



Cronoterapia da hipertensão

Introdução

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A história da hipertensão das últimas oito décadas é um exemplo bem sucedido da queda de crenças, de certezas e suposições sob o peso da evidência.

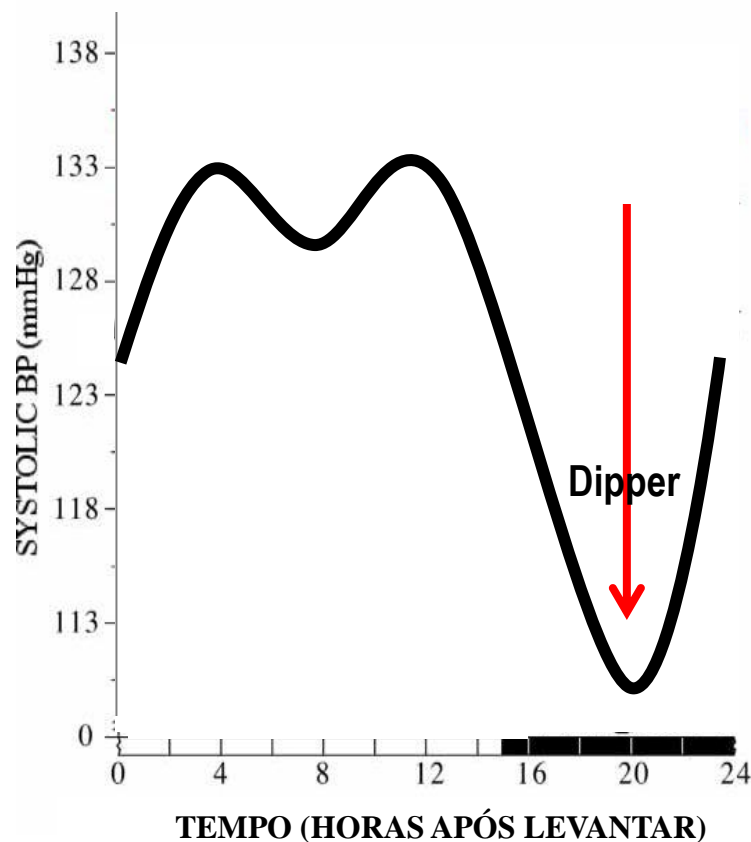
Mas é também um exemplo dos obstáculos que os homens podem levantar à inovação quando ela questiona o conhecimento, a prática e as verdades de cada época assim como as conveniências de cada um.

António Pedro Machado

Valores normais da PA média na vigília e no sono (MAPA 24 h)



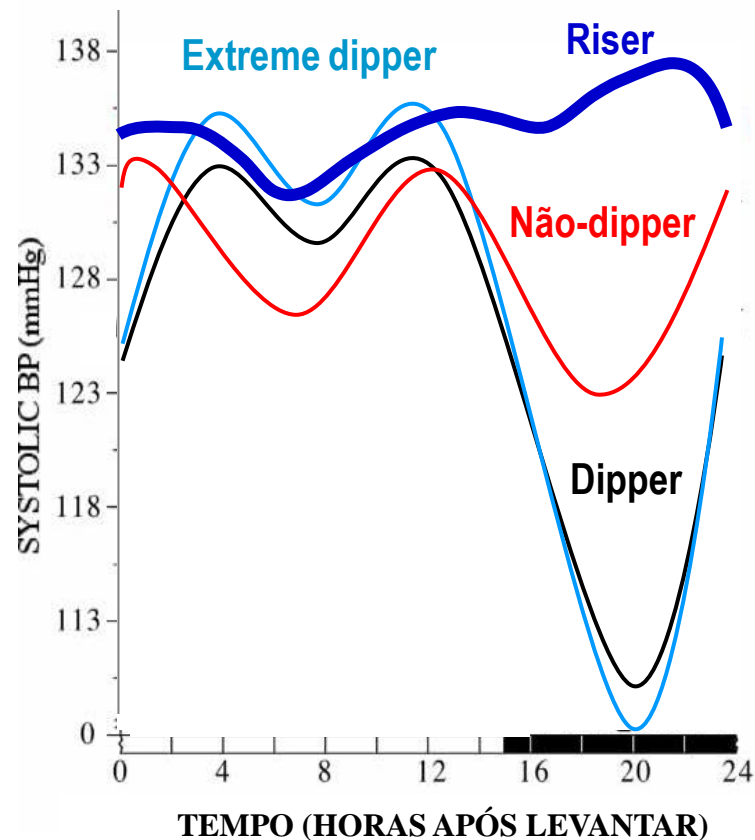
Declínio da PA durante o sono (MAPA 24 h)



