Comparative Effectiveness Research to Optimize Prevention and Healthcare Management for the Complex Patient – R21 Grants

Comparative Effectiveness of Lipid-Lowering and Antihypertensive Medications among Patients Infected with HIV

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Description
The treatment of cardiovascular disease risk factors among patients with human immunodeficiency virus (HIV) is complicated by the underlying HIV infection, the numerous medications that these patients are often prescribed, and the common occurrence of other comorbidities. Many questions remain unanswered about the effectiveness of medications to treat dyslipidemia (high cholesterol) and hypertension (high blood pressure) among these complex patients. This study evaluated the comparative effectiveness of medications to treat high cholesterol and high blood pressure among HIV-infected individuals. Results can provide clinicians with new information about optimal treatment strategies for cardiovascular disease in people with HIV.

Specific Aims
1. Develop an estimator (i.e., a new method for calculating an estimate of the effect of treatment) to mitigate the effect of limited and sporadic information on the estimates of heart attack incidence, lipid levels, and blood pressure in causal inference models.
2. Determine which lipid-lowering and blood pressure controlling medications work best to control high cholesterol and manage high blood pressure in patients with HIV.
3. Determine which lipid-lowering and blood pressure controlling medications work best to prevent heart attacks in patients with HIV.

Findings
• In a cohort of HIV-positive patients starting statin medications, the most commonly prescribed statins were atorvastatin, pravastatin, and rosuvastatin.
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- One year after starting statin therapy, rosuvastatin and atorvastatin were associated with greater improvements in lipid levels than was pravastatin.
  - Patients who received rosuvastatin or atorvastatin had greater declines in total cholesterol, low density lipoprotein cholesterol (LDL-C), non-high density lipoprotein cholesterol (non-HDL-C), and triglyceride values than did patients who received pravastatin. The greatest improvement in dyslipidemia was observed among those receiving rosuvastatin.
- Toxicity associated with statin discontinuation was uncommon and did not differ across statins.

Implications

Current U.S. recommendations for treating HIV-associated dyslipidemia includes the use of statins and emphasizes the use of pravastatin or atorvastatin. Findings from this study, which advanced the methods available for comparative effectiveness analyses in observational settings, suggest that these recommendations should include rosuvastatin, consistent with recent British guidelines.

Publications (as of September 2013)


(Additional publications currently in preparation).
Posters and Presentations

Crane H, Heckbert S, and Paramsothy P. Lessons learned from the implementation of myocardial infarction (MI) adjudication in the CFAR Network of Integrated Clinical Systems (CNICS) cohort: update after the first 1000 potential events. Paper presented at: 17th International Workshop on HIV Observational Databases; 2013 Apr 11-13; Cavtat, Croatia.


