Letter to the Editor

Adrenal Venous Sampling (AVS) is Essential for Detecting Unilateral or Bilateral Adrenal Lesions in Primary Aldosteronism

Dear Sir;

Minami *et al.* have reported in the recent issue of *Endocrine Journal* that adrenal venous sampling (AVS) is unnecessary before surgical treatment for unilateral adrenalectomy in a hypertensive patient with primary aldosteronism (PA) with presence of unilateral adrenal tumor detected by CT, who is younger than 52 years old demonstrating hypokalemia ($<3.4\text{mEq/l}$) with less than 1.45-fold increase in PAC after furosemide stimulation (Criteria III), after examining the clinical characteristics of 35 cases who were definitely diagnosed as PA [1]. They emphasized that AVS is an invasive method, and that the unilateral lesion found by CT images is a real mass, which would induce hyperaldosteronemia in such cases. At the 30th annual scientific meeting of the Japanese Society of Hypertension (2007), they reported that AVS is unnecessary in cases with $\text{PAC} > 15.0\text{ ng/dl}$ and which had less than 2.0-fold increase in PAC after furosemide stimulation by analyzing 22 cases of PA (Criteria I). Furthermore, they modified the criteria by re-examining 29 cases, and reported at the 105th annual meeting of the Japanese Society of Internal Medicine (2008) that AVS is unnecessary in cases with PA who were younger than 52 years old and whose systolic blood pressure is more than 140 mmHg, PAC more than 18.0 ng/dl and showed less than 2.3-fold increase in PAC

after furosemide stimulation (Criteria II). We think that the number of cases evaluated by Minami *et al.* is too limited to determine whether or not AVS should be performed after diagnosing PA according to those criteria. Therefore, we analyzed Minami *et al.*'s three different criteria against our 207 cases with PA who were accurately diagnosed for detecting the affected side of the adrenal gland, which produces autonomously high amounts of aldosterone examined by ACTH-stimulated AVS [2]. Our analysis clearly demonstrated that 39, 21 and 8 cases among 207 with PA satisfied criteria I, II and III, respectively, and also demonstrated that the non-affected side of adrenal would be removed in 7 (18%) cases among 39, 5 (24%) among 21 and 2 (25%) among 8 if we were using Minami *et al.*'s criteria for diagnosing laterality. Thus, we could possibly make a misdiagnosis of laterality of adrenal lesions by using Minami *et al.*'s criteria. We would like to emphasize that we should perform ACTH-AVS for detecting laterality in all patients with PA who want surgical treatment, even though their CT images are positive [3].

References

1. Minami I, Yoshimoto T, Hirano Y, *et al.* (2008) Diagnostic accuracy of adrenal venous sampling in comparison with other parameters in primary aldosteronism. *Endocr J* 55: 839-846.
2. Omura M, Sasano H, Saito J, *et al.* (2006) Clinical characteristics of aldosterone-producing microadenoma, macroadenoma, and idiopathic hyperaldosteronism in 93 patients with primary aldosteronism. *Hypertension Res* 29: 883-889.
3. Nishikawa T, Saito J and Omura M. (2007) Review Article: Prevalence of primary aldosteronism: Should we screen for primary aldosteronism before treating hypertensive patients with medication? *Endocr J* 54:487-495.

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