



# POSTERS



## P1

# Pheochromocytoma – a rare cause of arterial hypertension at youth

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Pheochromocytoma is a rare neuroendocrine tumor characterized by increased secretion of catecholamines. Occurs more frequently in patients between 40-50 years and is characterized by paroxysmal hypertension accompanied by palpitations, anxiety, sweating and shortness of breath.

We present the case of a 35-year patient hospitalized in acute pulmonary edema due to significant increases in blood pressure (systolic blood pressure = 250 mmHg at presentation). Declarative, patient reports paroxysmal increases in blood pressure accompanied by occipital headache and dyspnea in the last 3 months. Paraclinical investigations, electrocardiogram, echocardiogram and biochemical profile infirm the existence of an acute coronary syndrome or acute aortic dissections. Abdominal ultrasonography raise the suspicion of a tumoral mass on the right adrenal gland, highly suggestive for pheochromocytoma, suspicion confirmed then by the increase of biochemical markers (elevated urinary metanephrines), clinical outcome (recurring episodes of pulmonary edema due to significant increases in blood pressure) and also by pathological results obtained after removing the mass by surgery.

Although it has a low incidence, pheochromocytoma represents a pathology with important prognostic implications that requires complex and promptly instituted management. Polymorphic symptoms caused by catecholamine storm can cause a variety of complications that must be quickly detected and treated.

## P2

# Pluridisciplinary management of a complicated secondary hypertension

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Primar hyperaldosteronism is one of the most common causes of secondary hypertension, arrhythmias, heart failure and coronary arteries disease. This last, is a result not only of the high blood pressure, but also of the direct effect of the aldosterone on the vascular endothelium.

This presentation aims to report the case of a 45-year-old hypertensive patient that came to the ER at 5 hours from the beginning of a severe chest pain. The diagnosis consisted in physical examination, ECG, echocardiography, abdominal ultrasound, coronarograph, blood tests, ABPM, ABI, carotide arteries echoDoppler, CT, endocrinological tests.

At admission, the blood pressure was 170/110 mmHg. ECG had the aspect of an anterior NSTEMI. Echocardiography showed concentric hypertrophy with anterior IVS and anterior wall hypokinesia. The blood tests confirmed the myocardic infarction and also showed hypokalemia, hypernatremia and metabolic alchalis. Coronarographic, there were two coronarian lesions which were both stented with DES. The medical treatment couldn't reached to control the blood pressure and to correct the potassium. ABPM showed a non-dipper profile with high average values. The abdominal ultrasonography revealed a left suprarenalian nodule. The CT and the endocrinological tests confirmed the primar hyperaldosteronism generated by a Conn adenoma. The other evaluations did not show any other target organ lesion. This is why, we considered the coronary disease a consequence of both the high blood pressure and the excess of aldosterone.

So, the primar hypertension is the basis of a whole physiopathological process which could have a great role in establishing this patient's prognosis.

## P3

# Can resting blood pressure values predict a person's exercise capacity?

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By increasing the cardiac workload, systemic arterial hypertension represents an important cause of impaired exercise capacity, even in patients with preserved left ventricular ejection fraction. The objective of this study was to establish whether the resting blood pressure (BP) values can be a predictor of a person's exercise capacity.

196 patients were submitted to a standardized, cycle-ergometer exercise test and the following parameters were noted: the maximum level of effort reached, the occurrence of a pathological pressor response of their blood pressure to exercise, the symptoms and the electrocardiographic abnormalities (ischemia, arrhythmias).

95 men with a mean age of  $56 \pm 15.1$  years and 101 women with a mean age of  $52.9 \pm 10.2$  were enrolled. Of them, 55(28.1%) had optimal BP, 58(29.6%) had normal BP (113 subjects in group 1), 50(25.5%) had high-normal BP and 33(16.8%) had hypertension (83 in group 2) at the beginning of exercise.

In the first group, the mean exercise duration was  $659 \pm 233$ s, while in the second group  $608 \pm 281$ s. The mean number of watts reached at peak exercise in group 1 was  $112 \pm 37.2$ , corresponding to  $6.3 \pm 1.8$  METs and in group 2  $103 \pm 43.1$ watts,  $5.6 \pm 2$ METs ( $p=0.14$ ). A pathological pressor response of the blood pressure to exercise occurred in 76(67.2%) subjects belonging to the first group, with a mean maximum SBP= $178 \pm 26.7$ mmHg, and in 68(81.9%) subjects in second group, with a mean maximum SBP= $197 \pm 22.5$ mmHg ( $p=0.002$ ).

In conclusion, the elevated resting blood pressure values were associated with a significantly higher risk of developing a pathological hemodynamic reaction to physical effort. Although the subjects with normal or optimal BP had better exercise capacity, the difference was not statistically significant in our study.

## P4

# Polypharmacy & weak control of blood pressure on a hypertensive group

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The increased prevalence of systemic hypertension in the population of Romania significantly influence the incidence of cardiovascular disease. It raises the question of the correct long-term control of hypertension and the necessity of medication for this control.