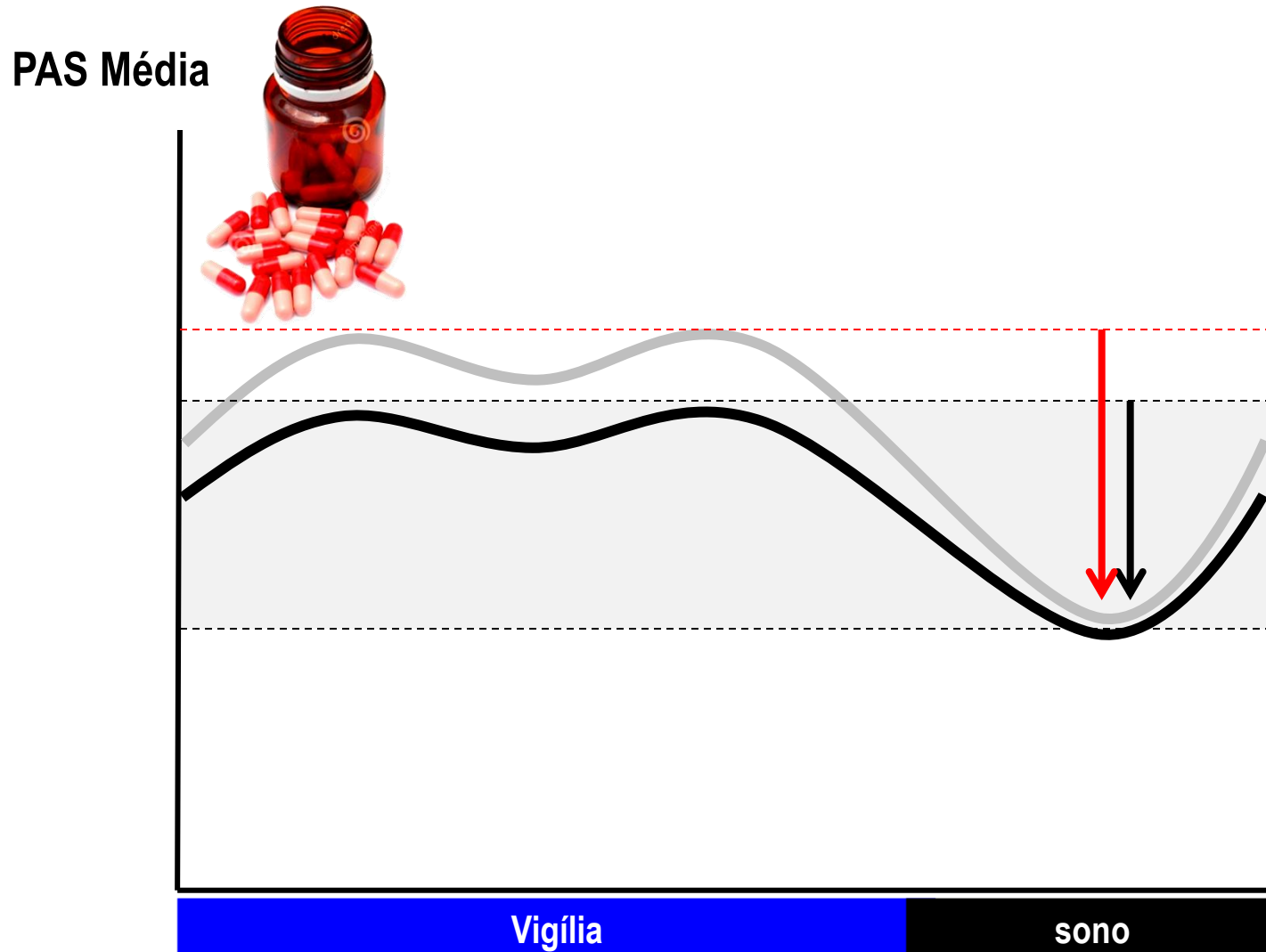
% de declínio da PA média durante o sono

Extreme Dipper	> 20%
Dipper	>10 % e < 20%
Não-Dipper	< 10%
Riser	- 0%

Perfil dipping (MAPA 24 h)

