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# Statin Therapy in ARAS: Beyond Cholesterol Lowering

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Atherosclerotic renal artery stenosis (ARAS) accounts for over a third of all cases of end-stage kidney disease.[1] Furthermore, ARAS represents a common manifestation of generalized atherosclerosis and is the predominant lesion in the renal arteries of patients more than 50 years of age.[2] This is not a minor issue, considering that older patients have greater risk of comorbid disease and mortality, primarily related to cardiovascular events, and that ARAS constitutes an independent risk factor for aggravation of cardiovascular disease.[3]

What constitutes critical renal artery stenosis in the clinical setting remains to be determined. Similarly, it remains unclear why the kidney affected by ARAS often does not improve or continues to deteriorate after successful revascularization. This is probably related to greater damage of the ischemic renal parenchyma that goes beyond the simple mechanical obstruction. The severity of the renal structural damage is an important determinant and predictor of renal functional outcome and mortality in atherosclerotic nephropathy.[4]

Statins (3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors), which have extensive clinical application for patients with dyslipidemia and atherosclerosis, enhance renal angiogenesis, attenuate intrarenal microvascular remodeling, and preserve the function and morphology of the ischemic kidney.[5] These renoprotective effects in the ischemic kidney were achieved without any decrease in the degree of ARAS, further supporting the theory and underscoring the importance of protecting the renal parenchyma distal to the obstruction.

In this issue of the *American Journal of Hypertension*, Silva *et al.* evaluated the role of statin therapy in renal survival and overall mortality in patients with ARAS.[6] In this 11-year long retrospective observational study, the authors confirm former reports identifying renal dysfunction due to ARAS as a predictor of cardiovascular mortality. As a novel finding, Silva *et al.* identified the use of statins as beneficial regarding renal function preservation (progression of renal insufficiency: 7.4% of S patients (patients who received statin therapy) vs. 38.9% of NS patients (patients who had no statin)) and patient survival (overall mortality: 5.9% in S patients vs. 36.1% in NS patients). This finding is important because the indications for renal revascularization, and the impact of revascularization on blood pressure, renal function, and survival, remain controversial. Although this study is limited by a retrospective study design, a systematic screening for comorbidities and conditions was performed. The authors included uniformly defined and well-documented variables such as peripheral vascular disease, antihypertensive drug regimen and renal function at baseline into the statistical models. The impact of these variables on patient survival is therefore more reliable and in line with findings on patients suffering from coronary heart disease (CHD). Interestingly, this is one of the rare studies published for patients with ARAS including statin into the statistical model to determine predictors of improved survival and renal function. This result should be confirmed by prospective studies such as the ongoing CORAL (Cardiovascular Outcomes in Renal Atherosclerotic Lesions) and ASTRAL (Angioplasty and Stenting for Renal Artery Lesions) trials. If these beneficial effects of statins are confirmed in patients with ARAS, then their use as secondary prevention would not be limited to patients suffering from CHD and occlusive cerebral artery disease. In summary, this study suggests that in case of proven ARAS with or without renal impairment, secondary preventive treatment with statin irrespective of the lipid profile should be used to slow the progression of renal insufficiency and to reduce overall mortality.

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