

Patients living with HIV infection are less likely to receive the correct statin intensity for cardiovascular disease risk reduction

Jason J. Schafer, PharmD, MPH¹, Roshni Emmons, PharmD, BCPS¹, Nick V. Hastain, PharmD¹ and Todd Miano, PharmD, PhD²

¹Jefferson College of Pharmacy, Thomas Jefferson University and ²The Hospital of the University of Pennsylvania

Background

- Patients living with HIV (PLWH) are at high risk for atherosclerotic cardiovascular disease (ASCVD)
- Eligible PLWH should receive statins for ASCVD risk reduction according to current guidelines
- Studies suggest that statins are underprescribed in PLWH, but comparisons to uninfected patients and assessments of statin intensity have not occurred

Objective

- To determine the influence of HIV infection on appropriate statin prescribing for ASCVD risk reduction

Methods

- Statin eligibility and prescribing were evaluated for patients at an HIV clinic and separate internal medicine clinic at an academic medical center in 2018
- The 2013 American College of Cardiology/American Heart Association guideline on treating blood cholesterol to reduce ASCVD risk was used to determine statin eligibility
- Patients aged 40-75 that had a lipid panel obtained within the last year were included
- Characteristics of patients correctly and not correctly on statins were compared with chi-square testing
- Predictors for receiving correct statin therapy were determined with logistic multivariable regression

Limitations

- As an observational study, the results cannot establish causal relationships between HIV and statin prescribing
- Omissions or inaccuracies in medical records that could have influenced study results were possible

Results

Table 1. Descriptive Summary of Study Subjects Eligible for Statin Therapy (n = 221)

Factor	HIV (n = 106)	Non-HIV (n = 115)
Mean age (years)	56	59
Male sex	80 (75.5%)	35 (30.4%)
Female sex	26 (24.5%)	80 (69.6%)
Race		
White	23 (21.7%)	9 (7.8%)
African American	74 (69.8%)	92 (80.0%)
Insurance		
None	3 (2.8%)	0 (0.0%)
Medicaid	28 (26.4%)	48 (41.7%)
Medicare	43 (40.6%)	55 (47.8%)
Private	32 (30.2%)	13 (11.3%)
Statin benefit group		
Clinical ASCVD or LDL-C > 190	22 (20.8%)	53 (46.0%)
LDL-C = 70-189 and >7.5%	59 (55.6%)	30 (26.0%)
Diabetes and LDL-C = 70-189	23 (21.7%)	31 (27.0%)
Polypharmacy	80 (75.5%)	103 (90.0%)
Current smoker	37 (35.0%)	26 (22.6%)
Hypertension	59 (55.7%)	106 (92.2%)
Receiving a statin	54 (50.9%)	88 (76.5%)
Correct statin intensity	33 (31.1%)	77 (67.0%)

Table 3. Multivariable Logistic Regression Analysis for Correct Statin Intensity

Variable	Odds Ratio (95% CI)
HIV	0.26 (0.12, 0.57)
Female sex	1.09 (0.53, 2.24)
Polypharmacy	5.52 (1.94, 15.69)
Statin benefit group	
Clinical ASCVD	ref.
LDL-C 70-189 and >7.5%	0.68 (0.29, 1.54)
Diabetes and LDL-C 70-189	0.69 (0.32, 1.55)

Table 2. Unadjusted Comparisons of Patients Correctly Treated with Statins versus Non-Correctly Treated Patients (n = 221)

Factor ¹	Correctly Treated (n=110)	Not Correctly Treated (n=111)	p-value
HIV	33 (30.0%)	73 (65.8%)	<0.001
HIV uninfected	77 (70%)	38 (34.2%)	<0.001
Female sex	49 (44.5%)	65 (58.6%)	0.037
Race			
White	18 (16.4%)	14 (12.6%)	0.35
African American	78 (70.9%)	87 (78.4%)	
Insurance			
None	2 (1.8%)	1 (0.9%)	0.17
Medicaid	41 (37.3%)	35 (31.5%)	
Medicare	51 (46.4%)	46 (41.4%)	
Private	16 (14.5%)	29 (26.1%)	
Statin benefit group²			
Clinical ASCVD or LDL-C > 190	44 (40.0%)	23 (20.7%)	0.004
LDL-C 70-189 and >7.5%	30 (27.3%)	32 (28.8%)	
Diabetes and LDL-C 70-189	36 (32.7%)	56 (50.5%)	
Polypharmacy	104 (94.5%)	78 (70.3%)	<0.001
Current smoker	29 (26.4%)	38 (34.2%)	0.20
Hypertension	94 (87.0%)	70 (66.7%)	<0.001

¹All factors were tested with a chi-square test except for race and insurance, where expected cell counts were <=5. ²Some categories had few observations and were collapsed to support modeling

Conclusions

- HIV infection may negatively influence the receipt of correct statin therapy among patients who are at a high risk of ASCVD
- This association appears to be independent of other factors that might influence the receipt of correct statin therapy in the general population including insurance status and polypharmacy
- Given the heightened risk for ASCVD that is inherent to HIV infection, programs that improve the use of routine ASCVD risk assessments and interventions to reduce ASCVD risk in PLWH should be prioritized