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Editorial Comment

EDITORIAL COMMENT

Revisiting angioplasty for renovascular hypertension

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Abstract

Following contemporary trends in arterial endovascular therapy of the lower extremities, recent major trials in anti-hypertensive renovascular revascularization have focused on outcomes after primary stenting of the renal artery. Angioplasty-only therapy has not been studied in a major trial since the year 2000. As such, the current study by Saeed *et al*. presents an updated data set on the technique with one unique aspect: patients underwent post-procedural physiologic scintigraphy to document the effects of unilateral intervention in patients with two kidneys. Although these physiologic changes should not supersede the clinically relevant outcome of blood pressure reduction (which was also accomplished in this study albeit to a modest but statistically significant degree), the physiologic consequences of unilateral intervention are elegantly presented in this short-term follow-up study. Furthermore, while current renovascular intervention is trending towards treatment of global renal ischemia (i.e. bilateral renal artery stenosis or renal artery stenosis in a congenitally or acquired solitary functional kidney scenario), the current study provides a useful data set for reference in guiding future renovascular revascularization studies and treatment algorithms.

Key words: angioplasty, hypertension, renal artery stenosis

In this issue of *CKJ*, Saeed *et al*. [1] present results from a retrospective review of 52 patients who underwent split renal function scintigraphy after renal artery angioplasty (without stenting) for atherosclerotic renovascular hypertension (ARVH). Patients were sub-selected from a prospectively recruited dual-centre clinical trial studying post-angioplasty medical management. Importantly, all 52 patients were naïve to anti-RAAS (renin-angiotensin-aldosterone system) medications.

At first it may be disconcerting that the rate of global renal ischemia in this study was 0%; however, this was by design and actually a necessary inclusion criterion to study differential renal outcomes after unilateral intervention. Specifically, patients with bilateral renal artery stenosis or stenosis of a solitary kidney were excluded. This provides a unique data set in the ongoing debate surrounding anti-hypertensive renal intervention, since the majority of efforts now are being made to mainly/mostly treat patients with global renal ischaemia [2].

The current study provides an updated data set on angioplasty-only management of ARVH. Since EMMA (1998), SNRASCG (1998) and DRASTIC (2000), no major trials have focused on angioplasty-only management. These trials, with their respective methodologic shortcomings (e.g. SNRASCG allowed cross-over angioplasty using subjective criteria), did not show dramatic ambulatory blood pressure reduction compared with control. Saeed *et al*. [1] showed statistically significant reductions in ambulatory systolic (mean 7 mmHg) and diastolic (mean 3 mmHg) pressures in their angioplasty-only cohort, and these favorable changes correlated with plasma renin activity and angiotensin II activity. These results were seen at only 4 weeks post-intervention, and may improve over time (this would be an interesting follow-up study).

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Furthermore, the results of the current study are despite likely effects of lead-time bias (we do not know for how long the arteries have been critically stenotic in these patients—an almost unavoidable limitation in current ARVH studies).

Saeed *et al.* [1] provide a different perspective on the post-interventional physiology of unilateral angioplasty-only intervention for ARVH. Specifically, favorable physiologic changes such as improved ipsilateral estimated glomerular filtration rate are elegantly demonstrated with scintigraphic methods. Furthermore, reduced contralateral filtration may have long-term benefits (which future studies should address) in nephron preservation and reduction of tubulointerstitial fibrosis, which could be a topic for future study of this cohort using novel imaging techniques [3].

Finally, the inclusion of only patients naïve to anti-RAAS medication is especially interesting from the perspective of purported cross-talk pathways underlying ARVH pathophysiology (e.g. the mechanism of RAAS activation as a mechanism of thiazide resistance) [4, 5]. Since most atherosclerotic patients are not candidates for renal denervation (due to inability to provide catheter/true vessel wall contact deep to plaque), the future of intervention for ARVH (until endovascular regenerative techniques such as stem cell embolization come to fruition) will focus on angioplasty and stenting (with or without drug-eluting technology) in the near term [2].

Conflict of interest statement

None declared.

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