## 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 ($35.5 \pm 26$, $P < 0.001$). Patients without hypertension had the lowest FS ($9.4 \pm 10$, $P < 0.001$). 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 ($29 \pm 25$ vs. $23 \pm 22$, $P = 0.06$). 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 $53.78 \pm 11.2$ years, 24.6% were smokers. The mean duration of diabetes progression was $11 \pm 7.41$ 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.