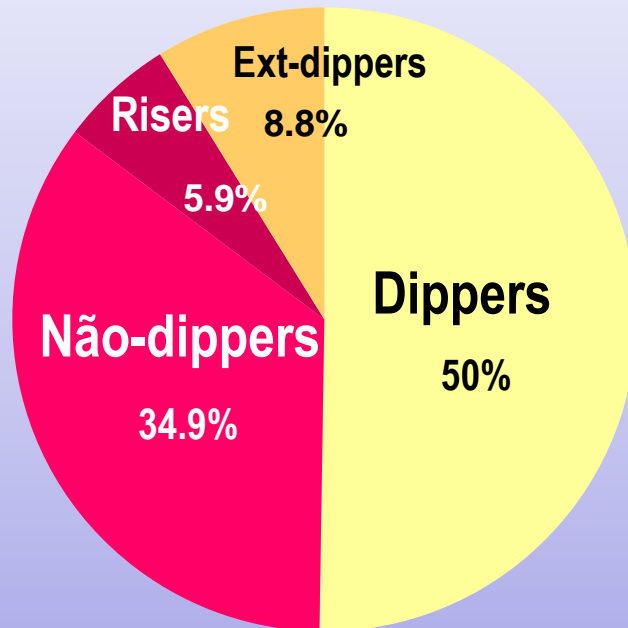


Administração dos anti-hipertensores ao levantar

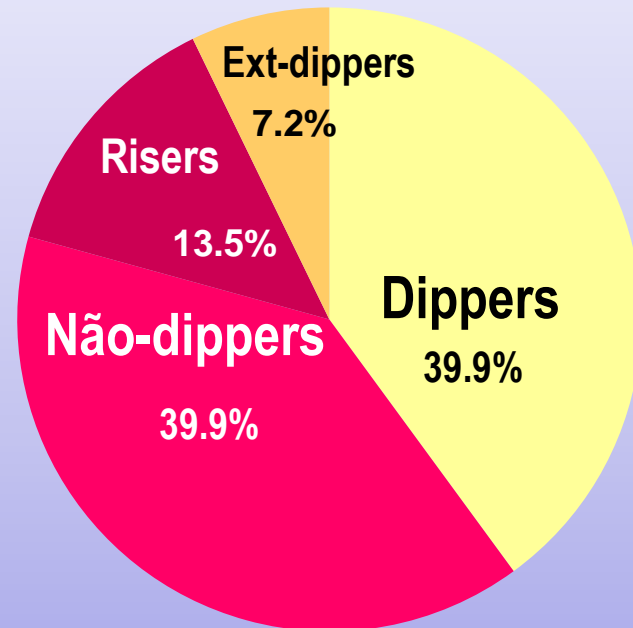


Aumento da prevalência do padrão não-dipper e riser com o tratamento anti-hipertensivo (79% ao levantar)

Não-tratados (8834)



