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Successful Adrenal Vein Sampling Using Dexamethasone Premedication In Patients With Iodine Contrast Media Allergy

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Background: Preparation of patients with iodine contrast media (ICM) allergy who require adrenal vein sampling (AVS) to establish source of aldosterone excess in confirmed primary aldosteronism (PA) is controversial. Usual premedication with high dose prednisone can interfere with cortisol determinations, possibly altering the aldosterone-to-cortisol ratios for the identification of lateralized

aldosterone excess.

Objective: Evaluate the efficacy and safety of premedication with high dose dexamethasone to perform AVS in patients with ICM. **Methods:** 177 consecutive patients with confirmed PA who underwent bilateral simultaneous basal and post ACTH bolus AVS at our center between January 2010 and December 2020 were retrospectively analyzed for reported ICM allergy. A total of 7 patients (4%) with history of allergic reactions to ICM were premedicated with three doses of 7.5 mg dexamethasone rather than the usual 50 mg of prednisone. **Results:** No breakthrough allergic reactions were reported in the 7 patients. The mean age at the time of AVS procedure was 55.1 ± 16.8 years. Patients had been hypertensive for a mean of 6.7 ± 5.9 years. The mean systolic blood pressure on the day of the procedure was 137.4 ± 4.2 mmHg and the mean diastolic blood pressure 77.1 ± 12.9 mmHg. Most patients had at least 2 anti-hypertensive medications in their drug regimen prior to AVS procedure, none being mineralocorticoid receptor antagonists. Dexamethasone suppression effect on AVS: All basal peripheral cortisol levels were suppressed, < 50 nmol/L, confirming lack of meaningful cortisol co-secretion. The basal and post-ACTH selectivity index were respectively >2 and > 5 bilaterally in all patients, confirming adequate cannulation of both adrenal veins. Basal peripheral plasma aldosterone concentration (PAC) was also reduced by dexamethasone administration by an average of $66 \pm 30\%$ in comparison with PAC measured before AVS. Despite basal suppression, PAC increased following ACTH bolus injection with an average rise of $698.8 \pm 644.5\%$ from baseline. AVS results: Four patients had lateralized (A/C ratio > 2 basally and >4 post ACTH), while three had bilateral source according to AVS results. Follow up data for a mean of 58 ± 41.4 months was available for 6 patients. In the three patients who underwent unilateral adrenalectomy for lateralized source, basal and post-ACTH lateralization ratios were concordant. All 3 patients had contralateral suppression, confirmed adrenocortical adenoma at histopathology and clinical (n=3) (normal blood pressure without medication) and/or biochemical cure (n=2) (direct renin concentration > 10 ng/dL) at follow up. **Conclusion:** AVS using dexamethasone premedication is safe and accurate for diagnosing source of aldosterone excess in patients with PA and ICM allergy.

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