RATE OF GFR FALL OVER TIME, 24H AMBULATORY BP MONITORING AND OFFICE BP IN TRANSPLANT PATIENTS (Tx pts)

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INTRODUCTION

Current Guidelines recommend 24hABPM as a priority for the diagnosis of hypertension and for treatment monitoring in pts likely to have a blunted night-time BP decline and elevated CV risk, like renal transplant pts. Blunted nocturnal decline in BP is common in CKD and it is considered as the BP component with the strongest association with renal function loss over time in these pts. However the link between 24hABPM including day-time and night-time BP, the nocturnal BP dipping and the rate of loss of the GFR, has never been investigated in this population.

METHODS

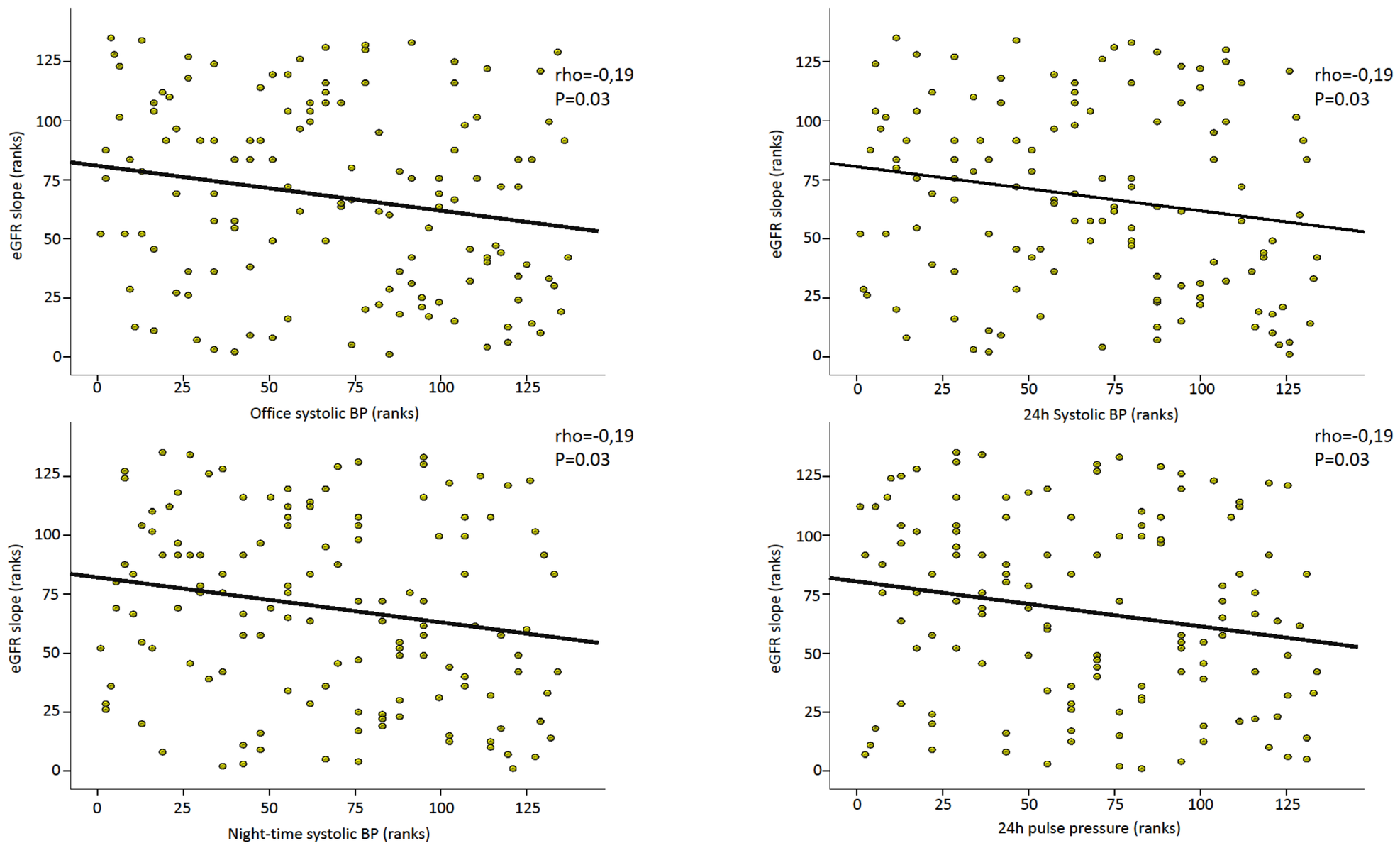
We tested the relationship between office and 24hABPM with accurate estimates of the evolution of the GFR over time in a series of 274 renal transplant pts (about 95% of the whole source population on follow-up in our institution) with pre-planned, systematic 24hABPM measurements.

We excluded 139 pts because they did not have sufficient repeated measurements of GFR over time. The rate of GFR loss was measured by fitting the slope of the GFR over time in series of at least 20 GFR measurements (MDRD, 4 variables formula) extended over 12 to 123 months. Thus, 135 pts were available for this analysis (age 46±12 years, 69% M and 9% diabetics). No major clinical or demographic differences was found between enrolled pts and those that could not be included.

RESULTS

Baseline eGFR was 56±21 ml/min/1 .73m^2 (range:18 to 136 ml/min/1.73 m^2). The eGFR slope had a negatively skewed distribution with a median value of 0.6 ml/min/year (interquartile range -1.8 to 2.0 ml/min/year). The mean values of office BPs (>140/90 mmHg in 20% of pts) and 24h ABPM(> 130/80 mmHg in 42% of pts) were 125±15/77±15 mmHg and 125±12/77±9 mmHg, respectively. On univariate correlation analyses, eGFR slope was significantly and inversely related to office systolic BP, 24h systolic BP, night-time systolic BP and 24h pulse pressure (PP) and the strength of these relationships was remarkably identical (rho=-0.19, P=0.03) (Fig.1). EGFR slope was also inversely related to day-time PP (rho = - 0.18, P = 0.04) and tended to correlate with day-time systolic BP (rho = - 0.15, P = 0.08) and night-time PP (rho = - 0.16, P = 0.07). Of note, the univariate associations between eGFR slope and all BP components listed above become even stronger after data adjustment for potential confounders (age, gender, smoking, diabetes, cholesterol and baseline eGFR): eGFR slope versus office systolic BP: β=-0.25,P=0.005; versus 24h systolic BP: β=-0.22,P=0.01; versus night-time systolic BP β=-0.24,P=0.007; versus 24h PP: β=-0.23,P=0.01; versus day-time PP: β=-0.21 ,P=0.02; versus day-time systolic BP: β=-0.18, P=0.047; versus night-time PP: β=-0.20,P=0.03.

Fig.1 Correlation analyses



CONCLUSIONS

When measured intensively and over extended time periods the rate of GFR loss in renal transplant pts associates with the BP burden. Even though measured at a single time point, office systolic BP associates with the GFR slope as strongly as 24h systolic BP, day and night time systolic BP. These findings confirm the role of BP burden on long term evolution of renal function in renal transplant and indicates that it is unlikely that 24hABPM holds superior prognostic power for this outcome in the renal transplant population.

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