We analyzed 100 hypertensive patients treated pharmacologically, with symptoms of heart failure NYHA class I-III or asymptomatic. They were followed for an average period of 2.4 years. They performed an average of 3 Holter TA 24 hours; nocturnal and diurnal blood pressure averages were recorded. Medication (drug class, number of administrations) and concomitant pathology were also analyzed.

71% of patients had elevated BP on daytime (defined as  $\geq 130 / 85$  mm Hg) and 64% at night ( $\geq 120 / 70$  mm Hg). 47% of patients maintained the blood pressure uncontrolled at the end of control period. The medication was increased to 2.4 antihypertensive drugs and the doses of administration to a mean value of 4.6. By multivariate analysis we identified the following predictors for poorly controlled BP: age, male gender, chronic kidney disease, diabetes, obesity. Significantly lower BP (130/80 mmHg cut-off) were registered in patients with increased number of antihypertensive drugs (4.1 versus 1.8) and administration of medication in the evening.

Even patients monitored regularly have a significant percentage of incorrect control of BP values. There is an increased demand for antihypertensive medication as a number of drugs administrated and dose management, in a relatively short period of time of evolution TA.

## P5

# Arterial stiffness is contributing to risk reclassification of hypertensive patients independently of common organ damage markers

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Our objective was to assess the prevalence and the influence of increased aortic pulse wave velocity (PWV<sub>ao</sub>) on risk category prediction in comparison with other parameters of target organ damage (TOD) - microalbuminuria and left ventricular hypertrophy on electrocardiography (LVH-ECG), in 424 hypertensive patients aged 40-65 years old, selected during SEPHAR II national survey. Increased arterial stiffness was defined by a PWV<sub>ao</sub> > 10m/s - measured with an oscillometric device (MedExpert Arteriograph IrDA), microalbuminuria was characterized by an urinary albumin to urinary creatinine ratio (UACR) of 30-300 mg/g and LVH-ECG was recorded in the presence of a Cornell product  $\geq 2440$  msec. PWV<sub>ao</sub> > 10m/s was recorded in 27.8% of cases - significantly higher than the prevalence of microalbuminuria (5%) or LVH-ECG (4.8%). We have found a borderline significant association between increased arterial stiffness and microalbuminuria (p=0.051) and no association of HVS-ECG with increased arterial stiffness (p=0.227) or microalbuminuria (p=0.397). After addition of PWV<sub>ao</sub> >10m/s [OR 3.42; 95%CI (1.08-10.80)], UACR 30-300mg/g [OR 2.06; 95%CI (0.84-5.08)] and LVH-ECG [OR 5.09; 95%CI (1.02-25.29)] to SCORE prediction model, 24.6% of the study sample was reclassified from low/intermediate to high/very high SCORE risk category (Figure 1). In conclusion, a PWV<sub>ao</sub> > 10m/s is more frequently encountered than other common markers of TOD, is not associated with microalbuminuria or LVH-ECG and, therefore, is independently contributing to risk reclassification of hypertensive patients.

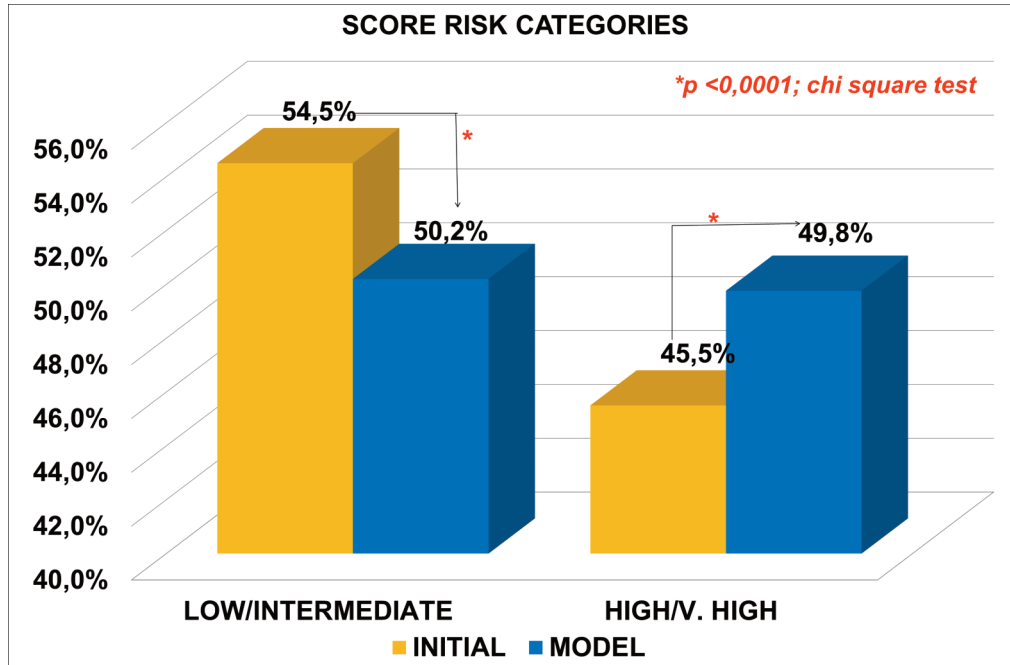


Figure 1: Reclassification of risk categories after addition of PWVao >10m/s, microalbuminuria and left ventricular hypertrophy on ECG to SCORE prediction model



## P6

# Cardiovascular risk factors in patients with chronic hepatitis C and metabolic syndrome

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The objective of this study was to identify the determinants of cardiovascular risk in patients with HCV and MetS.

