

Nephrology

Arterial stiffness in atherosclerotic renovascular hypertension.

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OBJECTIVE: Arterial stiffness is an independent cardiovascular risk factor. Aging, high blood pressure and increased renin-angiotensin system activity contribute to increased arterial stiffness in patients with atherosclerotic renovascular hypertension (aRVH). A literature search failed to identify any study related to this topic. Therefore, our aim was to determine the arterial stiffness in patients with aRVH and analyze whether stenting in addition to multifactorial drug therapy has beneficial effects on markers of stiffness and the clinical course.

METHODS: In this 6-month longitudinal study, 37 patients with refractory hypertension and unilateral aRVH were enrolled. After stenting, all patients received multifactorial drug therapy including 80mg of telmisartan. Arterial stiffness indices were determined using Arteriograph. The control group consisted of 44 patients with essential hypertension.

RESULTS: There were no differences in brachial blood pressure values between the two groups ($P > 0.05$). At baseline, adjusted pulse wave velocity (PWV) was higher in aRVH patients than that of essential hypertensive patients (12.8 ± 0.4 vs. 11.6 ± 0.3 m/s; $P = 0.029$). In the aRVH group, at the end of the follow-up, a significant decrease in the aortic augmentation index (37.7 ± 9.9 vs. 33.7 ± 11.4 ; $P = 0.02$) without changes in PWV was observed ($P > 0.05$).

CONCLUSION: This study is the first to show that arterial stiffness is higher in patients with refractory aRVH than in those with essential hypertension. Multifactorial therapy based on stenting and intensive medical treatment reduced central blood pressure and augmentation index. Failure to obtain PWV reduction is likely a consequence of the present irreversible structural vessel changes. Longer follow-up might enable us to resolve whether arterial stiffness indices have better predictive ability in patients with aRVH than brachial blood pressure.

J Hypertens. 2014 Nov;32(11):2238-45; discussion 2245.

Arterial stiffness and Sri Lankan chronic kidney disease of unknown origin.

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BACKGROUND: Chronic kidney disease (CKD) is common and independently associated with cardiovascular disease (CVD). Arterial stiffness contributes to CVD risk in CKD. In many developing countries a considerable proportion of CKD remains unexplained, termed CKDu.

MATERIALS AND METHODS: We assessed arterial stiffness in subjects with Sri Lankan CKDu, in matched controls without CKD and in those with defined CKD. Aortic blood pressure (BP), pulse wave velocity (PWV) and augmentation index (AIx) were assessed in 130 subjects (50 with CKDu, 45 with CKD and 35 without CKD) using the validated TensioMed™ Arteriograph monitor.

RESULTS: Brachial and aortic BP was lower in controls than in CKDu and CKD subjects but no different between CKDu and CKD. Controls had a lower PWV compared to subjects with CKDu

and CKD. Despite equivalent BP and renal dysfunction, CKDu subjects had a lower PWV than those with CKD (8.7 ± 1.5 vs. 9.9 ± 2.2 m/s, $p < 0.01$). Excluding diabetes accentuated the differences in PWV seen between groups (controls vs. CKDu vs. CKD: 6.7 ± 0.9 vs. 8.7 ± 1.5 vs. 10.4 ± 1.5 m/s, $p < 0.001$ for all). Sri Lankan CKDu is associated with less arterial stiffening than defined causes of CKD. Whether this translates to lower cardiovascular morbidity and mortality long term is unclear and should be the focus of future studies.

Sci Rep. 2016 Sep 2;6:32599.