

Original article

Is it useful to repeat an adrenal venous sampling in patients with primary hyperaldosteronism?

Est-il utile de renouveler une phlébographie surrénalienne chez des patients ayant un hyperaldostéronisme primaire ?

B. Bouhanick^{a,*}, M.-C. Delchier^b, J. Fauvel^c, H. Rousseau^b, J. Amar^a, B. Chamontin^a

^a Department of Internal Medicine and Hypertension, University Hospital Rangueil, TSA 50032, 31059 Toulouse cedex 9, France

^b Department of Radiology, University Hospital Rangueil, 31059 Toulouse cedex 9, France

^c Department of Biochemistry, institut fédératif de biologie, University Hospital Purpan, 31000 Toulouse, France

Received 19 March 2013; accepted 1st April 2013

Available online 20 April 2013

Abstract

Adrenal venous sampling (AVS) is a challenging technical procedure and few patients had AVS procedure twice.

Aim. – To evaluate the reproducibility of the AVS, why AVS were repeated and the conclusions drawn from them.

Patients and methods. – From 1997–2012, 12 patients underwent two AVS. A cortisol level in the adrenal vein greater than or equal to 1.1 to inferior vena cava defined a successful catheterization and a lateralization of secretion corresponded to an aldosterone-to-cortisol vein ratio greater than or equal to 2 between the one side to another.

Results. – The same side of lateralization of secretion was found in 75% of them. The second AVS were due to technical failure ($n = 4$), unproven lateralization ($n = 2$), a lateralization opposite to the main nodule and ipsilateral to hyperplasia ($n = 4$) on first AVS. For two patients, as the CT was normal, AVS was required again. The second AVS was successful in all patients, including those with an initial technical failure but only patient with technical failure underwent surgery, as BP and kaliemia were controlled. Lateralization on the side of hyperplasia or opposite to the biggest nodule was confirmed in two of four cases.

Conclusion. – When AVS is unsuccessful for technical reasons, it is worth doing it again but after being sure that surgery is still possibly indicated.

© 2013 Elsevier Masson SAS. All rights reserved.

Keywords: Adrenal venous sampling; Primary hyperaldosteronism; Secondary hypertension

Résumé

La phlébographie surrénalienne (PS) est une procédure délicate qui parfois nécessite d'être renouvelée.

But. – Évaluer la reproductibilité de la PS et savoir dans quelles circonstances elle est renouvelée et les conclusions qui en découlent.

Patients et méthodes. – De 1997 à 2012, 12 patients subissent deux PS. Un rapport cortisol dans la veine surrénale/cortisol dans la veine cave inférieure supérieur ou égal à 1,1 définit le succès du cathétérisme et une latéralisation de sécrétion est définie par un rapport aldostérone/cortisol supérieur ou égal à 2 par rapport au côté controlatéral.

Résultats. – Au cours des deux phlébographies, la même latéralisation de sécrétion est retrouvée dans 75 % des cas. Une seconde PS est pratiquée en raison d'un échec technique de la première (quatre cas), d'une latéralisation de sécrétion non démontrée (deux cas), d'une latéralisation controlatérale à un nodule et homolatérale à une hyperplasie (quatre cas). Chez deux patients, le scanner surrénalien jugé normal a amené à refaire la PS. La seconde PS a réussi chez tous les patients, y compris chez ceux en échec technique la première fois mais seul un patient en échec technique a subi une surrénalectomie, l'HTA et la kaliémie étant contrôlées dans l'intervalle des deux gestes. La latéralisation de sécrétion du côté de l'hyperplasie est à nouveau observée chez 50 % des patients.

* Corresponding author.

E-mail address: duly-bouhanick.b@chu-toulouse.fr (B. Bouhanick).

Conclusion. – En cas d'échec technique d'une PS, il est utile de la renouveler mais à condition de s'assurer qu'une indication chirurgicale est maintenue.

© 2013 Elsevier Masson SAS. Tous droits réservés.

