CLINICAL AND FUNCTIONAL CHARACTERISTICS OF RESISTANT ARTERIAL HYPERTENSION

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SUMMARY. The aim of the work – to study clinical and functional characteristics of resistant and pseudo-resistant arterial hypertension.

Materials and Methods. 420 patients with essential arterial hypertension of 2nd stage at the age from 45 to 74 who were ill for more than 3 years with signs of resistance to hypertensive therapy were examined. All patients were divided into 2 groups: the group 1 with resistant AH and the group 2 with pseudo-resistant AH. All patients' data about anamnesis, complaints, duration of being ill, existence of concomitant disease was estimated. All necessary general clinical and instrumental examinations were made according to set tasks of research: general clinical examination, ECG, EchoCG.

Results. During the research period in 26.2 % of patients we diagnosed true resistant AH, 73.8 % – pseudo-resistant AH. Duration of pseudo-resistant AH averagely reached (8.2±1.2) years, and of resistant AH – almost two times longer – (14.7±2.1) years. Patients with resistant AH had more complains, higher systolic blood pressure, more frequently had comorbidity and heart rhythm and conduction disorder in comparison with patients with pseudo-resistant AH.

Conclusions. Consequently more difficult AH progression is registered within patients with resistant AH, what creates conditions for increase of general cardiovascular risk.

KEY WORDS: resistant arterial hypertension; pseudo-resistant arterial hypertension; clinical and functional characteristics.

Introduction. Resistant arterial hypertension (RAH) is one of the most significant modifiable risk factors of cardiovascular morbidity and mortality. RAH stimulates development of such life-threatening and incapacitating complications as miocardial infarction, sharp left ventricular and kidney failure, hemorrhagic stroke, vision disorders [1, 2, 3, 4, 5]. In spite of perfection of arterial hypertension (AH) diagnostic methods, existence of broad spectrum of antihypertensive medications, therapy-resistant arterial hypertension (AH) stay an unsettled clinical problem with which both general practice doctors and doctors of other specialties (cardiologists, neurologists) have to deal [6, 7, 8]. According to WHO data only 50 % of patients who are under medical treatment of antihypertensive medication, manage to react ABP control [2, 3]. According to epidemiological survey data in Ukraine, less than 19 % of patients in cities and only 8 % – in rural localities reach lover ABP level than 140/90 mm Mercury [9, 10]. Literature data, devoted to study of refractory mechanisms emergence are rare and fragmentary, what justifies carrying out a more in-depth study of the issue.

Significant quantity of patients' data is falsely classified as those who have resistant AH. This diagnosis does not always correspond to reality and is often falsely made to patients with pseudo-resistant AH. During examination of such patients a sound exclusion of potential reasons of pseudo-resistance should be made, removal of which provokes a necessary decrease of ABP. Pseudo-resistant AH is driven mainly by low adherence to medicinal and non-medicinal treatment, irrational assignment regimen (inadequacy of doses and com-binations) of antihypertensive medication, and also by inobservance of a healthy lifestyle (continue smoking, abusive drinking behavior, food with great amount of salt and so on) [2, 6, 7, 9].

Consequently, it seems urgent to continue researches directed for further research of clinical and functional features of resistant arterial hypertension, for development of the most efficient and affordable patient examination algorithms with the aim of maximum early detection of true arterial hypertension, reasons of development of pseudo-resistance and their correction at stage of a primary link of medical assistance.

The aim of the study **–** to study clinical and functional characteristics of resistant and pseudo-resistant arterial hypertension.

Materials and Methods. 420 patients with essential arterial hypertension of 2 stage at the age from 45 to 74 who were ill for more than 3 years with signs of resistance to antihypertensive therapy were exterminated. All patients were divided into 2 groups: the group 1 – patients with resistant AH and the group 2 – patients with pseudo-resistant AH. Differential exclusion of true resistant AH and pseudo-resistant was carried out according to AHA recommendations.

All patients' data of anamnesis, complaints, duration of being AH ill, existence of concomitant disease was estimated. Following examinations were made to all patients: general clinical examination, examination complex included measurement of ABP by Korotkov method according to ESH/ESC recommendations in 12 standard deviations, EchoCG.

Statistical processing of the research results was made with use of common methods of variation statistics with the help of Microsoft Excel 7 program packs using Student's t-test.

Results and Discussions. According to the results of the research 26.6 % of patients were diagnosed true resistant AH, and 73.8 % – pseudo-resistant AH (Pict. 1).

Average duration of disease among exterminated patients with pseudo-resistant AH was 8.2±1.2 years, and of resistant AH – almost two times longer – 14.7±2.1 years.