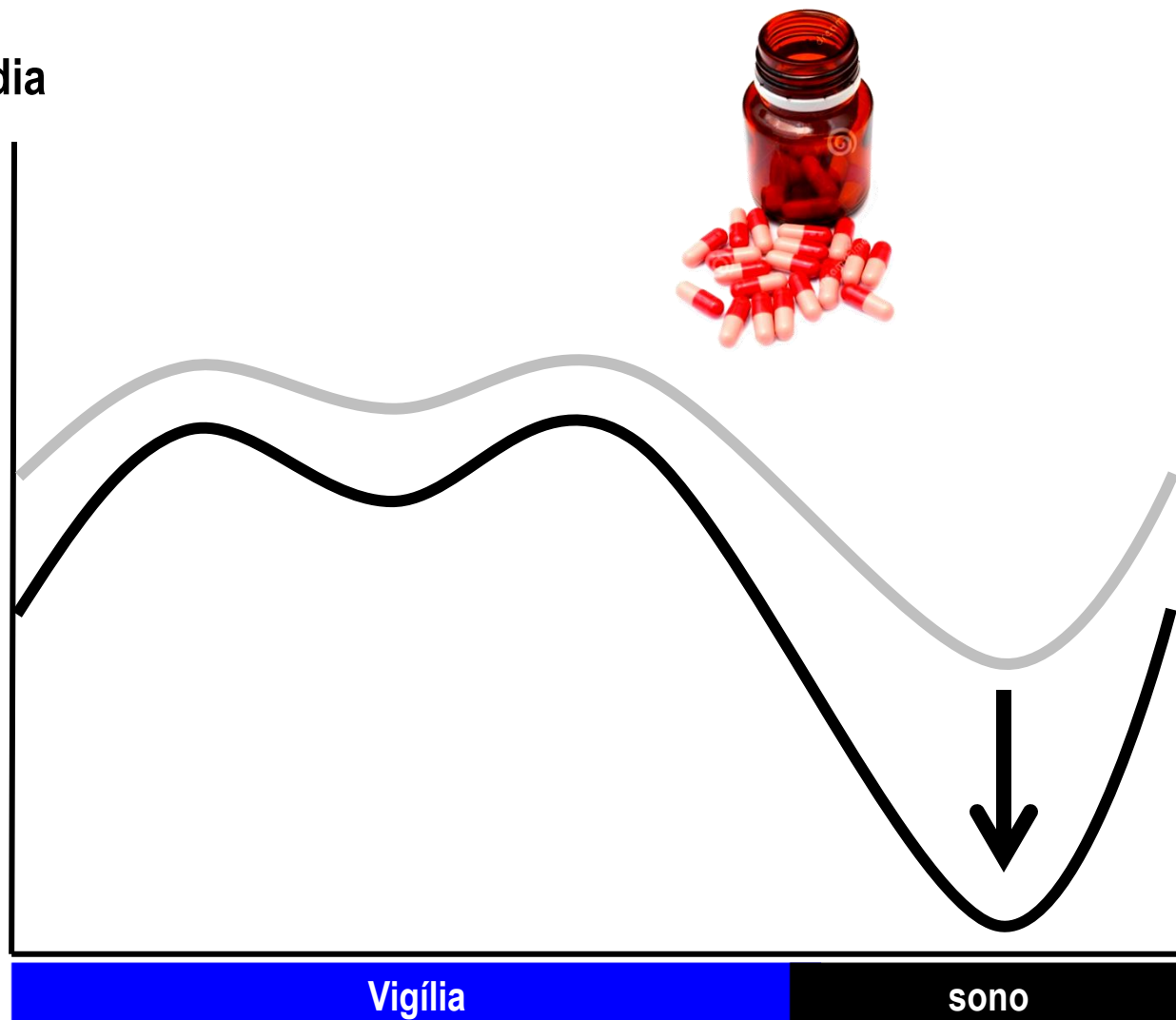
Tratados (34563)



57% em monoterapia. Administração matinal em 79% e ao almoço ou jantar em 21%

Administração dos anti-hipertensores ao deitar

PAS Média



Differing Administration Time-Dependent Effects of Aspirin on Blood Pressure in Dipper and Non-Dipper Hypertensives

Ramón C. Hermida, Diana E. Ayala, Carlos Calvo, José E. López, Artemio Mojón,
Marta Rodríguez, José R. Fernández

Abstract—Aspirin is a potent antioxidative agent that reduces vascular production of superoxide, prevents angiotensin II-induced hypertension, and induces NO release. Low-dose aspirin administered at bedtime, but not on awakening, has also been shown to reduce blood pressure, possibly enhancing the nocturnal trough in NO production. Because endothelium-dependent vasodilation is blunted through a decrease in NO release in non-dipper compared with dipper patients, we compared the administration time-dependent influence of aspirin on ambulatory blood pressure in dipper and non-dipper hypertensive subjects. We studied 257 patients with mild hypertension (98 men and 159 women), 44.6 ± 12.5 years of age, randomly assigned to receive 100 mg per day of aspirin either on awakening or at bedtime. Ambulatory blood pressure was measured for 48 hours at baseline and after 3 months of intervention. Blood pressure was slightly elevated after aspirin on awakening (increase of 1.5/1.0 mm Hg in the 24-hour mean of systolic/diastolic blood pressure; $P < 0.028$). A highly significant blood pressure reduction was observed in patients who received aspirin at bedtime (decrease of 7.2/4.9 mm Hg in systolic/diastolic blood pressure; $P < 0.001$). The reduction in nocturnal blood pressure mean was double in non-dippers (11.0/7.1 mm Hg) compared with dippers (5.5/3.3 mm Hg; $P < 0.001$). This prospective trial corroborates the significant administration time-dependent effect of low-dose aspirin on blood pressure, mainly in non-dipper hypertensive patients. The timed administration of low-dose aspirin could thus provide a valuable approach, beyond prevention of cardiovascular disease, in the blood pressure control of patients with mild hypertension. (*Hypertension*. 2005;46[part 2]:1060-1068.)

