

FEATURES OF METABOLIC AND HEMODYNAMIC INDICATORS IN OBESE PATIENTS WITH RESISTANT HYPERTENSION

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Objective: To establish the features of metabolic and hemodynamic parameters in obese patients with true and pseudo-resistant arterial hypertension (AH).

Design and method: The study included 200 patients with AH grade II and obesity I-II classes (age 45-55 years). Patients were initially prescribed dual antihypertensive therapy (ACEI and CCB). Those patients who did not reach target blood pressure (BP) levels after 3 months on dual therapy were additionally assigned a third antihypertensive drug (indapamide). Of the 98 patients who were assigned triple therapy, 48 patients did not reach target BP levels: 27 patients had pseudo-resistant AH (due to low compliance with treatment and insufficient adherence to the physician's instructions to ensure adequate levels of physical activity), and 21 patients had true resistant AH (did not have target BP levels with triple antihypertensive therapy and sufficient physical activity). These patients were additionally prescribed spironolactone. The effectiveness of the treatment in all groups was evaluated 6 months after the start of antihypertensive therapy.

Results: Comparative assessment of obese patients in the presence and absence of resistant AH after 6 months of therapy showed that, unlike patients without resistance, individuals with resistant AH differed more pronounced cardiovascular remodeling and metabolic disorders, greater dysbalance of oxidative stress-antioxidant protection, greater proinflammatory activity and higher activity of the RAAS. When performing a comparative evaluation of the indicators in patients with pseudo-resistant and true resistant AH, it was found that patients with true resistance differed from pseudo-resistant patients with significantly lower ($p=0.0229$) body mass index (BMI). In addition, in the absence of differences in BP levels, cardiovascular remodeling, lipid and carbohydrate profiles, patients with true resistance had significantly higher levels of aldosterone ($p=0.0449$), higher activity of oxidative stress system (malondialdehyde, $p=0.0055$ and diene conjugates, $p=0.0299$), lower levels of general antioxidant protection ($p=0.0004$), higher adiponectin levels ($p=0.0000$), and lower leptin level ($p=0.0001$), compared to pseudo-resistant patients

Conclusions: Obese patients with true resistance differed from pseudo-resistant patients with significantly lower BMI, higher aldosterone level, higher activity of the oxidative stress system, lower activity of the antioxidant protection system, higher adiponectin level, and lower leptin level.

DRUG-RESISTANT HYPERTENSION IN PRIMARY ALDOSTERONISM

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Objective: Drug-resistant arterial hypertension can derive from unrecognized forms of secondary hypertension of which primary aldosteronism (PA) is one of the most common. While available data suggest a high prevalence of PA in patients with resistant hypertension (RH), its rate in such population is unclear. This study sought to establish the rate of RH in patients with PA and the blood pressure outcome and resistance to treatment after adrenalectomy PA-RH patients subtyped by adrenal vein sampling (AVS).

Design and method: Data from consecutive patients with unambiguous diagnosis of PA and seeking surgical cure, submitted to AVS in 19 tertiary referral centers located in Asia, Australia, Europe, and North America, were collected in an observational prospective registry from 2000 to 2015. Blood pressure outcome and resistance to treatment by the American Heart Association 2018 criteria or a local clinical definition were the main study outcomes. Inclusion criteria were age > 18 years, indication to perform AVS following current guidelines, center's agreement to participate and approval of the local Ethics Committee.

Results: Of 1625 enrolled PA patients, 73.7% had conclusive information on presence or absence of resistant hypertension. Of these, 20.1% were judged to have RH, a rate that raised to 49.5% according to the clinical definition of each center lead investigator. RH was about twice as common in men as in women ($p<1 \times 10^{-4}$). Fifty-three percent of the PA patients with RH underwent surgery, which resolved resistance to drug treatment in all.

