psosas muscle density (P-d).

Discussion and conclusions

• Over a four-year interval, PLWH with ≥5% WG INSTI-s had a greater gain in BMI compared to those who remained INSTI-naïve, mainly driven by SAT, but there were no differences in the changes in ectopic fat depots.
• The differences in VAT density associated with INSTI-s does not suggest a metabolic abnormal fat gain, but we may hypothesize an improvement in fat tissue quality.

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<table>
<thead>
<tr>
<th>Table 1: Clinical characteristics</th>
<th>INSTI-s (N=267)</th>
<th>INSTI-n (N=231)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean (SD)</td>
<td>46 (3.1)</td>
<td>45 (2.8)</td>
<td>0.35</td>
</tr>
<tr>
<td>Sex, males, n (%)</td>
<td>116 (75.0)</td>
<td>140 (78.6)</td>
<td>0.42</td>
</tr>
<tr>
<td>BMI, kg/m², mean (SD)</td>
<td>25.3 (5.0)</td>
<td>23.6 (4.5)</td>
<td>0.58</td>
</tr>
<tr>
<td>Waist circumference, cm, mean (SD)</td>
<td>86.9 (10.1)</td>
<td>86.9 (9.7)</td>
<td>0.88</td>
</tr>
<tr>
<td>NEDIR CM, ccm (SD)</td>
<td>121.5 (22.6)</td>
<td>124.8 (28.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>CD4/CD8 ratio, mean (SD)</td>
<td>0.89 (0.43)</td>
<td>0.74 (0.41)</td>
<td>0.001</td>
</tr>
<tr>
<td>Current CD4, ccm/SD</td>
<td>612 (483-850)</td>
<td>559 (403-781)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Outcome was significant WG was defined as an increase of ≥5% weight from 1st visit over follow-up.

Fat quantity at baseline

Fat quality at baseline

- Over a four-year interval, PLWH with ≥5% WG INSTI-s had a greater gain in BMI compared to those who remained INSTI-naive, mainly driven by SAT, but there were no differences in the changes in ectopic fat depots.
- The differences in VAT density associated with INSTI-s does not suggest a metabolic abnormal fat gain, but we may hypothesize an improvement in fat tissue quality.

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