

THE INCIDENCE OF SUPRAVENTRICULAR ARRHYTHMIAS IN PATIENTS WITH ESSENTIAL ARTERIAL HYPERTENSION - CLINICAL AND EVOLUTIVE CORRELATIONS

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SUPRAVENTRICULAR ARRHYTHMIAS IN PATIENTS WITH ESSENTIAL ARTERIAL HYPERTENSION - CLINICAL-EVOLUTIVE CORRELATIONS. (Abstract): **Aim of the study:** The analysis of supraventricular rhythm disorders encountered in hypertensive patients and the establishment of correlations with other associated risk factors, duration of hypertension, the evolution and prognosis. **Material and methods:** The study included a group of 110 patients, 80 men and 30 women, aged between 40 and 85, admitted in the 1st Cardiology Clinic during 2010-2013, diagnosed with essential arterial hypertension second and third degree. For the detection of arrhythmic events surface 12-lead ECG and 24-hour Holter monitoring were used. **Results and discussion:** supraventricular arrhythmias encountered in the patients of the group were: ESA (mostly isolated, but also doublets, atrial bigeminy), atrial fibrillation, atrial flutter, sinus tachycardia, sinus bradycardia. Some arrhythmias may be an expression of the excessive activation of the sympathetic nervous system or on the contrary, vagal predominance, (ex. sinus bradycardia). Part of the arrhythmias occurring in hypertensive patients are hypertensive heart disease expressions, others are due to associated risk factors (smoking, alcohol) and even medication administered. In some cases, rhythm disturbances disappear with the normalization of the blood pressure; however, most of the times, the specific combination of anti-arrhythmic medication with antihypertensive medication is required. **Conclusions:** supraventricular arrhythmias are frequently found in hypertensive patients, especially in those with long term, uncontrolled hypertension, with impact on the evolution, prognosis and therapeutic management. **Keywords:** HYPERTENSION, SUPRAVENTRICULAR ARRHYTHMIAS.

Essential high blood pressure (HBP) continues to be an extremely important health problem, on the one hand being a major risk factor for ischemic heart disease, and on the other, due to the complications that affect the targeted organs (1, 2, 3). One of the manifestations of hypertensive heart disease are the arrhythmias (supraventricular as well as ventricular) which, when they

appear, alter the course and prognosis of the hypertensive patient and at the same time require treatment particularities (4, 5, 6, 8). Left ventricular hypertrophy caused by uncontrolled arterial hypertension is considered a major risk factor for the development of subsequent arrhythmias (4, 5, 7, 8).

Aim of the study: The analysis of the supraventricular rhythm disorders encoun-

The incidence of supraventricular arrhythmias in patients with essential arterial hypertension - clinical and evolutive correlations

tered in hypertensive patients and the establishing of correlations with associated risk factors, duration of hypertension, and the development and prognosis.

MATERIAL AND METHODS

The study included a group of 110 patients, 80 (72.72%) men and 30 (27.27%) women, with ages between 40 and 85, hospitalized in the 1st Clinic Cardiology during 2010-2013, with a diagnosis of essential hypertension of the second and third degree. The diagnosis of arterial hypertension was based on the classical criteria: blood pressure (BP) values above 140/90 mmHg at rest, in the absence of antihypertensive drugs on repeated measurements. All the patients were asked about the duration of hypertension, hypertension-related symptoms, and treatments followed up to the time of admission.

All the patients underwent a complete functional balance of hypertension which consisted of:

- Complete clinical examination of the cardiovascular system: auscultation of the heart, carotid arteries, abdominal aorta and renal arteries;
- Assessment of associated risk factors (smoking, diabetes, obesity, alcohol consumption, stress);
- Measuring the BP in supine and standing position on both arms;
- Complete 12 lead ECG;
- 2D echocardiogram, M mode and Doppler for the assessment of LV systolic and diastolic function and any murmurs;
- Chest X-ray - for the assessment of cardiomegaly and pulmonary stasis;
- Fundus;
- Renal function and serum electrolytes;
- Urinalysis examination;
- Complete lipid profile, blood glucose and uric acid;

- In some patients, BP monitoring 24 hours (ABPM) and 24-hour Holter monitoring for arrhythmias was used ambulatory.

The functional balance was completed in some cases with a minimum etiology balance to rule out a possible cause of secondary hypertension. In the detection of arrhythmias surface electrocardiogram and/or 24-hour Holter monitoring was used and 24 -hour Holter monitoring was performed on 82 patients (74.5 %).

RESULTS AND DISCUSSION

A group of 110 patients has been studied, 80 men and 30 women, with ages between 40 and 85, with the essential hypertension diagnosis.

Depending on the BP values the lot division was as follows:

- Hypertension 1st degree - 20 (18.18%) patients, 12 men, 8 women.
- Hypertension 2nd degree - 40 (36.36%) patients, 30 men, 10 women.
- Hypertension 3rd degree - 50 (45.45%) patients, 38 men, 12 women.

The risk factors analysis in the studied group has shown the following:

- Smoking - 60 (54.54%) patients, 50 men, 10 women.
- Obesity, varying degrees 1-4: 75 (68.18%) patients, 25men, 50 women.
- Dyslipidemia - 85 (77.27%) patients, 75 men, 10 women.
- Diabetes type 2 - 30 (27.27%) patients, 20 men, 10 women.
- Diabetes type 1 - 1 case.
- Alcohol - 70 (63.63%) patients, 65 men, 5 women.
- Stress - 31 (28.18%) patients, 20 men, 11 women.
- In most cases, risk factors have been associated.

