and 4 cases CH. In addition to treatment with extra-renal cleansing without heparinization, patients were treated by (captopril); and anticonvulsants.2 children died after (extensive brain hemorrhage) 1 month after the stroke. For one patient, a decrease in hemiparesis was observed with persistent facial asymmetry and a preferential grip on the right in another child.

Conclusion Cause or consequences of the renal disease, HT must be properly treated in order to reach the recommended targeted blood pressure values. The time required to take charge the hypertensive stroke determines the prognosis. The challenge is to optimize the health care sector to reduce mortality and sequelae.

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Evolution of hypertension and diabetes in elderly subjects

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Introduction Hypertension (HTA) is common in elderly diabetic patients, who are at risk of cardiovascular complications and accelerated degenerative disease. We aimed to determine the characteristics of hypertension and diabetes in the elderly.

Methods We collected all the records of elderly diabetic and hypertensive patients hospitalized at least once in our department of endocrinology-internal medicine from 2010 to 2018.

Results Fifty-nine patients were identified. The average age was 70.77 years (65—84 years). The sex ratio was 1.56 (F/H) with 36 women and 23 men. The seniority of diabetes was 8.18 years (1—30). The diagnosis of diabetes preceded that of hypertension in 16 cases (27.11%) with 67.79% of insulin treated patients and 32.21% received oral antidiabetic agents. Fifty-six percent of the patients had Grade I hypertension, 70% of whom were systolic with treatment with at least one bitherapy in 28 (47.45%); the most frequent combination was ACE (inhibitors conversion enzyme) and diuretics. Mean BMI was 32.93 kg/m^2 (24—50.44). The dyslipidemia was present in 34 patients (57,62%) with essentially a hyper-triglyceridemia (70%). Macroangiopathy was observed in 19 patients (32.2%) with mainly ischemic heart disease (30%) significantly more often in patients with $HbA_{1c} > 8.5\%$ and LDL > 1 g/L. Microangiopathy was present in 30 cases (50.84%) with diabetic retinopathy in 40.2% of patients and diabetic neuropathy in 21.4%. Regarding the non-degenerative complications of diabetes, this age group was mainly exposed to infectious complications with a clear predominance of urinary infection and non-necrotizing dermo-hypodermitis (8.47% of cases).

Conclusion Comprehensive management of cardiovascular risk factors in elderly patients is needed to improve the quality of life of these frail patients. On the other hand, poly-pathology and polypharmacy is a source of poor compliance and therefore unsatisfactory evolution.

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Prediction of the therapeutic change score in hypertensive subjects by big data analysis and artificial intelligence

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The monitoring of hypertensives with a computerized medical file generates a quantity of data imposing the use of digital tools of Big data. The aim of this work was to describe a therapeutic change score (TCS) in hypertensives treated and followed in the long term in a specialized service in hypertension, and to develop a model for predicting the TCS.

Methods In 1,293 hypertensive patients followed for a median of 5.1 years, in a hospital consultation specialized in hypertension, 13 271 consultations were made. At each visit, the list of current antihypertensive treatments has been completed. Demographic data, medical history, clinical parameters with blood pressure measured in a standardized way with an electronic device by ''automatic measurement'' (SPRINT methodology) were obtained at each visit. The TCS was calculated at each visit with 0 in case of therapeutic stability and 1 in the case of change of at least one antihypertensive treatment or its dosage. Data has been anonymized and organized with the implementation of artificial intelligence tools (gradient tree boosting trees, neuronal network, Long Short Term Memory). A prediction model for the TCS has been developed and tested.

Results The cohort included subjects aged 60 years with 57% men with 3 or more visits completed for 46% of subjects. At the initial visit 9.5% of the patients were in secondary prevention. The incidence of cardiovascular complications was 3.4% per year. Kaplan-Meyer analysis indicated a positive CTS in 70% of the subjects in the first year and 98% in the total duration of follow-up. The prediction model for the CTS retained 160 variables. This model allows the prediction of a change in antihypertensive prescription at the next visit with a true positive value of 92% and a negative predictive value of 77%.

Conclusion It was possible to create an artificial intelligence model from a hypertensive patient database followed-up in a hypertension excellence center. This model predicts a change in antihypertensive prescription at the next visit with an accuracy of 92%. The most relevant variables can be selected to integrate an e-health application which will aim, in treated hypertensives, to optimize the date of the next consultation to the doctor in charge of the follow-up of hypertension.

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Assessment of adherence to antihypertensive drugs in patients with resistant hypertension receiving optimal treatment

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Objective To estimate the proportion of non-adherence to antihypertensive drugs in patients with apparent resistant hypertension despite optimal medical treatment.

Methods The study was prospective and observational. We screened all consecutive patients managed in our tertiary health-care center for resistant hypertension between January 2014 and December 2017. Were included only those who already had an ambulatory blood pressure measurement (ABP) to exclude a white coat effect and a thorough etiological work up to exclude a secondary cause. Hypertension was considered resistant if the daytime ABP was over or equal to 135/85 mmHg and/or the 24-hours ABP was over or equal to 130/80 mmHg, under 4 antihypertensive medications combining a renin-angiotensin system inhibitor, amlodipine, a thiazide (or indapamide) and spironolactone, at optimal doses. Adherence to treatment was assessed by the eight-item Morisky Medication Adherence Scale (MMAS-8).