Comparative analysis of clinical and anamnestic data of both groups shoved that patients with resis-

tant AH had more much more complaints than patients with pseudo-resistant AH (Tab.1). Particularly, complaints for headache (p<0.001), faintness (p<0.01), heartache (p<0.001), distribution of sleep (p<0.001), undue fatiguability (p<0.001), exertional breathlessness (p<0.001) were marked more often.

Patients with essential resistant AH had comorbidity more often than patients with pseudo-resistant, but it was not the reason for elevated blood pressure emergence (Tab. 2). So, patients with resistant AH had diseases with pathogenic features more often than patients with pseudo-resistant AH, namely: ischemic heart disease (<0.001), chronic cardiac insufficiency of 1 and 2 stages (<0.001).
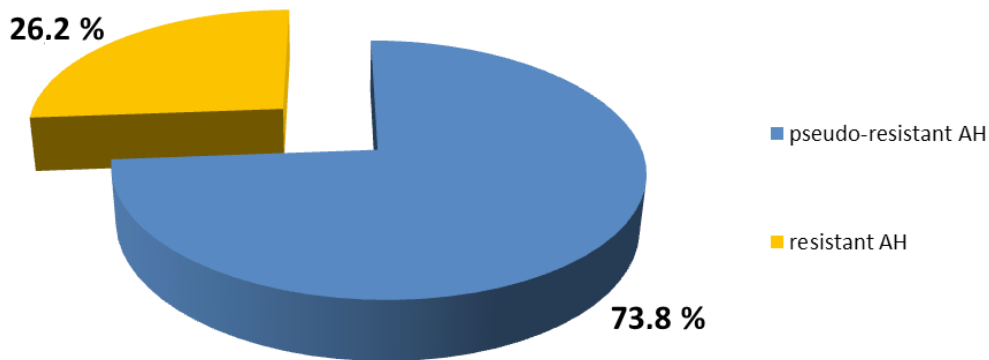
Picture 1. Structure of patients with essential arterial hypertension of 2 stage with signs of resistance to antihypertensive therapy.

Table 1. Main complaints of exterminated patients (P±q,%)

Complaints	Pseudo-resistant AH	Resistant AH	P
Frequent headache	48.1±2.8	61.8±4.6	<0.001
Faintness	16.1±2.1	33.6±4.5	<0.01
Heartache	38.1±2.8	64.5±4.6	<0.001
Distribution of sleep	57.1±2.8	78.2±3.9	<0.001
Exertional breathlessness	39.0±2.8	68.2±4.4	<0.001
Undue fatiguability	57.1±2.8	91.8±2.6	<0.001
Tachycardia strokes	23.9±2.4	25.5±4.2	<0.5
Heart rhythm disturbance	15.9±2.0	25.5±4.2	<0.3

Table 2. Frequency of comorbidity of exterminated patients (P±q, %)

Diseases	Pseudo-resistant AH	Resistant AH	P
Ischemic heart disease	11.9±1.8	31.8±4.4	<0.001
Chronic cardiac insufficiency of 1 stage	71.9±2.6	46.4±4.8	<0.001
Chronic cardiac insufficiency of 2 stage	28.1±2.6	53.6±4.8	<0.001
Chronic obstructive lung disease	24.5±2.4	28.2±4.3	<0.5
Diabetes mellitus	15.2±2.0	60.0±4.7	<0,001
Cholecystitis	21.9±2.3	25.5±4.2	<0.3
Pancreatitis	24.5±2.4	30.0±4.4	<0.3
Arthrosis	40.0±2.8	30.0±4.4	<0.1
Radiculitis	80.0±2.8	70.0±4.4	<0.1

Data of analysis of hemodynamic parameters showed that patients with resistant AH had higher level of intraday average, daily and nightly systolic blood pressure, higher level of nightly diastolic blood pressure than patients with pseudo-resistant AH. Also group of patients with resistant AH had higher variability of systolic blood pressure during twenty-four hours and in the night time than patients with pseudo-resistant AH (Tab.3).

According to data of instrumental diagnostics (electrocardiography and echocardiography) the group with resistant AH had the biggest percent of cases of hypertrophy of interventricular septum, myocardial mass (men) more than 150 g and myocardial mass (women) more than 130 g, ECG – indications of left atrial enlargement (Tab.4). Received data proves results of multiple researches relative to resistant AH [2, 3, 4].