This study is transversal and included 171 patients with HCV: HCV infected patients and 111 MS and 60 HCV infected patients without MetS. Cardiovascular risk each patient was evaluated using software and diagrams UKPDS JBS / BNF (British National Formulary created (BNF)). I watched anthropometric indices (weight, height, waist circumference, BMI). Watch biochemical parameters were fasting plasma glucose, glycosylated hemoglobin, lipid profile, liver profile and blood counts. Insulin resistance was determined using HOMA-IR. MetS was defined according to the IDF 2005.

Among the socio-economic and demographic factors, risk factors for cardiovascular disease in patients with chronic hepatitis C were marital status and smoking. Single persons (unmarried, divorced, widowed) had a 3.73 times higher risk (CI95% 1.2-11.32, p=0.014) to provide increased cardiovascular risk compared to those married. Active smokers had a 9.26 times higher risk (IC95% 3.52-24.3, p = 0.0001) compared with non-smokers to develop cardiovascular disease. In women all variables tested showed discrimination ability with a AUROC significantly different from 0.5. The test with the largest area under the curve was physical activity (AUROC = 0.656 (95% CI: 0.496-0.816), followed by systolic blood pressure (AUROC=0.602 (95% CI: 0.393-0.811)).

This study showed a high prevalence of cardiovascular risk factors and reverse their association with educational level in the studied population, which indicates the need to incorporate education level and socioeconomic status; the achievement of future research.

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## P7

# HTA apparently resistant to a patient with primary hyperparathyroidism

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High values of BP with quadruple therapy, including one diuretic – defines resistant HT. Often one or more correctable factors can be identified. We present the 64 years old patient CM, non-smoker, with grade 3, very high risk HT. The physical exam was normal, excepting BP 170/100 mmHg, with a treatment consisting of amlodipina 10 mg/day, valsartan 160 mg/day, metoprolol 150 mg/day, rilmenidina 1 mg/day. The lab tests showed total calcium 11,7 mg/dl (from 1 mg/dl the year before) and PTH 81,33 pg/ml. The Tc 99m- sestamibi parathyroidian scan hypercaptation of the tracer at the inferior pole of right thyroidian lobe suggested a parathyroid adenoma; the first step was the interruption of the thiazidic-like diuretic, with the indication of high fluid intake; in spite of these, hypercalcemia persisted; in these conditions the patient was sent to surgery- the structure was resected, with normalisation of PTH levels. The BP values returned within the recommended limits, under treatment with the anterior medication (without diuretic). Hyperparathyroidism is cited as being the cause of secondary endocrine HT. Measuring calcemia is the first step and the presence of hyperparathyroidism must be confirmed through PTH, seric phosphate; the deficit of vitamin D is frequent, and decreased levels often mask the severity of hypercalcemia. The BP values which have become easy to control show that hyperparathyroidism was the main cause of the apparent resistance of HT in this patient.

## P8

# Different forms of secondary hypertension – 4 cases reports

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CASE 1 – 29y female with BP 190/110 mmHg and moderate LV hypertrophy was first considered to be pregnancy related hypertension and treated accordingly. After 6 months she was again hospitalized with severe hypokalemia, long QT and 180/100 mmHg. Despite normal echographic adrenal glands, normal abdominal CT, resistant hypokalemia, low values of reninemia (0,3 ng/ml/h), higher seric aldosterone 38 ng/dl and salin test documented primary diffuse hyperaldosteronism. Spironolactone, carvedilol, KCl and quinapril control blood pressure (BP) and normalized QT with good evolution for more than 20 years.

CASE 2 – 41y male with 160/100 mmHg on Nebivolol and Lercainidipin with normal lab tests was first considered essential hypertension. CT documented left adrenal tumor. The tumor was removed. Patient has normal BP free of medication.

CASE 3 – 56y female with nondeeper hypertensive profile and moderate LV hypertrophy also diagnosed as essential hypertension had benign pheocromocitoma with good evolution after surgery.

CASE 4 – 36 y male with high BP difficult to control was admitted with hematuria. MRI revealed a tumor in the urinary bladder wall wich proved to be malign pheocromocitoma.

Essential hypertension is an exclusion diagnosis and, even if it is true for most cases, every effort should be made in order to identify any kind of secondary hypertension. And this may be neither easy nor straightforward. In most cases we can treat essential hypertension back to normal values, which dramatically reduces cardiovascular and neurological events, and consequently mortality, but, nevertheless, this diagnosis still represents a "lifelong sentence" to treatment.