Results Three hundred eighty-six patients were enrolled, with a mean age of 57.4 ± 11.3 years, 48.3% of men. The mean office blood pressure was $178 \pm 20.4/101 \pm 15.5$ mmHg and the 24-hours ABP was $164 \pm 17.6/97 \pm 15.2$ mmHg. The proportions of high, medium and low adherence were 27.9%, 47.6% and 24.5% respectively. Fully adherent, partially non-adherent and completely non-adherent patients differed significantly in terms of proportions of women (25%, 48% and 72%), number of daily drugs, reflecting comorbidities (5.9; 6.1, and 9.8 respectively) and education level (the proportions of patients who did not achieve a secondary school were 10.1%, 28.3% et 53.2% respectively).

Conclusions In our study, more than two out of three patients with apparent resistant hypertension optimally treated and without white coat effect, were partially or completely non-adherent to treatment. Assessment of treatment adherence in these high cardiovascular risk patients should be systematically implemented and if possible by more objective methods.

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

Ambulatory blood pressure monitoring after one major cardiovascular event to predict a second one

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Objectives To compare ambulatory blood pressure (ABP) values after a first major cardiovascular event, between patients with and without a second event, and to evaluate if ABP measurements could have a role in the prediction of a second event occurrence.

Methods We included 368 hypertensive patients who had ABP measurements after a first major cardiovascular event (acute coronary syndrome or stroke), with a mean age of 69.9 ± 11.8 years, 62.5% of men. One hundred and three patients had a second event during a mean follow-up of 2.8 ± 1.6 years.

Results Twenty-four-hours systolic blood pressure (SBP) values were 135 ± 15 mm Hg in patients with a second event versus 126 ± 13 mm Hg in those with one event ($P = 0.002$). Daytime SBP was 139 ± 14 mm Hg and 129 ± 13 mm Hg respectively ($P = 0.002$). Night-time SBP was 129 ± 17 mm Hg and 118 ± 16 mm Hg respectively ($P = 0.003$). Using Cox model with adjustments for age, sex and systolic office blood pressure, all the three measures: 24 hours SBP (HR: 1.032; CI 95%: 1.005–1.060), Daytime SBP (HR: 1.026; CI 95%: 1.00–1.052) and Night-time SBP (HR: 1.031; CI 95%: 1.007–1.055) significantly associated with a recurrence of a second event. In the 24-hours systolic blood pressure ROC curve analysis, a value of 125 mm Hg was the best cutoff for prediction of a second event, with a sensitivity of 83%.

Conclusion In our population of hypertensive patients with a previous cardiovascular event, higher values of 24 hours, daytime and night-time SBP were predictive of a second event occurrence.

Disclosure of interest The authors have not supplied their declaration of competing interest.

Lifestyle advice follow-up improves dietary consumption and cardiometabolic risk in type 2 diabetes patients treated with oral antidiabetics

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Background and aim of the study The lifestyle intervention is one of the most effective therapeutic options for improving glycemic control and reducing cardiovascular risk factors in patients with type 2 diabetes (T2D). The aim of this study was to investigate if monitoring of lifestyle advices could improve glycemic control and atheroma ratios in T2D patients treated with oral anti diabetics (OAD).

Methods Patients ($n = 85$, sex ratio F/M, 40/45) aged 50 ± 8 years, with T2D since 9 ± 3 years and initially treated with oral anti diabetics during 8 ± 1 years, were recruited. At the beginning of the study (d0), nutritional advices (i.e. consumption of fish, fruits and vegetables diet, with 250 g of carbohydrates distributed over daily different meals) associated to 30 to 45 min walking per day, were recommended, with a follow-up at 3 (d90) and 6 months (d180). The 24-hour recall, followed by a 3-days record, and daily energy expenditure (DEE) questionnaire were realized. Serum glucose and glycated hemoglobin (HbA_{1c}) were measured. Serum insulin was determined by ELISA and homeostatic model assessment insulin resistance (HOMA-IR) index was calculated. Serum total cholesterol (TC), HDL-C and triglycerides (TG) levels were measured by enzymatic colorimetric tests. Apolipoproteins Apo A-1 and Apo B level were analyzed by immuno-turbidimetric test.

Results A significant increase of total energy intake (TEI) (MJ/24 h) was noted in T2D, at d90 and d180, compared to d0 ($P < 0.05$). A negative balance (TEI-EE) was noted at d0 (-0.75 MJ), and d90 (-1.42 MJ/24 h) of lifestyle advices follow-up, whereas, a positive balance ($+0.42$ MJ/24 h) was observed at d180. There was no significant difference in carbohydrate intake distribution between the different meals, over the time. Compared to d0, serum glucose concentration, and HbA_{1c} value were reduced respectively by 19% and 35% at d90, and by 12% and 14%, at d180. Plasma insulin and HOMA-IR remained unchanged. Serum TG concentrations decreased by 36% at d90 vs. d0, and serum TC levels were lowered by 16% and 26%, at d90 and d180 respectively compared to d0. TC/HDL-C and Apo A-I/ApoB100 ratios were respectively reduced by 32% and 49% at d90, and by 57% and 68%, at d180 compared with d0.

Conclusion The six-month follow-up of dietary advice, associated with regular physical activity by T2D patients, improves their food consumption, HbA_{1c} as well as atheroma risk.

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