

CORRESPONDENCE

Response to: Coronary flow reserve: a new target for treating hypertension

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Hinoi, Okusaki, Kubota, Yamada and Sakata reply:

We appreciate the insightful comments of Dr Barrios and colleagues regarding our study.¹ As they have suggested, it is important to consider whether the beneficial effect beyond blood pressure reduction of telmisartan on coronary flow reserve (CRF) is a class effect of angiotensin receptor blockers (ARBs). The renin-angiotensin system (RAS) is an important regulator of blood pressure and body fluid homeostasis in healthy individuals. The RAS system also plays a primary role in modulating vascular structure and function by a variety of mechanisms.² Motz *et al.*³ reported that 12 months of therapy with enalapril improved the human CFR using a gas chromatographic argon method.³ In our study, the reduction of the homeostasis model assessment (HOMA)-IR: (fasting plasma insulin (micro U ml⁻¹) ×

fasting plasma glucose (mmol l⁻¹))/22.5) and increase in coronary flow velocity reserve (CFVR, the ratio of hyperemia to rest-averaged peak diastolic flow velocity) were significantly related in the telmisartan group ($y = -0.976x - 13.5$, $R^2 = 0.81$; $P < 0.01$).¹ These considerations, altogether, support the possibility that telmisartan has the effect of improving coronary microcirculation partly by ameliorating insulin resistance among the essential hypertensive patients without left ventricular hypertrophy. Further studies are required to determine the underlying mechanisms by which the ARBs have beneficial effects on the coronary circulation and atherosclerosis.

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- 1 Hinoi T, Tomohiro Y, Kajiwara S, Matsuo S, Fujimoto Y, Yamamoto S, Shichijo T, Ono T. Telmisartan, an angiotensin II type 1 receptor blocker, improves coronary microcirculation and insulin resistance among essential hypertensive patients without left ventricular hypertrophy. *Hypertens Res* 2008; **31**: 615–622.
- 2 Morisita R, Higaki J, Miyazaki M, Ogihara T. Possible role of the vascular renin-angiotensin system in hypertension and vascular hypertrophy. *Hypertension* 1992; **19** (Suppl 2): S62–S67.
- 3 Motz W, Strauer BE. Improvement of coronary reserve after long-term therapy with enalapril. *Hypertension* 1996; **27**: 1031–1038.