Mots clés : Phlébographie surrénalienne ; Hyperaldostéronisme primaire ; HTA secondaire

1. Introduction

Primary aldosteronism is one of the most common forms of secondary hypertension. Aldosterone production generally depends on either aldosterone-producing adenoma (APA), unilateral adrenal hyperplasia or is due to bilateral adrenal disease [1]. In newly diagnosed hypertensive patients referred to hypertension centres, the prevalence of APA is high (4.8%) [2]. Once inappropriate production of aldosterone and low concentration of renin are documented, lateralization of the source of the excessive aldosterone secretion is critical to guide the management of primary hyperaldosteronism. Findings on adrenal computed tomography (CT) are used in conjunction with adrenal venous sampling (AVS) to make the distinction between unilateral and bilateral adrenal disease and avoid unnecessary surgery [3]. AVS became the gold standard in localization of the source of autonomous aldosterone production as all forms of hyperaldosteronism can present similar clinical symptoms or chemistry and interpretation of CT has several limitations [1,4,5]. However, the technical procedure is challenging, even in experienced centres [6]. To our knowledge, no data about the impact of making an AVS twice exists. The aim of this study was to evaluate our professional practice: the reasons and the potential interest of repeating the AVS in a series of patients with primary hyperaldosteronism.

2. Subjects and methods

The study was approved by the local ethics committee and conducted in accordance with the ethical principles described by the declaration of Helsinki within a monocentric retrospective study, we collected data about patients who had received AVS twice and referred to the University Center of Toulouse between 1997 and 2012. All patients had hypertension and hypokaliemia. The diagnosis of primary hyperaldosteronism was based on elevations of aldosterone and suppression of renin.

2.1. Assays

All patients completed bedside testing performed after cessation of antihypertensive medication that could interfere with endocrine evaluation (15 days before for diuretics, beta blockers, ACE and blockers of RAA system; 6 weeks before for antialdosterones). Briefly, aldosterone and plasma renin were obtained on the morning during bed rest and again after 1 or 4 hours of ambulation. Plasma aldosterone concentration was measured by radioimmunoassay (RIA aldosterone IM 1164; Immunotech, a Beckman Coulter company). The coefficients of variation intra-assay and inter-assay were respectively found below or equal to 9.5% and 10.4% [7].

The LIAISON Direct Renin assay uses chemiluminescent immunoassay technology for the determination of renin in human EDTA-plasma specimens (DiaSorin S.p.A). The coefficients of variation intra-assay and inter-assay were respectively found below or equal to 5.6% and 12.4% [7].

The serum cortisol dosage is an immunodosage by competition, using a direct technology chemiluminescent (Siemens, ADVIA Centaur XP immunoassay Systems). The coefficients of variation intra-assay and inter-assay were respectively found below or equal to 3.69% and 5.45% [8].

2.2. Computed tomography

All patients also underwent CT (3-mm section) with millimetric acquisitions and multiplanar reconstructions. Morphology of the two glands was analyzed to detect a solitary nodule or bilateral masses with or without adrenal hyperplasia. CT had an overall sensitivity and specificity of 77% and 80% [9].

2.3. Adrenal venous sampling

Since 2003 according to recommendations, patients signed an informed consent form that described the AVS procedure. The AVS was performed by two experienced interventional radiologists in the radiology department. The adrenal veins were catheterized through the percutaneous femoral vein approach and the position of the catheter tip was checked by injection of a small amount of non-ionic contrast medium and radiographic documentation [10]. Aldosterone and cortisol-plasma concentrations were measured from the inferior vena cava (IVC) and both adrenal veins. Successful catheterization of adrenal vein was defined by a cortisol level in the adrenal vein greater than or equal to 1.1 to IVC. Lateralization of adrenal aldosterone secretion was defined by the aldosterone-to-cortisol vein ratio greater than or equal to 2 between the dominant and no dominant adrenal vein as previously described [11].

Results are expressed as means \pm standard deviation or median-range when indicated.

3. Results

From 1997–2012, 12 patients who had primary hyperaldosteronism underwent two AVS. Patient characteristics and hormonal values at referral are given in Table 1. All patients had hypokaliemia and a majority of them had resistant hypertension and they received 3.3 ± 2.1 drugs for it. In other cases, the association of high blood pressure, young age and hypokaliemia was found.

Download English Version:

<https://daneshyari.com/en/article/2868752>

Download Persian Version:

<https://daneshyari.com/article/2868752>

[Daneshyari.com](https://daneshyari.com)