Arterial hypertension and diabetes association in the elderly

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Background   High blood pressure is common in the elderly diabetic, responsible for an increase in cardiovascular risk and an acceleration of the degenerative complications of diabetes.
Purpose   The aim of this study was to determine the characteristics of hypertension in elderly diabetic subjects and to study its repercussions.
Methods   Our descriptive study was performed in 60 hypertensive diabetic patients over than 65 years of age, followed in our department. Hypertension was defined as arterial pressure $\geq 140/90$ mmHg. A complete clinical examination and a standard biological assessment were performed for each patient.
Results   The mean age of the patients was 68.72 years; 61.2% of patients were between 60 and 65 years of age. The mean duration of diabetes progression was 14.2 years and 72% of patients received insulin therapy. The majority (91%) of these patients had uncontrolled diabetes; the average HbA_{1c} was 10.2%. The diagnosis of diabetes preceded that of hypertension in 73.6% of cases. Thirty-three percent of our population had an uncontrolled hypertension. Patients had on a salt-free diet in 18.1% of cases and a dietary salt restriction in 21.2% of cases. Among our hypertensive patients, 29.9 received a monotherapy and 44.2% a dual therapy. Dyslipidemia was found in 51.6% of our patients. A microalbuminuria was noted in 32.3% of patients. Retinopathy was found in 48% of patients, neuropathy in 34.6%. There is a history of stroke in 3.8% of cases and a history of myocardial infarction in 2.2% of cases. Coronary insufficiency was confirmed in 5.8% of cases, unexplored chest pain was found in 26.6% of cases. Intermittent claudication was noted in 24.2% of cases. This claudication was explored and confirmed in 2% of cases.
Conclusion   Vascular metabolic complications are serious in hypertensive elderly diabetic subjects; thus, multidisciplinary care and regular monitoring is required to detect these complications early and improve life expectancy.

Predictive factors of macroangiopathy in type 2 diabetic patients

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Aims   Cardiovascular complications are the most prevalent cause of mortality in patients with type 2 diabetes mellitus. The aim of our study was to determine the risk factors related to macroangiopathy among type 2 diabetic patients.
Methods   This was a cross-sectional study conducted among 71 patients with type 2 diabetes mellitus between March 1 and September 30, 2017. Patients were divided into two groups according to the presence or absence of macroangiopathy. The examination included full medical histories, physical examination and laboratory tests in particular brain natriuretic peptide (BNP) measurements.
Results   Thirty-eight patients had at least one macrovascular complication. The univariate analysis evidenced a significant association between macro-angiopathy and male gender ($P = 0.029$), $HbA_{1c} > 9.5\%$ ($P = 0.008$), the cumulative number of cardiovascular risk factors > 5 ($P < 10^{-3}$), hypertension, presence of micro-angiopathy ($P < 10^{-3}$) and BNP plasmatic level > 24 pg/mL ($P = 0.007$). Multivariate regression analysis showed that cumulative cardiovascular risk factors > 5 (OR = 13.9 [95% CI: 1.4—137.6], $P = 0.024$), presence of microangiopathy (OR = 22 [95% CI: 2.2—215.4], $P = 0.008$) and $HbA_{1c} > 9.5\%$ (OR = 36.6 [95% CI: 2.6—505]; $P = 0.007$) were predictor factors of macroangiopathy among patients with type 2 diabetes mellitus.
Conclusion   Cardiovascular diseases in our population were the consequence of the additive effects of traditional risk factors with the participation of chronic hyperglycemia.

Non-alcoholic fatty liver disease and cardiovascular risk in patients with type 2 diabetes mellitus

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Aims   Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver disease in type 2 diabetes mellitus (T2DM). In addition to its liver complications, it is associated with increased cardiovascular risk. The aim of our work was to assess the relationship between NAFLD and cardiovascular disease risk (CVDR) in a group of patients with T2DM.
Methods   This was a cross-sectional study conducted among patients with T2D aged between 35 and 70 years old. Detailed medical history, laboratory investigations and measurements of systolic and diastolic blood pressure, weight and height were done for each patient. NAFLD was diagnosed using abdominal ultrasound examination. The assessment of the ten years CVDR was performed by using the Framingham Risk Score. Patients were classified as low, moderate or high risk, corresponding to < 10%, 10—20% and > 20% respectively.
Results   We included 43 diabetic patients (25 men and 18 women) with a mean age of 59.1 ± 6.5 years. The average duration of diabetes was 12 ± 8.6 years. NAFLD was observed among 49% of patients. The average Framingham Risk Score was $24.6 \pm 10.5\%$. CVDR was moderate in 33% and high in 67% of patients. NAFLD was noted among 29% of patients having a Framingham Risk Score between 10 and 20% and among 59% of patients with a Framingham Risk Score > 20% ($P = 0.065$). Obesity was significantly more frequent among patients with NALFD than in those who were free (90% vs. 32%, $P < 10^{-3}$). The prevalence of smoking (21% vs. 21%), high blood pressure (81% vs. 64%) and dyslipidemia (79% vs. 72%) were statistically comparable between patients with and without NAFLD, respectively.
Conclusion   In our study and in contrast to the data from the literature, CVDR was not increased in T2DM patients having NAFLD. The lack of relationship between cardiovascular disease risk and NALFD

could be attributed to the small sample size and the high level of cardiovascular disease risk at baseline.