Table 3. Arterial tension of patients with resistant AH and with pseudo-resistant AH during the day (M±m)

| Tension	Pseudo-resistant AH	Resistant AH	P
twenty-four hours			
Intraday average systolic blood pressure, mm Mercury	142.2±2.4	149.7±2.2	<0.05
Intraday average diastolic blood pressure, mm Mercury	88.1±2.0	92.9±1.7	>0.1
Std. dev. systolic blood pressure, mm Mercury	22.1±1.1	32.9±0.8	<0.001
Std. dev. diastolic blood pressure, mm Mercury	12.9±2.4	16.9±0.7	>0.5
Day			
Daily average systolic blood pressure, mm Mercury	141.7±3.3	149.3±2.2	<0.05
Daily average diastolic	78.2±2.2	80.9±1.5	>0.5
blood pressure, mm Mercury			
Std. dev. systolic blood pressure, mm Mercury	23.1±1.3	39.1±0.9	<0.001
Std. dev. diastolic blood pressure, mm Mercury	12.2±2.2	13.9±0.7	>0.5
Night			
Nightly average systolic blood pressure, mm Mercury	140.3±3.1	148.3±2.2	<0.05
Nightly average diastolic blood pressure, mm Mercury	68.1±2.0	76.9±1.5	<0.01
Std. dev. systolic blood pressure, mm Mercury	18.1±1.1	23.3±1.2	<0.05
Std. dev. diastolic blood pressure, mm Mercury	14.9±2.4	13.7±1.1	>0.5

Table 4. Frequency and nature of change of systemic (left) heart according to patients' data of electrocardiography and echocardiography, P±q,%

Indices	Pseudo-resistant AH	Resistant AH	p
Hypertrophy of back wall of the left ventricle	100.0	100.0	-
Hypertrophy of interventricular septum	78.2±3.9	99.1±0.9	<0.001
EF less than 50 %	11.8±3.1	19.1±3.7	>0.05
Myocardial mass (men) more than 150 g	78.2±3.9	89.1 ±3.0	<0.01
Myocardial mass (women) more than 130 g	65.5±4.5	95.5±0.7	<0.001
Diastolic dysfunction	88.2±3.1	98.2±1.3	<0.001
Sokolov-Lyons index more than 35 mm	88.1±1.8	81.8±3.7	>0.2
ECG – indications of left ventricle myocardial hypertrophy	100.0	100.0	-
ECG – indications of left atrial enlargement	41.9±2.8	69.1±4.4	<0.001

Analysis of ECG data showed that patients with resistant AH have heart rhythm and conduction disorder more often than patients with pseudo-resistant AH (Pict. 2).
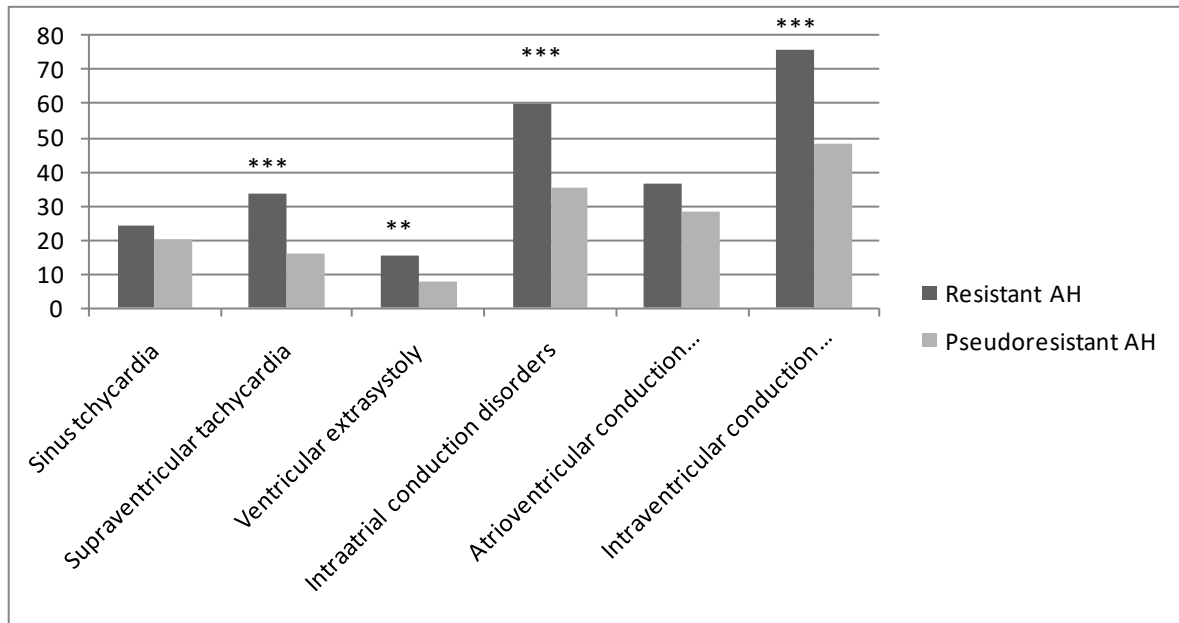
Picture 2. Frequency of rhythm disturbances and conduction disorders in examined patients. NB: ** – significant differences between groups (p<0.01), *** – significant differences between groups (p<0.001)