Conclusions: RH is a common presentation of PA in consecutive patients seeking surgical cure; AVS-guided adrenalectomy allowed to resolve resistance of high blood pressure to treatment. Hence, the optimal management of patients with PA and RH requires subtyping with adrenal vein sampling.

ARE SUBJECTIVE MEASURES THE ANSWER TO ASSESS PHYSICAL ACTIVITY ON A DAILY BASIS CLINICAL PRACTICE IN PATIENTS WITH RESISTANT HYPERTENSION?

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Objective: Physical activity is a vital sign for cardiovascular health. However, several factors, such as the duration of the protocol, equipment cost, and need for qualified professionals make the assessment of physical activity with objective measures impractical on a daily basis in a clinical practice. Hence, this study aims to examine the association between subjective and objective physical activity levels in patients with resistant hypertension.

Design and method: Sixty-six patients (age: 59 ± 1.0 yrs; gender: 50.7% men; BMI: 29.8 ± 0.6 kg/m²; number of antihypertensive medications: 4.6 ± 0.1) were recruited. Outcome measures included clinical data, blood pressure, daily physical activity (questionnaire and accelerometry). Physical activity was objectively measured over a 7-day period with an accelerometer and sedentary time, and time spent at light and moderate-to-vigorous physical activity (MVPA) was computed. Physical activity was also subjectively (self-assessment) assessed from 2 questions regarding moderate and vigorous physical activity. The association between the objective and subjective physical activity measurement was tested, and the McNemar test was employed to examine differences between measures.

Results: The proportion of patients reporting at least 20 min of continuous, moderate intensity physical activity per week was 60.9% ($n=39$) compared to the 27% ($n=17$) that were actually registered by the accelerometer ($p<0.05$). The difference was also higher in the category of vigorous physical activity, where 1 patient (1.6%) did at least 20 minutes of vigorous activity, while 22 patients (34.4%) actually reported to have done it ($p<0.05$). Self-reported moderate and vigorous physical activity were not correlated with objectively measured moderate and vigorous activity ($\rho=0.116$, $p=0.379$; $\rho=-0.087$, $p=0.508$, respectively).

Conclusions: Our findings highlight that despite being a valid, easy and inexpensive solution for assessing physical activity levels in adults with resistant hypertension, the subjectively (self-reported) measures are overestimating the physical activity levels. Findings suggest that self-reported physical activity should be interpreted with caution in adults with resistant hypertension and complemented by accelerometry data when possible.

CHRONIC KIDNEY DISEASE IN PATIENTS WITH RESISTANCE HYPERTENSION AND ACHIEVEMENT OF TARGET BLOOD PRESSURE

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Objective: Glomerular filtration rate (eGFR) drop in patients with resistant hypertension and how different factors can affect on achievement of target blood pressure in patients with resistant hypertension and chronic kidney disease (CKD). To evaluate factors related with achievement of target blood pressure in patients with resistant hypertension and CKD.

Design and method: We included 1134 patients who taken 3 or more antihypertensive drugs: first group ($n=877$) patients with RH and eGFR (CKD-EPI) ≥ 60 ml/min/1.73 m² a mean age of 53.5 ± 7.1 years, and second group ($n=257$) patients with RH and eGFR (CKD-EPI) < 60 ml/min/1.73 m² a mean age 66.1 ± 8.5 years, SBP 172.8 ± 8.2 and DBP 101.2 ± 6.3 mmHg. Patients with secondary arterial hypertension was excluded.

Results: 513 patients (58.5%) with eGFR ≥ 60 ml/min/1.73 m² and achievement target office BP and 233 patients (41.5%) not achievement target office BP. 140 patients (54.5%) with eGFR < 60 ml/min/1.73 m² and achievement target office BP and 117 patients (45.5%) not achievement target office BP. Patients with CKD-EPI ≥ 60 ml/min/1.73 m² and achievement BP had higher blood renin (324.5 ± 23.3) ng/l vs not achievement BP (23.2 ± 3.5) ng/l ($p<0.05$). Patients