## P9

# Weight status, serum uric acid and arterial hypertension in patients with type 2 diabetes mellitus

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It is well known that high blood pressure can be developed or worsened in the presence of risk factors like high level of serum uric acid, overweight and obesity. Thus, the aim of this study was to evaluate the relationship between serum uric acid, weight status (as independent risk factors as well as in association) and hypertension in patients with Type 2 Diabetes Mellitus.

We realized a retrospective study on a group of 421 patients with Type 2 Diabetes Mellitus, who were under the observation of N.I.D.N.M.D. “Prof. Dr.N.C.Paulescu” from Bucharest. For the accomplishment of the study we have used clinical and laboratory methods, as it follows: to evaluate the hyperuricemia we have used laboratory values of serum uric acid; weight status has been evaluated by calculating body mass index using anthropometric indices (weight and height); hypertension has been diagnosed by measuring the patients’ blood pressure.

From the total number of the patients included in the study, 176 (41,8%) were female and 245 (58,2%) were male. The average age of the patients was  $61,66 \pm 10,18$  years; the average duration of diabetes mellitus was  $12,16 \pm 8,8$  years. Regarding the ponderal status of the patients, 16,4 % (n=69) had normal body weight, 32,3% (n=136) were overweight and 51,3% (n=216) had obesity in different grades. Arterial hypertension was present in 81,9% (n=345) patients. The medium level of serum uric acid was  $5,93 \pm 2,05$  mg/dl in patients without obesity and  $6,32 \pm 2,03$  mg/dl in patients with obesity (p=0,05). There were also important differences in patients which associate hypertension regarding the average level of serum uric acid, as it follows:  $5,6 \pm 1,75$  mg/dl in patients with no hypertension and  $6,25 \pm 2,09$  mg/dl in patients which associate high blood pressure (p=0,012). Statistically, we observed an important association between hyperuricemia and hypertension [OR=1,74 (1,08-2,97)], between obesity and hypertension [OR=2,5 (1,43-4,38)], but also together between hyperuricemia-obesity and hypertension [OR=5,47 (2,14-13,97)].

The high level of serum uric acid and obesity can be considered predictive markers for the presence of hypertension in patients with Type 2 Diabetes Mellitus separately and also in association, the presence of both factors having a greater predictability over the hypertension’s development risk.

## P10

# Defining a threshold value for the 24-hour monitoring derived blood pressure variability

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Studies show that the increase of blood pressure variability (BPV) over 24 hours is associated with an increase of the prevalence and progression of target organ damage. However, behind the lowering of BP, it is also recommended to decrease its variability, so far there is no widely accepted parameter nor a threshold value for that. In our study our goal was to assess 24-hour ambulatory BP monitoring (ABPM) derived BPV obtained by the formula of average real variability (ARV), to divide subjects in low, medium or high variability groups and to compare the characteristics of the groups.

A number of 110 inefficiently treated hypertensive subjects were recruited, in whom ABPM was performed for 24-hours with a validated device (Meditech ABPM05®). Based on their BP variability assessed by the formula of ARV, patients were categorized in low, medium or high variability group. Subject's characteristics (age, gender, high, weight) as well as cardiovascular risk factors (total serum cholesterol, triglycerides, blood sugar, creatinine) were collected in a questionnaire and compared by ANOVA test.

Subjects in the low variability group had ARV below 9.8 mmHg, in the medium variability group 9.8-12.8 mmHg, and in the high variability group greater than 12.8 mmHg. Patients categorized in the high variability group presented the greatest values of mean systolic BP  $141.5 \pm 11.4$  mmHg versus,  $135.0 \pm 12.1$  mmHg versus  $131.2 \pm 16.7$  mmHg ( $p=0.0113$ ), daytime and nighttime systolic BP. In the same we recorded greatest values of the pulse pressure  $69,7 \pm 13,2$  versus  $60,5 \pm 11,4$  mmHg versus  $55,8 \pm 15,5$  mmHg ( $p=0.0003$ ).

The 24-hour monitoring derived BP variability defined by ARV greater than 12.8 mmHg, could represent an additional cardiovascular risk factor. Therefore, lowering of BPV is as important as achieving target blood pressure values. In order to implement this parameter and a widely accepted threshold value, further studies are required.

## P11

# ABPM characteristics of patients with resistant and refractory hypertension

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Resistant hypertension (RHT) is defined as failure in control of hypertension despite of using three antihypertensive agents in maximal dose including a diuretic. Refractory hypertension (RFHT) is defined as absolute failure in control of HT with maximal treatment of five antihypertensive agents. The aim of this work was to evaluate the real prevalence of RHT and RFHT using arterial blood pressure monitoring (ABPM) and comparative evaluation of ABPM derived parameters in this two special group of hypertensives. 494 hypertensive patients were evaluated. The clinical suspicion of RHT was 18.3%. Among those with clinical suspicions of RHT 21.6% presented white coat hypertension, 36.9% presented real RHT, 30.7% were with RFHT. Comparing the ABPM parameters between RHT and RFHT we observed that the average systolic and nocturnal diastolic values were significantly higher in RFHT group. The non dipper profile and higher pressure load were present in both groups without significant differences. Mean arterial pressure, average cardiac rate, morning surge and blood pressure short time variability (standard deviation) were significantly higher in RFHT group. ABPM is a very useful almost indispensable method in diagnosis and classification of different forms of RHT. Comparative evaluation of ABPM in RHT and RFHT groups reveals that the parameters defining sympathetic hyperreactivity are significantly higher in RFHT group confirming the indication of introduction of sympatholytic therapy (pharmacological or interventional) in this specific group of hypertensives.

