Risk factors of uncontrolled hypertension in hypertensive patients in the Tunisian population

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Objectives Uncontrolled hypertension is associated with an increased risk of cardiovascular complications. Determining the factors of poor blood pressure control helps to set up more effective therapeutic strategies. The objective of our study was to identify factors associated with uncontrolled hypertension confirmed by ambulatory blood pressure monitoring (ABPM) in our population.
Methods We conducted a retrospective case-control study including patients who had an ABPM between January 2014 and June 2017. The diagnosis of uncontrolled hypertension was defined as a mean 24-hour BP ≥ 130/80 mmHg. We divided our patients into 2 groups: G1: patients with uncontrolled hypertension and G2: patients with controlled hypertension. The comparison between the 2 groups was carried out by chi^2 tests for univariate analysis and logistic regression for multivariate analysis.
Results A total of 175 hypertensive patients were included, sex-ratio M/F = 0.9. The indication of ABPM was an uncontrolled hypertension in office in 143 cases (82%) and blood pressure control in 32 cases (18%). The prevalence of uncontrolled hypertension was 51%. The 24-hour BP was 151/87 mmHg in the G1 and 123/69 mmHg and G2 group ($P < 0.001$). In univariate analysis, factors associated with poorly controlled hypertension were: male gender ($P = 0.002$), smoking ($P = 0.018$), personal history of chronic renal failure ($P = 0.027$), presence of metabolic syndrome ($P = 0.008$) and hyper glycaemia ($P = 0.01$). In multivariate analysis, uncontrolled hypertension was associated with male gender ($P = 0.05$), presence of metabolic syndrome ($P = 0.044$), and low HDL cholesterol level ($P = 0.05$).
Conclusion In our population, more than half of hypertensive patients were not adequately controlled. The main determinants of this poor control were: male gender and metabolic syndrome. Adequate care, by monitoring these factors, is essential for a better blood pressure control.
Disclosure of interest The authors declare that they have no competing interest.

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Association of Framingham score with the parameters of ambulatory blood pressure monitoring

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Objectives Cardiovascular complications are a major public health problem. The Framingham Risk Score (FS) is a scoring system that assesses the 10-year risk of cardiovascular event. The objective of our study was to evaluate the association of this score with the different parameters of the ambulatory blood pressure monitoring (ABPM).
Methods We carried out a retrospective study including patients having an ABPM between January 2015 and December 2016. The FS of each patient was calculated according to the AHA recommendations, including the following parameters: age, sex, smoking, office blood pressure, body mass index, treatment of hypertension and diabetes. The comparison between the groups was carried out by One-Way ANOVA test, and the correlation between FS and ABPM parameters by the Pearson coefficient.
Results A total of 231 patients were included, sex-ratio M/F = 0.83. The results of ABPM showed uncontrolled hypertension (37.2%), controlled hypertension (30.3%), masked hypertension (18.6%) and absence of hypertension (13.9%). Patients with uncontrolled hypertension had the highest FS (35.5 ± 26, $P < 0.001$). Patients without hypertension had the lowest FS (9.4 ± 10, $P < 0.001$). The mean FS were $20 \pm 19\%$, $27 \pm 24\%$, $35 \pm 30\%$, $38 \pm 28\%$ respectively in the dippers, non-dippers, hyper-dippers and risers ($P = 0.001$). Patients with nocturnal hypertension had a higher FS than other patients (29 ± 25 vs. 23 ± 22, $P = 0.06$). The correlation study showed that FS was negatively correlated with glomerular filtration rate ($r = -0.35$, $P < 0.001$). FS was positively correlated with mean global systolic blood pressure ($r = 0.16$, $P = 0.017$), mean diurnal systolic blood pressure ($r = 0.14$, $P = 0.4$), and mean nocturnal systolic blood pressure ($r = 0.2$, $P = 0.002$).
Conclusion The Framingham score is higher in patients with riser profile and nocturnal hypertension. The ABPM parameters correlated to the Framingham score are 24-hour systolic BP, diurnal systolic BP, and nocturnal systolic BP. Adequate management of other risk factors could balance the blood pressure profile, reduce cardiovascular risk and thus ensure a better quality of life for these patients.
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Hypertension and Diabetic Retinopathy

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Background Diabetic retinopathy is the most specific microangiopathy related to diabetes. Furthermore, hypertension is frequently associated with diabetes.
Purpose The aim of our study was to analyze the prevalence of diabetic retinopathy in hypertensive diabetic patients.
Methods Our descriptive retrospective study was conducted in 125 diabetic patients hospitalized in our department. Each patient had a complete clinical examination, a standard biological assessment and fundus to evaluate possible retinal involvement.
Results The age was 53.78 ± 11.2 years, 24.6% were smokers. The mean duration of diabetes progression was 11 ± 7.41 years, $HbA_{1c} = 8.9 \pm 3.19\%$. Overweight or obesity was found in 49.9% of patients. Among our hypertensive patients, 46.9% received a monotherapy and 36.2% a dual therapy. Angiotensin converting enzyme inhibitors were the most prescribed (38.1%) followed by diuretics (19.1%). The most common association was an angiotensin II receptor antagonist + a diuretic (59% of associations). Diabetic retinopathy was found in 47% of patients. 36% of patients suffered from mild non-proliferative diabetic retinopathy (NPDR), 27% from moderate NPDR, 25% from severe NPDR and 12% from proliferative diabetic retinopathy. Maculopathy was present in 7.2% of cases. Complicated diabetic retinopathy was present in 1.7% of cases, and 5% of patients had a Laser treatment for retinopathy.
Conclusion Uncontrolled glycaemia and blood pressure have a synergistic effect on the development and progression of diabetic retinopathy. In addition to glycemic control, the management of hypertension is essential to prevent its onset and slow its progression.

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

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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 ± 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