

**3A.07: NIGHT-TIME HEART RATE IS A LONG-TERM PREDICTOR OF MICROALBUMINURIA IN SUBJECTS SCREENED FOR STAGE 1 HYPERTENSION.**

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**OBJECTIVE:** Heart rate (HR) has been found to be associated with target organ damage in hypertension but the predictive capacity of resting HR vs ambulatory HR in longitudinal studies is not well known. We did a prospective study to investigate whether clinic HR and ambulatory HR assessed at baseline were independent predictors of albumin excretion rate (AER) and microalbuminuria (MA) in the early stage of hypertension.

**DESIGN AND METHOD:** The study was conducted in a cohort of 621 white stage 1 hypertensive subjects from the HARVEST never treated for hypertension (mean age  $33.8 \pm 8.4$  years, 449 men). Clinic HR was the average of 6 readings. Clinic HR, daytime HR and night-time HR were included separately in linear (for AER) and logistic (for MA) regressions and were adjusted for baseline logAER, age, gender, body mass index, blood pressure, physical activity, smoking, alcohol consumption, and follow-up time.

**RESULTS:** During a median follow-up of 8.5 years AER increased from a median value of 5.7 mg/24h to 7.2 mg/24h ( $p < 0.001$  for log-transformed data), and 42 subjects developed MA (AER  $\geq 30$  mg/24h). In both linear and logistic regressions average night-time HR was an independent predictor of final AER ( $p = 0.014$ ) and MA ( $p = 0.007$ ), whereas clinic HR and daytime HR were not associated with these outcomes ( $p = \text{NS}$  for both). Night-time HR was  $62.6 \pm 8.3$  bpm in the 579 subjects who did not develop MA and was  $66.6 \pm 7.7$  bpm in the 42 subjects who developed MA ( $p = 0.002$ ). Baseline BMI was another independent predictor of final AER ( $p = 0.007$ ) and final MA ( $p = 0.001$ ) and its inclusion into the models slightly attenuated the association of night-time HR with AER ( $p = 0.029$ ) and MA ( $p = 0.016$ ).

**CONCLUSIONS:** HR is an independent predictor of microalbuminuria in young persons screened for stage 1 hypertension suggesting that the chronic hemodynamic stress related to tachycardia may play a role in the development of renal damage in hypertension. In agreement with previous results, HR measured during sleep seems to be more representative of the overall hemodynamic load on the arteries than HR measured during waking hours or in the doctor's office.

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