Long-term LDL-cholesterol Trajectories in Virologically Suppressed HIV Patients: Effect of Liver Fibrosis And Statin Use.

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Introduction
HIV infection and initiation of highly active antiretroviral therapy (HAART) alter low-density lipoprotein-cholesterol (LDL-c). HIV infection is also associated with increased incidence and progression of liver fibrosis even in the absence of hepatitis C (HCV) co-infection. However, it is unclear whether liver fibrosis modifies LDL-c serum levels over time and whether the anti-inflammatory effect of statins protects against fibrosis progression.

Methods

• We used the US VA HIV Clinical Case Registry to generate a medication exposure model for HAART and statins.
• We identified all HCV-negative patients who initiated HAART after 1/1/2003.
• We selected LDL-c and FIB-4 values recorded during periods of viral suppression (HIV-1 RNA<500 copies/mL) and HAART use ratio >80% (days on HAART/days since HAART initiation).
• We fit fractional polynomials curves stratified by FIB-4 category and current statin use at the time of LDL-c measurement.
• We used multivariate linear regression to assess the effect of FIB-4 on LDL-c over time adjusting for age, time since HAART initiation, initial LDL-c level, sex, race, statin prescription and CD4 count.
• We used the same methods to assess the effect statin use ratio quartiles on FIB-4 score among statin users adjusting for LDL-c, age, time since HAART initiation, sex, race, and CD4 count.

Results

The analysis included 6128 individuals with an average of 4.5 LDL-c measurements per person.

Table 1: Population Characteristics

<table>
<thead>
<tr>
<th>Statin Utilization Ratio (Quartiles)</th>
<th>Beta coefficient (95% CI)</th>
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<tbody>
<tr>
<td>1 (Lowest Use)</td>
<td>1 (Ref)</td>
</tr>
<tr>
<td>2</td>
<td>-0.018 (-0.056, 0.019)</td>
</tr>
<tr>
<td>3</td>
<td>0.004 (-0.048, 0.041)</td>
</tr>
<tr>
<td>4 (Highest Use)</td>
<td>-0.002 (-0.050, 0.055)</td>
</tr>
</tbody>
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Table 3: Association of Statin Use and FIB-4 among 2714 statin users

Conclusions

• Among HIV-infected patients with suppressed viremia on stable HAART, LDL-c declined over time regardless of statin use and the decline was greater in those with higher liver fibrosis score.
• FIB-4 score changes did not differ linearly by statin use categories.

References