Conclusions. The carried out research proved that patients with resistant AH have more difficult AH course. Majority of patients with resistant AH have comorbidities: Ischemic heart disease, chronic cardiac insufficiency, diabetes mellitus, which make disease state more difficult. Patients with resistant arterial hypertension showed higher frequency of cardiac rhythm and conduction disorders.

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КЛІНІКО-ФУНКЦІОНАЛЬНА ХАРАКТЕРИСТИКА РЕЗИСТЕНТНОСТІ АРТЕРІАЛЬНОЇ ГІПЕРТЕНЗІЇ

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РЕЗЮМЕ. Мета дослідження – вивчити клініко-функціональні особливості резистентної і псевдорезистентної артеріальної гіпертензії.

Матеріали і методи. Було обстежено 420 хворих з есенціальною артеріальною гіпертензією 2 стадії у віці від 45 до 74 років з тривалістю захворювання понад 3 роки з ознаками резистентності до проведеної гіпотензивної терапії. Всі пацієнти були поділені на 2 групи: 1 група – з резистентною АГ і 2 група – з псевдорезистентною АГ. У всіх пацієнтів оцінювали дані анамнезу, скарги, тривалість захворювання АГ, наявність супутніх захворювань. Були проведені всі необхідні загальноклінічні та інструментальні обстеження відповідно до поставлених завдань дослідження: загальноклінічне дослідження, ЕКГ, ЕхоКГ.

Результати. В ході дослідження у 26,2 % пацієнтів була діагностована справжня резистентна АГ, у 73,8 % – псевдорезистентна АГ. Тривалість псевдорезистентної АГ в середньому склала (8,2±1,2) років, а резистентної АГ – майже вдвічі більше – (14,7±2,1) років. У хворих з резистентною АГ, порівняно з хворими з псевдорезистентною АГ, було виявлено більше скарг, вищі значення систолічного артеріального тиску, частіше зустрічалися супутня патологія і порушення серцевого ритму і провідності.

Висновки. У хворих з резистентною АГ відзначається більш тяжкий перебіг АГ, що створює умови для підвищення загального кардіоваскулярного ризику.

КЛЮЧОВІ СЛОВА: резистентна артеріальна гіпертензія; псевдорезистентна артеріальна гіпертензія; клініко-функціональна характеристика.

КЛИНИКО-ФУНКЦИОНАЛЬНАЯ ХАРАКТЕРИСТИКА РЕЗИСТЕНТНОЙ АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИИ

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РЕЗЮМЕ. Цель исследования – изучить клинико-функциональные особенности резистентной и псевдорезистентной артериальной гипертензии.

Материал и методы. Было обследовано 420 больных с эссенциальной артериальной гипертензией 2 стадии в возрасте от 45 до 74 лет и продолжительностью заболевания более 3 лет с признаками резистентности к проводимой гипотензивной терапии. Все пациенты были поделены на 2 группы: 1 группа – с резистентной АГ и 2 группа – с псевдорезистентной АГ. У всех пациентов оценивали данные анамнеза, жалобы, продолжительность заболевания АГ, наличие сопутствующих заболеваний. Были проведены все необходимые общеклинические и инструментальные обследования соответственно поставленным задачам исследования: общеклиническое исследование, ЭКГ, ЭхоКГ.

Результаты. В ходе исследования у 26,2 % пациентов была диагностирована истинная резистентная АГ, у 73,8 % – псевдорезистентная АГ. Длительность псевдорезистентной АГ в среднем составила (8,2±1,2) лет, а резистентной АГ – почти вдвое больше – (14,7±2,1) лет. У больных с резистентной АГ по сравнению с больными с псевдорезистентной АГ было выявлено больше жалоб, более высокие значения систолического артериального давления, чаще встречались сопутствующая патология и нарушения сердечного ритма и проводимости.

Выводы. У больных с резистентной АГ отмечается более тяжелое течение АГ, что создает условия для повышения общего кардиоваскулярного риска.

КЛЮЧЕВЫЕ СЛОВА: резистентная артериальная гипертензия; псевдорезистентная артериальная гипертензия; клинико-функциональная характеристика.