## P12

# Uncontrolled blood pressure - diagnostic and therapeutic challenges

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The discovery of a secondary cause of hypertension followed by an adequate therapeutic conduct can limit target organ damage and improve long-term outcome.

We present the case of a 68-year-old woman who was addressed to the clinic with suspected resistant hypertension in the context of uncontrolled blood pressure levels under 4 classes of antihypertensive drugs, including diuretic.

Clinical examination objectified elevated blood pressures (BP = 220/110 mmHg) and important dorsal kyphoscoliosis, with difficult walking. The electrocardiogram showed left ventricular hypertrophy with monomorph isolated ventricular premature beats. Laboratory data confirmed a low glomerular filtration rate, tendency to hyperkalemia and proteinuria. Echocardiography objectified severe left ventricle concentric hypertrophy with preserved systolic function and type I diastolic dysfunction. Ambulatory blood pressure monitoring showed non dipper blood pressure pattern with very high blood pressure values (average BP 176/88 mmHg).

Due to the onset hypertension in young age, the suspicion of secondary hypertension was raised. Although the patient was following treatment with ARBs for many years without further deterioration of renal function, renal artery CT angiography objectified bilateral renal artery stenosis. Unfortunately, no interventional therapeutic resources were available due to the anatomical particularities. The multi-disciplinary approach - cardiologist, nephrologist - assured the appropriate therapy for blood pressure control.

Even in old hypertensive patients with multiple cardiovascular risk factors, early onset of hypertension requires exclusion of secondary causes of hypertension.

## P13

# Increased plasma of protein C reactive levels are associated with reduced endothelial function and arterial elasticity in hypertensive patients

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Inflammation has been shown to have an important role in the pathogenesis and development of hypertensive vascular injury. The present study was designed to investigate the relationship between serum protein C(PCR) levels related to arterial stiffness and endothelial function in patients with hypertension, and their changes after blood pressure-lowering treatment. Fifty hypertensive patients and 50 age- and gender-matched healthy volunteers were recruited. The appreciation of the endothelial dysfunction was performed by flow mediated vasodilation brachial artery (FMD) and the arterial rigidity through the index ankle - arm of pulse wave velocity (( IGBVP) PCR levels were higher in hypertensive patients compared with their counterparts (log-PCR:  $0.87 \pm 0.19$  versus  $0.60 \pm 0.14$ ,  $P=0.002$ ). Increased PCR levels were correlated with increased brachial-ankle pulse wave velocity (baPWV; control:  $r=0.668$ ,  $P<0.001$ ; hypertension:  $r=0.426$ ,  $P=0.021$ ), and inversely associated with impaired brachial flow-mediated dilation (FMD; control:  $r=-0.730$ ,  $P<0.001$ ; hypertension:  $r=-0.527$ ,  $P=0.004$ ). All the hypertensive patients received 3 months of standard antihypertensive treatment. Three months later, their plasma PCR levels decreased (log-PCR :  $0.62 \pm 0.17$  versus  $0.40 \pm 0.19$ ,  $P=0.001$ ), whereas arterial elasticity (baPWV:  $1768 \pm 104$  versus  $1685 \pm 96$  cm s<sup>-1</sup>,  $P=0.470$ ) and endothelial function (FMD:  $5.90 \pm 1.41\%$  versus  $7.71 \pm 1.29\%$ ,  $P<0.04$ ) were improved. The decline in PCR levels was linearly correlated with baPWV decrease ( $r=0.750$ ,  $P<0.001$ ), FMD improvement ( $r=0.570$ ,  $P=0.005$ ) and blood pressure reduction ( $r=0.478$ ,  $P=0.039$ ). Our present study demonstrate that PCR level is closely correlated with vascular dysfunctions, and measurement of plasma PCR levels might be used as a surrogate biomarker for the clinical evaluation of vascular damage and risk stratification of future atherosclerotic cardiovascular disease in patients with hypertension.



## P14

### An uncommon cause of ST - segment elevation

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The most common, clinically significant cause of ST elevation is an angiographically demonstrable occlusive disease due to atherosclerotic changes in a coronary artery. Often, a patient presenting with specific complaints and ST-segment elevation on the electrocardiogram, is sent for a cardiac catheterization only to see no luminal stenosis on the angiogram.