Supraventricular arrhythmias (detected on surface ECG or by 24-hour Holter moni-

toring) encountered in patients of the group were:

- Atrial extrasystole - 45 cases (40.9%) (26 men, 19 women) - mostly isolated, but also doublets, atrial bigeminy;

- Atrial fibrillation (AF) - 35 cases (31.81%) (23 men, 12 women);

- Atrial flutter - 5 cases (4.5%) (4 men, 1 woman);

- Sinus tachycardia - 18 cases (16.36%) (10 men, 8 women);

- Sinus bradycardia - 13 cases (11.81%) (7 men, 6 women);

Regarding the medication that the patients have received, it was found that:

- 44 (40%) patients received a diuretic (indapamide) associated with angiotensin converting enzyme inhibitors (enalapril, quinapril, perindopril, ramipril);

- 34 (30.9%) patients received a diuretic (indapamide) associated with angiotensin converting enzyme inhibitors (enalapril, perindopril, ramipril), and a beta-blocker (metoprolol or nebivolol);

- 10 (9.09%) patients received a diuretic (indapamide) associated with angiotensin converting enzyme inhibitors (enalapril, perindopril, ramipril) and anticalcic (amlodipine or slow release nifedipine);

- 15 (13.6%) patients received ARBs (telmisartan, candesartan) associated with diuretic (indapamide);

- 7 (6.36%) patients received a quadruple combination: diuretic, ACE inhibitor, beta blocker, calcium channel blocker);

Of the entire group, digoxin was used for 10 (9.09%) patients as antiarrhythmic; for 24 (21.81%) patients, propafenone was used for the control of atrial and/or ventricular extrasystolic arrhythmias.

Most of the patients in the group have received antiplatelet therapy (aspirin or clopidogrel), and, for 25 (22.72%) of the patients, oral anticoagulants were considered neces-

sary (the patients with atrial fibrillation and dilated left atrium seen at echocardiography).

In the group of patients with atrial extrasystole, the majority were men, smoking and consuming alcohol. A correlation between the duration of hypertension and the presence of atrial extrasystole could not be made, but atrial extrasystole presence could be correlated with the systolic blood pressure value. Thus, patients who had values above 190 mmHg SBP had a greater incidence of atrial extrasystole. A positive correlation between the size of the left atrium and the presence of atrial arrhythmias has also been found.

In patients with AF the following findings were made:

- AF was more frequent in male hypertensive patients who associated as risk factors smoking and alcohol consumption;

- AF appearance correlated with the duration of hypertension (over 5 years), with the presence of left ventricular hypertrophy changes on the surface ECG and on the echocardiogram, and also with the size LA (at echocardiography);

- All patients in this group had varying degrees of left ventricular hypertrophy and LA dilated (over 50/50 mm);

- In 12 (10.9%) patients from this group the presence (both as ultrasound and clinical) of aortic and mitral regurgitation was highlighted.

In patients with atrial flutter, four patients were male and one, female. All male patients had uncontrolled hypertension until the time of admission and were also drinkers (declarative and positive markers). Female patients were also old, hypertensive, with BP neglected and consuming alcohol.

From the group of patients with AF and atrial flutter, 15 (13.6%) patients, 12 men, and 3 women, presented the clinical features of angina pectoris associated with the

The incidence of supraventricular arrhythmias in patients with essential arterial hypertension - clinical and evolutive correlations

presence of ischemic electrocardiographic changes. In all these patients were objectified elevated serum cholesterol, triglycerides and LDL cholesterol, dyslipidemia being an additional risk factor for ischemic heart disease.

From our group, 18 (16.36%) patients (10 men, 8 women) had constant sinus tachycardia, defined as a heart rate above 100/min in sinus rhythm. Of these, 4 patients (3 men, 1 woman) were diabetic, one under insulin therapy, and 5 were previously treated with calcium channel blocker (nifedipine or amlodipine).

Sinus bradycardia was encountered in 13 (11.8%) cases (7 men, 6 women), heart rate was between 48-55/minute. In 5 cases drug etiology was taken into account; patients were previously treated with beta-blocker.

CONCLUSIONS

The presence of supraventricular rhythm disorders in hypertensive patients has the following implications:

- Some arrhythmias may be an expression of an excessive sympathetic nervous system activation or, on the contrary, of vagal predominance, if sinus bradycardia;

- A part of arrhythmias occurring in hypertensive patients are hypertensive cardiomyopathy expression (following a sustained, uncontrolled hypertension);

- A large percentage of these arrhythmias are due to associated risk factors (smoking, alcohol) and even medication management (e.g. frequent sinus tachycardia in patients who received treatment with the dihydropyridine group anticalcic or sinus bradycardia more frequently in those receiving beta-blockers);

- In some situations rhythm disturbances disappear with the normalization of the BP values, however, that often requires the specific combination of anti-arrhythmic medication with antihypertensive;

- Depending on the severity of certain arrhythmias (e.g. atrial fibrillation), they require combining anticoagulant and antiplatelet therapy.

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