### Table 15g. Antiretroviral Therapy-Associated Adverse Effects and Management Recommendations—Lactic Acidosis
**(Last updated April 16, 2019; last reviewed April 16, 2019)**

<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>Lactic Acidosis</td>
<td>NRTIs: ZDV; Less likely with 3TC, FTC, ABC, TAF, and TDF</td>
<td>Lactic acidosis is associated with use of ddl and d4T. Cases are rare now that these NRTIs are no longer recommended.</td>
<td>Adults: Female sex, High BMI, Chronic HCV infection, African-American race, Coadministration of TDF with metformin, Overdose of propylene glycol, CD4 cell count &lt;350 cells/mm³, Acquired riboflavin or thiamine deficiency, Possibly pregnancy.</td>
<td>Due to the presence of propylene glycol as a diluent, LPV/r oral solution should not be used in preterm neonates or any neonate who has not attained a postmenstrual age of 42 weeks and a postnatal age of ≥14 days.</td>
<td>Monitor for clinical manifestations of lactic acidosis and promptly adjust therapy.</td>
<td>Lactate 2.1–5.0 mmol/L (Confirmed with a Second Test): Consider discontinuing all ARV drugs temporarily while conducting additional diagnostic workup.</td>
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<td>Other Drugs:</td>
<td>See Risk Factors and Prevention/Monitoring columns for information regarding the toxicity of propylene glycol when LPV/r oral solution is used in neonates.</td>
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<td>Preterm Infants or Any Neonates Who Have Not Attained a Post-Menstrual Age of 42 Weeks and a Postnatal Age of ≥14 Days: Exposure to propylene glycol (e.g., present as a diluent in LPV/r oral solution). A diminished ability to metabolize propylene glycol may lead to accumulation and potential adverse events.</td>
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<td>Adult:</td>
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<td>Lactic acidosis may be clinically asymptomatic.</td>
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</table>

**Key to Acronyms:** 3TC = lamivudine; ABC = abacavir; ARV = antiretroviral; BMI = body mass index; CD4 = CD4 T lymphocyte; d4T = stavudine; ddl; didanosine; FTC = emtricitabine; HCV = hepatitis C virus; IV = intravenous; LPV/r = lopinavir/ritonavir; NRTI = nucleoside reverse transcriptase inhibitor; TAF = tenofovir alafenamide; TDF = tenofovir disoproxil fumarate; THAM = tris (hydroxymethyl) aminomethane; ZDV = zidovudine

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*Blood for lactate determination should be collected, without prolonged tourniquet application or fist clenching, into a pre-chilled, gray-top, fluoride-oxalate-containing tube and transported on ice to the laboratory to be processed within 4 hours of collection.*

*Management can be initiated before receiving the results of the confirmatory test.*

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*Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection* K-28

Downloaded from https://aidsinfo.nih.gov/guidelines on 10/6/2019
References

General Reviews


Risk Factors


Monitoring and Management

