Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection

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### Table 15h. Antiretroviral Therapy-Associated Adverse Effects and Management Recommendations—Lipodystrophy, Lipohypertrophy, Lipoatrophy *(Last updated April 16, 2019; last reviewed April 16, 2019)* (page 1 of 2)

<table>
<thead>
<tr>
<th>Adverse Effects</th>
<th>Associated ARVs</th>
<th>Onset/Clinical Manifestations</th>
<th>Estimated Frequency</th>
<th>Risk Factors</th>
<th>Prevention/Monitoring</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipodystrophy (Fat Maldistribution)</td>
<td>See below for specific associations.</td>
<td>Onset:</td>
<td>Frequency is low (&lt;5%) with current regimens.</td>
<td>Genetic predisposition</td>
<td>Prevention:</td>
<td>Physicians should perform a regimen review and consider changing the regimen when lipodystrophy occurs.</td>
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<tr>
<td>General Information</td>
<td></td>
<td>• Trunk and limb fat are the first sign; peripheral fat wasting may not appear for 12 months–24 months after ART initiation.</td>
<td></td>
<td>Puberty HIV-associated inflammation Older age Longer duration of ART Body habitus</td>
<td>• Initiating a calorically appropriate, low-fat diet and exercise Monitoring:</td>
<td>Improvement in fat maldistribution following a regimen change is variable. Improvement may occur after several months or years, or it may not occur at all.</td>
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<tr>
<td></td>
<td></td>
<td>Monitoring:</td>
<td></td>
<td></td>
<td>• BMI measurement Body circumference and waist-hip ratio</td>
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<tr>
<td></td>
<td></td>
<td>• BMI measurement</td>
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</tbody>
</table>

| Central Lipohypertrophy or Lipo-accumulation | Can occur in the absence of ART, but these conditions are most often associated with the use of PIs and EFV. | Presentation: | ≤5% with current regimens | Obesity before initiation of therapy Sedentary lifestyle | Prevention: | Counsel patient on lifestyle modification and dietary interventions (e.g., maintaining a calorically appropriate, healthy diet that is low in saturated fats and simple carbohydrates, and starting an exercise regimen, especially strength training). Recommend smoking cessation (if applicable) to decrease future CVD risk. Consider using an INSTI instead of a PI or EFV. |
|                                            | • Central fat accumulation with increased abdominal girth, which may include a dorsocervical fat pad (buffalo hump), Gynecomastia in males or breast hypertrophy in females, particularly with the use of EFV. |                      |                      | | Monitoring: | Data are Insufficient to Allow the Panel to Safely Recommend Use of Any of the Following Modalities in Children: |
|                                            |                                                             |                      |                      | | • BMI measurement | • Recombinant human growth hormone • Growth hormone-releasing hormone • Metformin • Thiazolidinediones • Recombinant human leptin • Anabolic steroids • Liposuction |
### References

See the archived version of Supplement III, February 23, 2009, Pediatric Guidelines on the AIDSinfo website for a more complete discussion and reference list.

#### General Reviews


**Associated ARVs/Etiology**


Management