Key Words: blood pressure monitoring, ambulatory ■ hypertension, mild ■ nitric oxide ■ circadian rhythm

AAS ao levantar

AAS ao deitar

1 — 1 BEFORE TREATMENT
2 - - - 2 AFTER TREATMENT
* $p < 0.05$ FROM t-TEST ADJUSTED FOR MULTIPLE TESTING

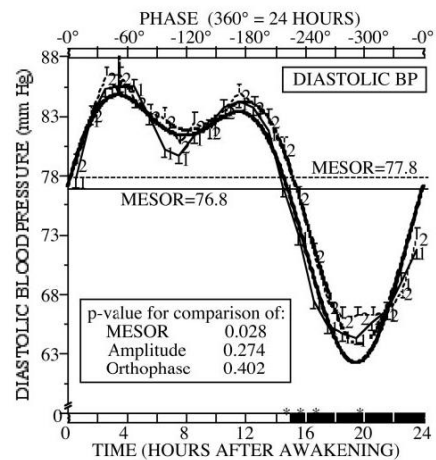
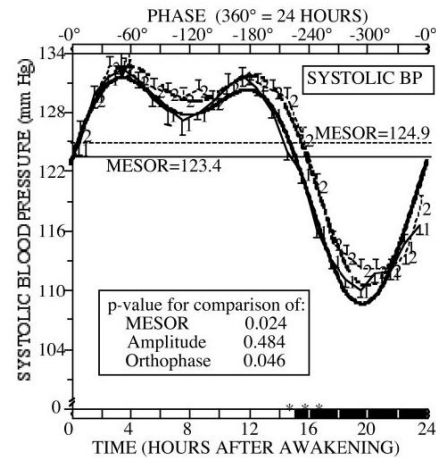


Figure 1. Changes in the circadian pattern of SBP (top) and DBP (bottom) after aspirin (100 mg per day) administered on awakening (left) or at bedtime (right) in patients with mild hypertension sampled by 48-hour ABPM. Each graph shows the hourly means and SEs of data collected before (continuous line) and after (dashed line) 3 months of aspirin administration. Dark shading along the lower horizontal axis of the graphs represents average hours of nocturnal sleep across the patients. Nonsinusoidal-shaped curves represented around means and SEs correspond to the best-fitted waveform model determined by population multiple-component analysis. Arrows descending from upper horizontal axis point to the circadian orthophase (rhythm crest time).

