Towards cost-effective diagnostic management of patients with primary aldosteronism: adrenal vein sampling or CT-scan?

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Adrenal gland disorders
Study type	Interventional

Summary

ID

NL-OMON34699

Source
ToetsingOnline

Brief title
Computed Tomography vs. Adrenal Vein Sampling in primary aldosteronism

Condition

- Adrenal gland disorders
- Vascular hypertensive disorders

Synonym
conn's disease, primary aldosteronism

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Sint Radboud
Source(s) of monetary or material Support: ZonMW Doelmatigheidssubsidie

Intervention

Keyword: adrenal vein sampling, CT-scan, hypertension, primary aldosteronism

Outcome measures

Primary outcome

The criterion ('gold') standard of correct strategy will be medication use

after one year of follow-up.

Secondary outcome

Secondary endpoints will be costs of each strategy, quality of life, serum

potassium, proportion of patients with normal blood pressure with or without

medication, and normalization of aldosterone (after Adx only). Costs of each

strategy consist of immediate costs and long-term extrapolated costs of

diagnosis and surgical and medical treatment in both arms.

Study description

Background summary

Primary aldosteronism (PA) is rapidly becoming a major burden for hypertension care. Hypertension specialists increasingly recognize that PA explains up to 6% of cases with hypertension. In PA autonomous hypersecretion of aldosterone by one or both adrenal glands causes hypertension that is often refractory to treatment. PA causes vascular damage that is more severe than in subjects with equally elevated blood pressure but without PA. PA is usually caused by either a unilateral aldosterone-producing (micro)adenoma (APA) or by bilateral adrenal hyperplasia (BAH). Distinction between APA and BAH is critical since the former is treated with the aim of cure by adrenalectomy (Adx), and the latter by mineralocorticoid receptor antagonists (MRA). After successful Adx antihypertensive medication can usually be reduced substantially or even

stopped completely. Accurate identification of APA is therefore mandatory. The Endocrine Society 2008 guideline recommends that in all patients with PA sampling of both adrenal veins (AVS) for aldosterone levels should be performed in order to detect unilateral (APA) or bilateral (BAH) hypersecretion of aldosterone. AVS is invasive, with a small risk of adrenal hemorrhage, demands great skill, and is expensive. Hitherto, common practice in the Netherlands has been to diagnose APA and BAH not by AVS, but by adrenal CT-scan (non-invasive, easy and cheap), in part because few hospitals have the facilities and expertise to perform AVS successfully. We showed in a meta-analysis that conclusions from AVS and CT-scan differ in 40% of cases. This discordance is not readily explained and although AVS is attractive conceptually -because it may detect very small adenomas whose size is below the resolution limit of CT and because it may demonstrate non-functionality of adenomas- its superior performance in subtyping of PA has not been demonstrated in prospective randomized studies. The guideline's advice to perform AVS in patients with PA is therefore debatable. In addition to the uncertainty of the validity of AVS, the financial costs for facilities and manpower to perform AVS have not been assessed.

Study objective

Here we propose to perform a prospective, randomized, multicenter study that compares effectiveness of AVS with effectiveness of CT-scanning for the diagnosis of PA subtype. There is no criterion standard for accuracy of the diagnosis of PA-subtype, but we assume that if treatment is based on a more accurate diagnosis treatment is more effective. We therefore propose antihypertensive medication use as a primary endpoint. Indeed, if AVS identifies APA with better accuracy than CT it is to be expected that patients use less antihypertensive drugs during follow-up when diagnosis is based on AVS.

Study design

Randomized, parallel, open trial in a multi-centre setting.

Intervention

APA is diagnosed by asymmetric adrenal aldosterone production as found by AVS in one group or by a visible adenoma with normal contralateral gland when assessed by CT in the other group. BAH will be diagnosed if AVS shows symmetric adrenal aldosterone production or if CT scanning demonstrates bilateral adrenal enlargement/nodularity or normal adrenal glands. In each arm Adx will be done for APA and BAH will be treated by MRA. Hypertension will be treated according to a strict algorithm.

Study burden and risks

The protocol follows the common practice of CT-scanning in the subtyping of PA in one group and the recently advised alternative practice of performing a CT-scan as well as adrenal vein sampling which currently is common practice in the UMCs St Radboud and Groningen in the other group. Therefore, the burden of participation is comparable to usual practice, with the exception that follow-up is stricter and quality-of-life assessments (questionnaires) are incorporated.
The protocol bears no direct benefit to participants. The study will however be of great help in formulating clinical guidelines that are much better founded in evidence and may even, in case of equivalence of the two strategies, have substantial financial implication for society.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Patients ><=18 years of age
-with hypertension, resistant to two adequately dosed antihypertensive drugs with or without hypokalemia, either spontaneous or diuretic-induced.
-willing and fit to undergo surgery for adrenal adenoma

Exclusion criteria

pregnancy

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Diagnostic

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-09-2010
Enrollment:	200
Type:	Actual

Ethics review

Approved WMO

Date:	14-06-2010
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

Approved WMO

Date:	21-11-2011
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	07-05-2012
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL30849.091.10