Letter by Wang Regarding Article, “Efficacy and Safety of Catheter-Based Radiofrequency Renal Denervation in Stented Renal Arteries”

To the Editor:

I read with great interest the article, “Efficacy and Safety of Catheter-Based Radiofrequency Renal Denervation in Stented Renal Arteries” by Mahfoud et al.1 The authors investigated the feasibility and safety of renal denervation in stented arteries from both a patient and healthy pigs. The authors found that renal denervation decreased 24-hour blood pressure of the patient from 167/98 mm Hg at baseline to 145/86 mm Hg at 24 months. No significant renal artery stenosis was detected in this patient. The authors also found that in pigs renal denervation in nonstented segments distal to the stent was safe and that renal denervation decreased renal nerve function, as indicated by a decrease in (1) renal nerve viability in the renal artery, (2) cortical axonal density, and (3) renal norepinephrine concentration. However, denervation within the stented area did not decrease renal nerve function of the pigs. This study expanded our knowledge on renal denervation in stented renal arteries. It provides certain guidance for applying renal denervation in patients with a stented renal artery, who were excluded from published clinical trials.

However, the safety of renal denervation in stented renal arteries is not well established in this study.1 It has been increasingly reported that renal denervation may lead to renal artery stenosis.2 For example, ≥6 clinical studies and 4 case reports showed development or progression of renal artery stenosis within 6 months after renal denervation.2 Mahfoud et al1 did not detect significant renal artery stenosis in pigs with a stented renal artery 14 days after renal denervation. However, long-term effects of renal denervation on renal artery stenosis under this setting are not clear. Renal denervation is safe for ≥2 years in the reported patient with a stented renal artery; however, a sample size of one makes it hard to interpret the safety profile of renal denervation in this type of patients.

Also, the efficacy of renal denervation in stented renal arteries is not well established in this study.1 Renal denervation decreased blood pressure in the reported patient with a stented renal artery. However, whether this is because of enhanced drug adherence is unknown. Poor drug adherence is a major problem among patients with resistant hypertension. For example, a recent study (n=84) showed that 65.5% patients with resistant hypertension were of drug nonadherence, which was defined as the serum level of ≥1 prescribed drug was below the detection limit.3 Renal denervation of the nonstented segment can decrease renal nerve function in pigs.1 However, to what extent the decreased renal nerve activity is related to the decrease in blood pressure is not clear.

In summary, the safety and effectiveness of renal denervation in stented renal arteries are not well established. Well-designed clinical trials with long-term follow-ups4 are needed to clarify this issue in the future.

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Disclosures

None.

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References

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