

Statin Therapy in Rheumatoid Arthritis May Improve Arterial Stiffness in Women but Not In Men: A Preliminary Analysis

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Objectives: Patients with rheumatoid arthritis are at increased risk for cardiovascular disease. Statins have anti-inflammatory and immunomodulatory effects, thereby reducing cardiovascular risk. Arterial stiffness is a composite indicator of cardiovascular health and a predictor of cardiovascular risk. We assessed the effect of statin therapy on arterial stiffness and hemodynamics in subjects with rheumatoid arthritis.

Methods: A prospective cohort study including adults with rheumatoid arthritis and an indication for statin therapy (cases) or not (controls) is being conducted. Peripheral systolic and diastolic blood pressures were measured by BpTRU. Arterial stiffness (carotid-to-femoral pulse wave velocity [cfPWV] and carotid-to-radial PWV), central systolic and diastolic blood pressures, mean arterial pressure, and augmentation index corrected for 75 bpm were obtained non-invasively (SphygmoCor, AtCor, Australia). All measurements were performed prior to statin initiation and at 6-month post-treatment. Independent *t*-tests evaluated differences in changes between groups. Carotid intima-media thickness (cIMT) measurements were also performed.

Results: To date, 14 subjects (mean age 61.4±9.5 years, 9 females), have completed the study. All cases achieved recommended lipid level targets by 6 months. There were no statistical differences in patient characteristics (beyond lipid levels) at baseline or 6-months between cases and controls among the whole cohort. In sex-specific analyses, statin therapy was associated with a significant decrease in cfPWV in women taking statins compared to women in the control group (-0.71±0.18 m/s vs +0.96±1.13 m/s, respectively; *p*<0.05), which was not observed in men. No other associations were observed. cIMT analyses are underway.

Conclusion: Our preliminary results suggest that in women with rheumatoid arthritis, statin therapy may reduce cfPWV, a predictive marker of cardiovascular disease and events, which was not observed in men. Whether sex differences in the effect of statin on arterial stiffness are sustained with a larger sample size of rheumatoid arthritis patients will be addressed in our ongoing study.