AAS ao levantar

AAS ao deitar

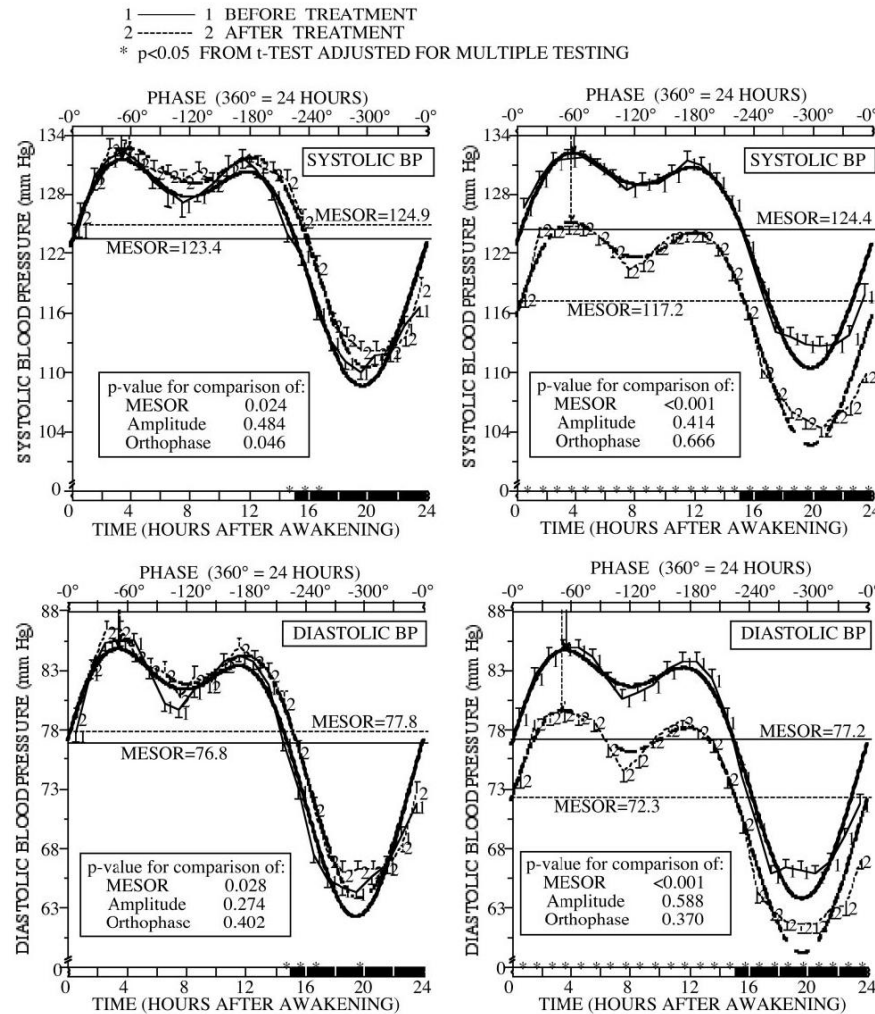


Figure 1. Changes in the circadian pattern of SBP (top) and DBP (bottom) after aspirin (100 mg per day) administered on awakening (left) or at bedtime (right) in patients with mild hypertension sampled by 48-hour ABPM. Each graph shows the hourly means and SEs of data collected before (continuous line) and after (dashed line) 3 months of aspirin administration. Dark shading along the lower horizontal axis of the graphs represents average hours of nocturnal sleep across the patients. Nonsinusoidal-shaped curves represented around means and SEs correspond to the best-fitted waveform model determined by population multiple-component analysis. Arrows descending from upper horizontal axis point to the circadian orthophase (rhythm crest time).

Predictors of All-Cause Mortality in Clinical Ambulatory Monitoring

Unique Aspects of Blood Pressure During Sleep

Iddo Z. Ben-Dov, Jeremy D. Kark, Drori Ben-Ishay, Judith Mekler, Liora Ben-Arie, Michael Bursztyn

Abstract—The prognostic value of sleep blood pressure reported by recent studies is variable. Our aim was to examine the relationship of sleep blood pressure, measured by 24-hour ambulatory blood pressure monitoring, with all-cause mortality. We studied a cohort of 3957 patients aged 55 ± 16 (58% treated) referred for ambulatory monitoring (1991–2005). Sleep, including daytime sleep, was recorded by diary. Linkage with the national population register identified 303 deaths during 27 750 person-years of follow-up. Hazard ratios (HRs) for mortality in Cox proportional hazards models that included age, sex, hypertension, and diabetes treatment were 1.32 (95% CI: 0.99 to 1.76) for awake hypertension ($\geq 135/85$ mm Hg), and 1.67 (95% CI: 1.25 to 2.23) for sleep hypertension ($\geq 120/70$ mm Hg). By quintile analysis, the upper fifths of systolic and diastolic dipping during sleep were associated with adjusted HRs of 0.58 (95% CI: 0.41 to 0.82) and 0.68 (95% CI: 0.48 to 0.96), respectively. In a model controlling for awake systolic blood pressure, hazards associated with reduced systolic dipping increased from dippers ($>10\%$; HR: 1.0), through nondippers (0% to 9.9%; HR: 1.30; 95% CI: 1.00 to 1.69) to risers ($<0\%$; HR: 1.96; 95% CI: 1.43 to 2.96). Thus, in practice, ambulatory blood pressure predicts mortality significantly better than clinic blood pressure. The availability of blood pressure measures during sleep and, in particular, the pattern of dipping add clinically predictive information and provide further justification for the use of ambulatory monitoring in patient management. (*Hypertension*. 2007;49:1235-1241.)