This is the case of a 36 years old man presenting in the emergency room 6 hours after the beginning of a strong constrictive chest pain irradiating in both arms and back. He was longilin, with pectus carinatum and a marfanoid fenotype; afebrile; his pulse was 60 bpm and blood pressure was 190/87 mm Hg. Chest examination revealed no significant murmurs and normal chest auscultation. His abdomen was not tender. He had normal leukocyte count, normal renal function and elevated cardiac and hepatic markers of injury. ECG revealed prominent anterior ST elevation. Emergency bedside transthoracic echocardiogram demonstrated slight hypokinesis of anterior wall and apex and a 43-mm dilation of ascendant aorta, with no dissection flap, no pericardial effusion. Serial ECG assessment revealed dynamic modifications of ST segment. The coronary angiography showed normal coronary arteries. Due to high clinical supposition an aortography was performed and it showed a thoracic aorta dissection Stanford type B.

In the settings of acute aortic dissection myocardial ischaemia may be exacerbated by hypertension like in this case. This may explain the observation that approximately 10% of patients presenting with acute Type B aortic dissection have ECG signs of myocardial ischaemia.

## P15

# Antihypertensive and cardioprotective effects of Eprosartan and Ramipril in essential hypertension

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HT is a major cardiovascular risk factor and diastolic dysfunction (DD) identifies hypertensives with increased cardiovascular risk independent of LV mass and BP values. The renin-angiotensin-aldosterone system and sympathetic activity play important roles in the pathogenesis of HT and target organ damages. Such agent, which combines in one molecule the ability to interact with both RAAS and the sympathetic nervous system would be of particular utility in the pharmacotherapy of HT associated with DD.

We compare effects of long-lasting therapy with Ramipril and Eprosartan (with additional sympatholytic effect) on BP control and DD. In study was enrolled 101 patients with HT (49,5% men; mean age 50,11±0,79 yrs) and DD; they were randomly assigned to Ramipril (R-gr; n=56, mean dose=15,3mg±1,2 mg/daily) or Eprosartan (E-gr; n=45, mean dose=850±12,4 mg/daily). ABPM, transthoracic echocardiography, and 6MWT were performed at baseline and after 6, 12- months period. Was achieved a greater systolic BPs reduction in E-gr after 12 months of medication, ( $p<0,05$ ). There was a statistical improvement in diastolic function after 6 and 12 months of follow-up in both groups, but treatment with Eprosartan was more efficient in restoration of normal lusitropy: 20 pts (35,71%) in R-gr and 2 pts (4,44%) in E-gr presented delayed relaxation (DR), ( $p<0,001$ ) vs 53 pts (94,64%) in R-gr and 43 pts (95,56%) in E-gr, ( $p>0,05$ ) at the running-up period of study. At baseline, pseudonormal filling (PsnF) was registered in 3 pts (5,36%) in R-gr and 2 pts (4,44%) in E-gr ( $p>0,05$ ), but none of patients with this pattern was found after 12 months of follow-up period. At this time, normal diastolic filling (NDF) has been noticed in 36 pts (64,29%) in R-gr vs 43 pts (95,56%) in E-gr, ( $p<0,001$ ).

## P16

### Secondary hypertension in endocrinologic diseases

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**Introduction:** Most cases of arterial hypertension do not have a clear cause, thus they are defined as primary hypertension. The rest (~10%) are diagnosed as secondary hypertension, which is potentially treatable. Secondary hypertension is considered likely before 35 years of age and over 50. The main causes of secondary hypertension are endocrine, vascular and renal. Discovering the etiology of secondary hypertension can sometimes be challenging.

**Materials and methods:** We studied a group of patients from the Endocrinology and Cardiology wards of Elias University Emergency Hospital, admitted with diagnoses of endocrine diseases that can cause secondary hypertension.

**Results:** In the past 10 years, 277 patients have been admitted with one of the following endocrine diseases: 158 with benign adrenal gland tumours, out of which 90 incidentalomas, 28 patients with pheochromocytoma, 20 patients with primary hyperaldosteronism and 20 cases of Cushing Syndrome due to an adrenal adenoma; 74 patients were admitted with acromegaly caused by a growth hormone secreting pituitary adenoma and 45 patients with Cushing's disease caused by an ACTH secreting pituitary adenoma. Among patients with adrenal incidentalomas, 27% presented with hypertension that was later categorized as essential. All of the patients with pheochromocytoma and primary hyperaldosteronism presented with high blood pressure, which subsided in 81% per cent of cases after treatment. In patients with acromegaly, 42% initially presented with hypertension which subsided with treatment in 75% of patients. In patients diagnosed with Cushing disease, 63% initially presented with high blood pressure which subsided in only 63% of patients after treatment of the primary cause.

**Conclusions:** Secondary arterial hypertension is a frequent manifestation of the major endocrine diseases and is rarely accurately diagnosed in primary medical care. Coexistence of endocrinology and cardiology wards in the same hospital allow for a swift and correct diagnosis and efficient therapy. Delays in diagnosing the etiology of secondary hypertension lead to complications that persist after treatment of the initial cause.