Disclosure of interest The authors declare that they have no competing of interest

Analysis of the associations between anthropometric parameters, arterial hypertension and dyslipidemia among type 2 diabetic patients

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Aim To assess the relationships between anthropometric parameters, arterial hypertension and dyslipidemia in patients with type 2 diabetes mellitus.

Methods Our cross-sectional study included 457 patients with type 2 diabetes mellitus. We measured the systolic and diastolic blood pressures, weight, height and waist circumference (WC). Body mass index (BMI) and waist to height ratio (WHtR) were calculated. We performed ROC curves for each anthropometric parameter to assess its discriminant power to distinguish between hypertensive and normotensive diabetic patients and between patients with and without dyslipidemia.

Results Obesity, arterial hypertension and dyslipidemia were observed in 49.2%, 61.1% and 67.1% of diabetics. In diabetic women, blood pressure, total cholesterol and triglyceride levels were significantly correlated with studied anthropometric parameters. In contrast, in diabetic men, a weak correlation between diastolic blood pressure and BMI was observed. Weight, BMI, WC and WHtR had areas under the curve between 0.543 and 0.664. Cut-off values of anthropometric parameters for predicting the presence of high blood pressure or dyslipidemia were higher in women than in men.

Conclusion In our study, anthropometric parameters had a poor discriminant power in the distinction between hypertensive and normotensive patients and between patients with and without dyslipidemia. However, the parameters evaluating visceral fat seemed to have relatively better discriminative power.

Disclosure of interest The authors declare that they have no competing of interest

Correlations between B type natriuretic peptide and blood pressure in patients with type 2 diabetes mellitus

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Aims Brain natriuretic peptide (BNP) plays key roles in regulating blood pressure, fluid and electrolyte balance. The aim of our study was to assess correlations between serum BNP levels and blood pressure among patients with type 2 diabetes mellitus (T2DM).

Methods We conducted a cross-sectional study among patients with T2DM below the age of 65 years regardless of duration of diabetes and type of antidiabetic drugs. Detailed medical history, measurements of systolic (SBP), diastolic blood pressure (DBP) and serum BNP were recorded. Patients with BNP > 300 pg/mL were excluded. The included patients were divided into four groups according to BNP quartiles: Q1 < 9; Q2 between 9 and 11.9; Q3 between 11.9 and 32.2; Q4 $\geq$ 32.2 pg/mL. Analysis of group differences was performed using the non-parametric Kruskall-Wallis test for continuous variables. and chi^2 test for trend for categorical variables. The comparison of percentages on independent series was carried out by the Pearson's chi^2 test, and in the case of invalidity, the bilateral Fisher's exact test was used.

Results We included 69 diabetics, mean age: 56.7 ± 6.9 years old, sex ratio (M/F): 1.5, average duration of diabetes of 10.6 ± 7.7 years and average HbA$_{1c}$: $9.2 \pm 1.9\%$. The mean level of serum BNP was 27.8 ± 32 pg/mL. More than half (61%) of the patients were hypertensive. Serum BNP was significantly higher among hypertensive patients than non-hypertensive patients (35.6 ± 5.7 vs. 15.7 ± 17.6 µg/mL, $P = 0.001$). We did not observe statistically significant correlation between the BNP level on the one hand and the SBP and the DBP on the other hand. Fourth quartile patients were 6.9 times more likely to have high blood pressure (95% CI [1.4, 33.5]) than patients in the first three quartiles ($P = 0.008$). Patients in the 2nd quartile had significantly higher SBP than patients of the other quartiles ($P = 0.049$). The DBP was comparable between the four groups ($P = NS$).

Conclusion The relationship between high blood pressure and BNP was not significant among diabetic patients of our study. But it appears that a BNP level $\geq$ 32.2 pg/mL was a significant predictor of high blood pressure.

Disclosure of interest The authors declare that they have no competing of interest

Biomarkers of prehypertension and hypertension in women

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Background The percentage of undiagnosed prehypertensive and hypertensive women are high in the population of Kazakhstan.

Aims Our study assessed biomarkers in prehypertension and hypertension in women.

Methods 203 women were divided into 3 groups: ''prehypertensive'' group ($n = 30$, 46.6 ± 6.2 y.o.) with a systolic blood pressure from 120 to 139 mmHg or/and a diastolic blood pressure from 80 to 89 mm Hg. In the ''hypertensive'' group the blood pressure was > $\geq$ 140/90 mmHg ($n = 73$, 46.6 ± 5.6 y.o.). In the normotensive group the blood pressure was < $\leq$ 120/80 mm Hg ($n = 100$, 44.2 ± 5.9 y.o.). The MILLIPLEX MAP Human CVD 1 Magnetic Bead kit was used for the quantification of cardiovascular biomarkers in venous samples. The quantification of the level of cardiac markers was carried out on the Bio-Plex® 3D multiplex analyzer Suspension Array System (Bio-Rad Laboratories, Inc., USA).

Results The values of brain natriuretic peptide (BNP), creatine kinase-MB (CK MB), and leptin were statistically increased in women depending on their blood pressure. The BNP values in the hypertensive group (Me = 157.9 pg/ml, $Q_1 = 53.75$ pg/ml and $Q_3 = 229.6$ pg/ml) were statistically greater ($p = 0.016$) than in the normotensive group (Me = 85.14 pg/ml, $Q_1 = 18.55$ pg/ml and $Q_3 = 113.9$ pg/ml). The BNP values in the prehypertension group were greater than in the normotensive group and less