LPV-RTV versus LPV-RTV + ZDV-3TC in Treatment-Naïve MONARK Trial
**LPV-RTV versus LPV-RTV + ZDV-3TC in Treatment-Naïve MONARK: Study Design**

**Study Design: MONARK**

- **Background**: Randomized, pilot, open-label, phase 3 trial comparing the efficacy and safety of lopinavir-ritonavir monotherapy with lopinavir-ritonavir in combination with zidovudine-lamivudine in treatment-naïve patients with HIV infection.

- **Inclusion Criteria (n = 136)**
  - Age ≥18
  - Antiretroviral-naïve
  - HIV RNA <100,000 copies/mL
  - CD4 count >100 cells/mm³
  - Exclusions for certain protease or NRTI mutations

- **Treatment Arms**
  - Lopinavir-ritonavir 400-100 mg BID
  - Lopinavir-ritonavir 400-100 mg BID + ZDV-3TC 150-300mg BID

**MONARK = MONotherapy AntiRetroviral Kaletra**

LPV-RTV versus LPV-RTV + ZDV-3TC in Treatment-Naïve MONARK: Results

Week 48: Virologic Response (ITT, Missing=Failure)

LPV-RTV versus LPV-RTV + ZDV-3TC in Treatment-Naïve
MONARK: Results (monotherapy arm at 96 weeks)

Week 96: Virologic Response (ITT)

HIV RNA <50 copies/mL (%)

- All patients randomized to monotherapy: 47%
- Patients who had HIV RNA<50 copies/mL at 48 weeks: 68%

### Tolerance of study medications

<table>
<thead>
<tr>
<th>Adverse event or Laboratory Abnormality</th>
<th>LPV-RTV Monotherapy (n = 83)</th>
<th>LPV-RTV + ZDV-3TC (n = 53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>AST and/or ALT elevation</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Serious adverse event</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Discontinuations</td>
<td>16%</td>
<td>23%</td>
</tr>
</tbody>
</table>

LPV-RTV versus LPV-RTV + ZDV-3TC in Treatment-Naïve MONARK: Results (immunologic substudy)

Week 60: Residual Viremia by Ultrasensitive PCR

Lopinavir/r Monotherapy vs. LPV/r + AZT-3TC in Treatment-Naïve MONARK: Results

<table>
<thead>
<tr>
<th>Protease inhibitor resistance analysis</th>
<th>LPV/r monotherapy (n = 83)</th>
<th>LPVr/r + ZDV-3TC (n = 53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major PI resistance-associated mutations*</td>
<td>6%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Major PI resistance-associations detected in lopinavir-ritonavir monotherapy arm: M46I at Week 40, L76V at Week 48, M46I and L76V at Week 48, L10F and V82A at Week 72, and L76V at Week 84.

Week 48: Changes in Limb Fat from Baseline

LPV-RTV versus LPV-RTV + ZDV-3TC in Treatment-Naïve MONARK: Results (metabolic substudy)

Median change in limb fat (g)

- Lopinavir-ritonavir monotherapy
- Lopinavir-ritonavir + ZDV-3TC

LPV-RTV versus LPV-RTV + ZDV-3TC in Treatment-Naïve MONARK: Results (metabolic substudy)

Week 48: Change in Limb Fat from Baseline

Patients with >20% fat loss (%)

- Lopinavir-ritonavir monotherapy: 4.9%
- Lopinavir-ritonavir + ZDV-3TC: 27.3%

**Conclusion:** “Our results suggest that lopinavir/ritonavir monotherapy demonstrates lower rates of virological suppression when compared with lopinavir/ritonavir triple therapy and therefore should not be considered as a preferred treatment option for widespread use in antiretroviral-naïve patients.”

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