## P17

# The impact of the treatment with nebivolol vs bisoprolol in patients with arterial hypertension and angina pectoris stable

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Arterial hypertension and angina pectoris effort-induced contribute synergistically to high cardiovascular risk. The aim of this study is to evaluate the efficacy of nebivolol vs bisoprolol in patients with arterial hypertension (AHT) and angina pectoris stable (APS). The study included 146 patients with AHT and APS who were in sinus rhythm, aged 55-60 years, who were divided into two groups: I group - 90 patients who were administered nebivolol 5mg / day and the II group - 56 bisoprolol patients who were administered 10 mg / day, tangential to conventional therapy. Both groups were evaluated TA, echocardiography was performed and was appreciated in blood, the marker of endothelial dysfunction - nitric oxide (NO) at the beginning of the study and at a distance of 6 and 12 months after the initiation of the treatment. At the same time, the NO level was determined in the reference pattern consisting of 12 healthy people. At the end of the study both groups reached the level of blood pressure <140/90 mmHg. LV myocardial mass index was significantly reduced in comparison with the baseline in the group of patients who were administered nebivolol from  $123,5 \pm 3,7$  to  $114,5 \pm 3,44$  gr/ m<sup>2</sup>,  $p < 0,001$ . In the group of patients who were administered bisoprolol LV myocardial mass index has increased from  $123,6 \pm 5,21$  to  $128,7 \pm 6,42$  gr/m<sup>2</sup>;  $p > 0,05$ . The level of circulating nitric oxide determined in the I group -  $55,7 \pm 2,12$   $\mu\text{M}/\text{L}$  and in the II group  $61,7 \pm 3,2$   $\mu\text{M}/\text{L}$  was already compromised at the initial stage to the reference pattern -  $83,7 \pm 0,83$   $\mu\text{M}/\text{L}$ . At the period of 12 months on the background of nebivolol treatment the biomarker level increased by 75,1% vs the initial level and vs pattern of reference by 16,5% and compared with the II group :  $97,53 \pm 1,62$  vs  $57,17 \pm 3,8$   $\mu\text{M}/\text{L}$ ;  $p < 0,001$ . The administration of both nebivolol and bisoprolol induces a qualitative antihypertensive effect. Unlike bisoprolol, nebivolol has antihypertrophic and antifibrotic action, achieved through the NO system confirmed by the increased level of NO serum with 75,1% and the decrease of LV myocardial mass index with 7% vs the initial level.

## P18

# Diagnostic and blood pressure oscillations – a multidisciplinary approach to a case report of secondary hypertension

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We present the case of a 62 years-old, hypertensive, obese, diabetic, female patient addressed to the Institute of Cardiovascular Diseases 'Prof. Dr. George I. M. Georgescu' Iasi, with the supposition of an acute coronary syndrome in the context of an acute chest pain accompanied by ischemic ECG changes and elevated myocardial necrosis enzymes.

At admission, the patient was hemodynamically stable, normotensive, tachycardic. The electrocardiogram revealed ST segment elevation in V2-V5 and negative T waves (DI, aVL). The coronary angiography showed non significant (<40%) coronary artery lesion. During hospitalization, the patient presented multiple hypertensive episodes (max BP 280 mmHg), alternating with cardiovascular collapse states, associating sweating, palpitations, and hypertensive encephalopathy.

In this context, the hypothesis of the presence of catecholamine-secreting tumors has been raised. The urinary and plasmatic metanephrines values were significantly increased. Abdominal ultrasound revealed the presence of a right adrenal hypoechoic tumor. A CT examination was used that confirmed the presence of an adrenal expansive formation, suggestive of pheochromocytoma.

The patient was eventually transferred to the Department of Surgical Oncology of the Institute of Oncology Iasi, where right adrenalectomy was performed. The histopathological tissue excision result confirmed the diagnosis of pheochromocytoma.

The postoperative period was satisfactory, with normalization of blood pressure values.

In conclusion we presented a particular case report of pheochromocytoma under the mask of an acute coronary syndrome. Striking blood pressure oscillations enabled the supposition and the correction of an endocrine cause of secondary hypertension.

## P19

# Correlation between cardiovascular risk score and short-term variability of arterial hypertension

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High blood pressure variability has negative impact on long-term prognosis of hypertensive patients compared to the "per se" BP value.

The impact of short-term BP variability on hypertensive patients beyond SCORE cardiovascular risk estimation was assessed.

Family medicine practice database for 22 patients was analyzed, 15 female, aged between 40 and 65 y.o. 24-hour ambulatory BP monitoring was performed using automatic, validated monitoring devices. Short-term BP variability was computed out of 24 hours monitoring parameters for standard deviation (SD), weighted standard deviation (SDw) and the index of average real variability (ARV).

Each of the three variability parameters was determined based on the systolic and diastolic daytime, nighttime and 24 hours BP average. Based on cardiovascular risk SCORE estimation, patients were enrolled in low/moderate risk (<5%) versus high/very high risk (≥5%).

24 hours average systolic BP was correlated with high/very high cardiovascular risk SCORE.

Short-term BP variability was significantly correlated with SCORE risk ≥5% for systolic 24 hours BP standard deviation (SD S/24 h) ( $p < 0.05$ ) and 24 hours systolic BP estimated by SDw.

