

- screening and confirmation of primary aldosteronism: a position statement and consensus of the Working Group on Endocrine Hypertension of The European Society of Hypertension [J]. J Hypertens, 2020, 38 ( 10 ): 1919-1928. DOI: 10. 1097/HJH. 0000000000002510.
- [8] Nishikawa T, Omura M, Satoh F, et al. Guidelines for the diagnosis and treatment of primary aldosteronism--the Japan Endocrine Society 2009 [J]. Endocr J, 2011, 58 ( 9 ): 711-721. DOI: 10. 1507/endocrj. ej11-0133.
- [9] 郑枫凡, 宋颖, 杨淑敏, 等. 不同方法检测血醛固酮浓度的一致性比较[J]. 中华内分泌代谢杂志, 2019, 35 ( 11 ): 934-935. DOI: 10. 3760/cma. j. issn. 1000-6699. 2019. 11. 003.
- [10] 刘旭. 肾素、醛固酮化学发光定量检测法的性能验证及其对原发性醛固酮增多症筛查效力的评估[J]. 中国卫生检验杂志, 2016, 26 ( 15 ): 2192-2195. DOI: CNKI: SUN: ZWJZ. 0. 2016-15-020.
- [11] Dorrian CA, Toole BJ, Alvarez-Madrazo S, et al. A screening procedure for primary aldosteronism based on the Diasorin Liaison automated chemiluminescent immunoassay for direct renin [J]. Ann Clin Biochem, 2010, 47 ( Pt 3 ): 195-199. DOI: 10. 1258/acb. 2010. 009230.
- [12] Morganti A; European study group for the validation of DiaSorin LIAISON Direct Renin Assay. A comparative study on inter and intralaboratory reproducibility of renin measurement with a conventional enzymatic method and a new chemiluminescent assay of immunoreactive renin [J]. J Hypertens, 2010, 28 ( 6 ): 1307-1312. DOI: 10. 1097/HJH. 0b013e32833857ad.
- [13] Mulatero P, Rabbia F, Milan A, et al. Drug effects on aldosterone/plasma renin activity ratio in primary aldosteronism [J]. Hypertension, 2002, 40 ( 6 ): 897-902. DOI: 10. 1161/01. hyp. 0000038478. 59760. 41.
- [14] Song Y, Yang S, He W, et al. Confirmatory tests for the diagnosis of primary aldosteronism: a prospective diagnostic accuracy study [J]. Hypertension, 2018, 71 ( 1 ): 118-124. DOI: 10. 1161/HYPERTENSIONAHA. 117. 10197.
- [15] 中华医学会内分泌学分会. 原发性醛固酮增多症诊断治疗的专家共识 (2020 版) [J]. 中华内分泌代谢杂志, 2020, 36 ( 9 ): 727-736. DOI: 10. 3760/cma. j. cn311282-20200615-00444.
- [16] Young WF, Stanson AW, Thompson GB, et al. Role for adrenal venous sampling in primary aldosteronism [J]. Surgery, 2004, 136 ( 6 ): 1227-1235. DOI: 10. 1016/j. surg. 2004. 06. 051.
- [17] Burrello J, Monticone S, Tetti M, et al. Subtype diagnosis of primary aldosteronism: approach to different clinical scenarios [J]. Horm Metab Res, 2015, 47 ( 13 ): 959-966. DOI: 10. 1055/s-0035-1565089.
- [18] Wachtel H, Zaheer S, Shah PK, et al. Role of adrenal vein sampling in primary aldosteronism: impact of imaging, localization, and age [J]. J Surg Oncol, 2016, 113 ( 5 ): 532-537. DOI: 10. 1002/jso. 24182.
- [19] Zhu L, Zhang Y, Zhang H, et al. Comparison between adrenal venous sampling and computed tomography in the diagnosis of primary aldosteronism and in the guidance of adrenalectomy [J]. Medicine ( Baltimore ), 2016, 95 ( 39 ): e4986. DOI: 10. 1097/MD. 0000000000004986.
- [20] Ishidoya S, Ito A, Sakai K, et al. Laparoscopic partial versus total adrenalectomy for aldosterone producing adenoma [J]. J Urol, 2005, 174 ( 1 ): 40-43. DOI: 10. 1097/01. ju. 0000162045. 68387. c3.
- [21] Steichen O, Amar L, Chaffanjon P, et al. SFE/SFHTA/AFCE consensus on primary aldosteronism, part 6: adrenal surgery [J]. Ann Endocrinol ( Paris ), 2016, 77 ( 3 ): 220-225. DOI: 10. 1016/j. ando. 2016. 01. 009.
- [22] Williams TA, Lenders JWM, Mulatero P, et al. Outcomes after adrenalectomy for unilateral primary aldosteronism: an international consensus on outcome measures and analysis of remission rates in an international cohort [J]. Lancet Diabetes Endocrinol, 2017, 5 ( 9 ): 689-699. DOI: 10. 1016/S2213-8587 ( 17 ) 30135-3.

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### 原发性醛固酮增多症患者血浆醛固酮水平的刺激因素

在原发性醛固酮增多症 (PA) 中, 醛固酮的分泌相对独立于肾素-血管紧张素系统, 但是否受到其他因素的刺激? 一项前瞻性队列研究对此进行了研究。共入选了 43 例经肾上腺静脉穿刺确诊为 PA 的患者 ( $n = 39$ ), 其中 11 例为双侧肾上腺增生 (BAH), 28 例为单侧醛固酮瘤 (APA), 4 例病因不明。所有患者接受了 3 d 以上的不同刺激试验: 直立位、混合餐、促肾上腺皮质激素 (ACTH) 1-24、促性腺激素释放激素 (GnRH)、加压素和 5-羟色胺 R4 (HT4R) 激动剂, 所有刺激试验均在地塞米松抑制下进行。阳性定义为在各种刺激试验后肾素或 ACTH 非依赖性血浆醛固酮浓度增加

50% 以上。结果高达 83% 的 APA 或 BAH 患者对直立位、GnRH、ACTH1-24 和 HT4R 激动剂呈阳性。患者的醛固酮水平的平均刺激因素个数在 BAH (4.6) 和 APA (4.0) 中相似。因此研究认为 PA 患者的醛固酮分泌虽然独立于肾素-血管紧张素系统, 但受到其他几种刺激因素的高度调节, 这可能是 PA 患者醛固酮水平的巨大变异性原因。

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