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CORRESPONDENCE

Aldosterone breakthrough from a pharmacological perspective

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With great interest, I read the comprehensive review by Mogi [1] discussing the mechanisms underlying aldosterone breakthrough recently published in the journal. Aldosterone breakthrough has been defined as a rise in plasma concentration of Aldosterone during long-term angiotensin II blockade [2]. Since elevated aldosterone could promote target organ damage in addition to volume expansion and hypertension, the question that arises is what the more rational strategy is to reverse or counteract the aldosterone breakthrough. The renin response to the pharmacological blockade of the negative feedback of angiotensin II on the juxtaglomerular cells could provide a clue. Patients with aldosterone breakthrough tend to have a relatively lower plasma renin activity (PRA) than patients without aldosterone breakthrough [3, 4]. A reciprocal decrease in PRA would indicate volume expansion and therefore a pathogenic role of the elevated aldosterone. This is expressed as higher aldosterone to renin ratio (>3 ng/dL/ng/mL/h, as calculated from the reported data [3, 4]) and would suggest a greater benefit from adding a mineralocorticoid receptor antagonist to patients with aldosterone breakthrough. Accordingly, in patients with resistant hypertension, a higher aldosterone-to-renin ratio predicted a larger blood pressure reduction by the addition of spironolactone [5]. Conversely, an exaggerated increase in renin suggests secondary aldosteronism due to volume contraction rather than aldosterone breakthrough and prompts to review of the diuretic dosage and eventually add a beta-blocker instead of a mineralocorticoid receptor antagonist. Taking into account the renin level and the aldosterone-to-renin ratio could help to refine the therapeutic strategy in patients with unsuppressed aldosterone despite treatment with a renin-angiotensin blocker.

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