There is a positive correlation between systolic daytime SD and night diastolic BP SD to high/very high risk SCORE. ARV index has no significant correlations to high/very high risk SCORE in terms of cardiovascular cumulative risk events in 10 years.

An increased short-term BP variability assessed by various indices is associated with high/very high SCORE cardiovascular risk and brings an added cardiovascular risk.

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## P20

# Blood pressure control and target organ damage in hypertensive patients. Data from primary health care hypertension management center

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Clinical trials evidence support the management of a precisely hypertensive patient profile defined by the study design. Real data from primary care records are important for the evaluation of BP control related to the target organ damage (TOD) and marks the long-term management of hypertensive patients. We assessed an urban area family medicine practice database, 484 hypertensive patients, mean age  $62.06 \pm 12.30$  y.o; 61.1% male, 38.9% female. Patients were evaluated by age groups; heart TOD was assessed by left ventricular hypertrophy (LVH) and kidney TOD expressed by glomerular filtration rate (eGFR). LVH was determined by resting ECG and transthoracic echocardiography. Uncontrolled systolic BP by age groups,  $p > 0.05$ . Uncontrolled diastolic BP (DBP)  $p < 0.001$  in the age group  $< 40$  years. The presence of LVH in patients with uncontrolled BP statistically significantly correlated with LVH changes on ECG ( $p = 0.0001$ ) and echocardiography ( $p = 0.003$ ). Kidney TOD did not present statistical significance ( $p = 0.43$ ) between the amount of controlled BP in patients with stage 3 and 4 renal disease (eGFR  $< 60$  mL/min/1.73m<sup>2</sup>) versus stage 1 and 2 (eGFR  $> 60$  mL/min/1.73m<sup>2</sup>).

45.92% hypertensive patients with stage 3 and 4 renal disease presents uncontrolled BP. DBP value in patients under 40 y.o represents a parameter of therapeutic intervention for the long-term management of hypertension.

Heart TOD assessment by LVH evaluation on ECG shows positive correlation with echocardiography evaluation. Although of high and very high cardiovascular risk, the target organ damage risk is not aware.

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## P21

# The relationship between smoking status and other cardiovascular risk factors in patients with type 2 diabetes mellitus

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Smoking is considered the most important modifiable risk factor for the cardiovascular diseases, which are the first cause of death in developed countries. Among the negative effects of the smoking there are the high blood pressure, the formation of atheroma plaques and the reduction of HDL cholesterol. The aim of this study was to evaluate the relationship between the smoker status and the other cardiovascular risk factors in patients with Type 2 Diabetes Mellitus.

We realised a retrospective study on a group of 471 patients with Type 2 Diabetes Mellitus, who were under the observation of N.I.D.N.M.D. "Prof. Dr.N.C.Paulescu" from Bucharest. For the accomplishment of the study we evaluated the smoker status of the patients; in order to evaluate cardiovascular risk factors we have used: the laboratory values of total cholesterol, HDL-cholesterol, LDL-cholesterol and the measurement of blood pressure. Also, we measured the laboratory values of serum uric acid.

From the total number of patients, 55,8% (n=263) were male and 44,2% (n=208) were female. The average age of the patients was  $61,51 \pm 11,9$  years; the average duration of diabetes was  $11,97 \pm 8,7$  years. Arterial hypertension was present in 82,6% (n=389) of the patients. From the total number of the patients, 52% (n=245) were non-smokers, 18,3% (n=86) smokers and 30,1% (n=142) ex-smokers. The average value of serum uric acid in smoker patients was  $7,31 \pm 2,6$  mg/dl, in non-smokers  $5,74 \pm 2,1$  mg/dl and  $6,25 \pm 2,08$  mg/dl (p=0,095) in previous smokers. Regarding HbA1c in patients who smoke, the average value was  $10,00 \pm 1,8\%$ , in non-smokers  $8,97 \pm 2,05\%$  and  $8,94 \pm 2,24\%$  (p=0,026) in previous smokers. Systolic arterial blood pressure had an average value of  $122,9 \pm 17,5$  mmHg in non-smokers,  $146,6 \pm 22,5$  mmHg in smokers and  $131,9 \pm 18,4$  mmHg in ex-smokers. Regarding the lipid profile, we noticed the following: the average value of total cholesterol was  $196,4 \pm 19,5$  mg/dl in non-smokers,  $217,3 \pm 30,5$  mg/dl in smokers and  $192,8 \pm 16,94$  mg/dl in ex-smokers; the average value of HDL-cholesterol was  $49,8 \pm 19,8$  mg/dl in non-smokers,  $45,84 \pm 16,8$  mg/dl in smokers,  $44,13 \pm 15,6$  mg/dl in





ex-smokers; the average value of LDL-cholesterol was  $113,4 \pm 64,3$  mg/dl in non-smokers,  $129,3 \pm 96,5$  mg/dl in smokers and  $101,7 \pm 55,04$  mg/dl in previous smokers.

In patients with Diabetes Mellitus, smokers or ex-smokers, we found high values of blood pressure, total cholesterol, LDL-cholesterol, serum uric acid and HbA1c and low levels of HDL-cholesterol, comparing to non-smoker patients.