Abstract

Title: Evaluating the Effect of Statin Intensity on Incidence of Cardiac Allograft Vasculopathy

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Purpose/Background

Statin therapy has been shown to increase survival and lower the incidence of cardiac allograft vasculopathy (CAV) in heart transplant recipients. Current International Society for Heart and Lung Transplantation (ISHLT) guidelines for management of cardiac transplant recipients do not recommend the use of high-intensity statins post-cardiac transplant. While there has been a clinical benefit linked to statin therapy in this patient population, little evidence is available addressing outcomes in regard to CAV incidence with the use of high-intensity statins. The purpose of the study is to elucidate what role high-intensity statins may play in the prevention of CAV.

Objective

The objective of this study is to determine the difference in the incidence of CAV at three years post-heart transplant between patients receiving moderate/low-intensity statin therapy and those receiving high-intensity statin therapy.

Methods

Cardiac transplant recipients receiving care at Inova Fairfax Hospital between June 1, 2012 and December 31, 2018 were identified utilizing the electronic health record. Transplant recipients were separated into three groups based upon their statin therapy regimens. The first group was comprised of patients receiving treatment with high-intensity statins. The second group contained patients receiving treatment with moderate or low-intensity statins. The final group consisted of patients who did not receive statin therapy during a majority of the study period. High-intensity statins consisted of atorvastatin 80mg and 40mg, and rosuvastatin 40mg and 20mg. Moderate/Low-intensity statins was defined as all remaining statins that do not meet criteria for high-intensity statins. The primary outcome is the incidence of CAV defined by findings on angiography three years following transplant. Secondary outcomes analyzed were incidence of CAV at years one and two, mean low density lipoprotein (LDL) cholesterol values at years one, two, and three post-transplant, and incidence and severity of reported adverse events attributed to lipid-lowering regimens.

Results

Among the 57 patients included, there was no difference in incidence of CAV at 3 years post-transplant between the three treatment groups (p=0.64). There was no difference between treatment arms in CAV incidence at years one and two (p=1.0; p=0.63). There were no adverse events attributed to high-intensity statin therapy. Seven patients (16.3%) experienced myalgias in the moderate/low-intensity statin group. All three patients in the “no statin” treatment arm originally discontinued statin therapy due to myalgias and were all previously on moderate/low-intensity statin therapy. There were no differences in cholesterol levels observed between treatment arms at years one, two, and three (p=0.41; p=0.27; p=0.15).

Conclusion

High-intensity statin therapy did not reduce the incidence of CAV compared to treatment with moderate/low-intensity statin therapy. High-intensity statin therapy was well tolerated with mycophenolate mofetil and tacrolimus-based immunosuppressive regimens. High-intensity statin therapy appears to be a safe option for providers to utilize although it’s benefit in regards to reducing CAV are unknown.