Key Words: ambulatory blood pressure monitoring ■ dipping ■ mortality ■ cohort ■ sleep blood pressure

Quanto menor o declínio da PAS durante o sono tanto maior a mortalidade total

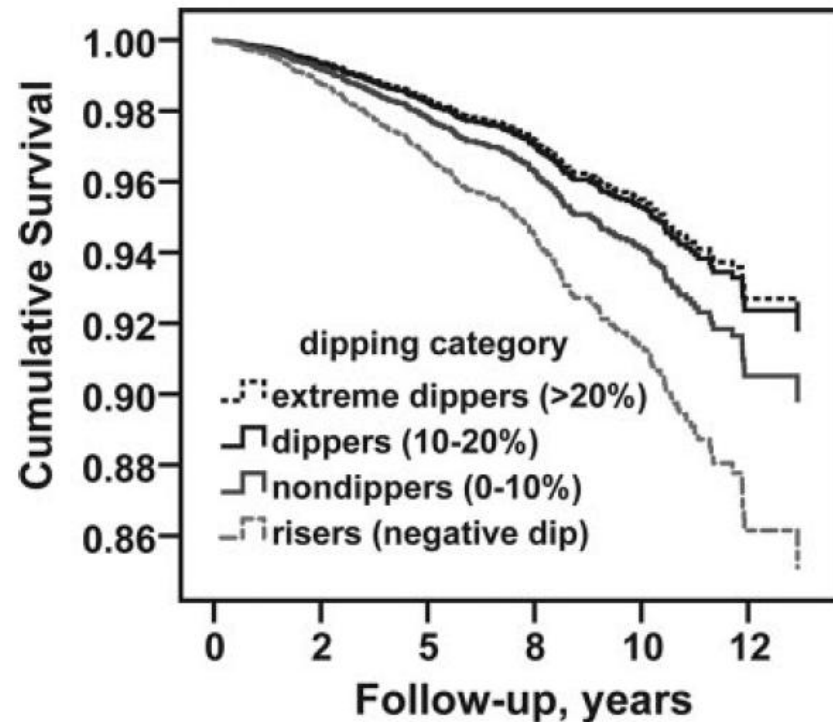


Figure 3. Nondipping and sleep-related rising BP patterns convey increased all-cause mortality hazard. Cumulative survival plotted by SBP dipping category: extreme dippers, >20%; dippers, 10% to 20%; nondippers, 0 to 9.9%, risers, <0%. The model also included age in tertiles, antihypertensive and antidiabetic treatment (yes/no), and ambulatory awake SBP. Compared with all dippers (HR=1), the HRs of nondippers and risers were 1.30 (95% CI: 1.001 to 1.69) and 1.96 (95% CI: 1.43 to 2.96), respectively.

Superiority of Ambulatory Over Clinic Blood Pressure Measurement in Predicting Mortality

The Dublin Outcome Study

Eamon Dolan, Alice Stanton, Lut Thijs, Kareem Hinedi, Neil Atkins, Sean McClory, Elly Den Hond, Patricia McCormack, Jan A. Staessen, Eoin O'Brien

Abstract—The purpose of this study was to determine if ambulatory blood pressure measurement predicted total and cardiovascular mortality over and beyond clinic blood pressure measurement and other cardiovascular risk factors; 5292 untreated hypertensive patients referred to a single blood pressure clinic who had clinic and ambulatory blood pressure measurement at baseline were followed up in a prospective study of mortality outcome. Multiple Cox regression was used to model time to total and cause-specific mortality for ambulatory blood pressure measurement while adjusting for clinic blood pressure measurement and other risk factors at baseline. There were 646 deaths (of which 389 were cardiovascular) during a median follow-up period of 8.4 years. With adjustment for gender, age, risk indices, and clinic blood pressure, higher mean values of ambulatory blood pressure were independent predictors for cardiovascular mortality. The relative hazard ratio for each 10-mm Hg increase in systolic blood pressure was 1.12 (1.06 to 1.18; $P<0.001$) for daytime and 1.21 (1.15 to 1.27; $P<0.001$) for nighttime systolic blood pressure. The hazard ratios for each 5-mm Hg increase in diastolic blood pressure were 1.02 (0.99 to 1.07; $P=NS$) for daytime and 1.09 (1.04 to 1.13; $P<0.01$) for nighttime diastolic pressures. The hazard ratios for nighttime ambulatory blood pressure remained significant after adjustment for daytime ambulatory blood pressure. These results have 2 important clinical messages: ambulatory measurement of blood pressure is superior to clinic measurement in predicting cardiovascular mortality, and nighttime blood pressure is the most potent predictor of outcome. (*Hypertension*. 2005;46:156-161.)

Key Words: blood pressure ■ blood pressure monitoring, ambulatory ■ cardiovascular diseases
■ hypertension ■ mortality

Risco ajustado de morte CV em 5 anos para a PA medida na clínica e MAPA, expresso em número de mortes /100 indivíduos

