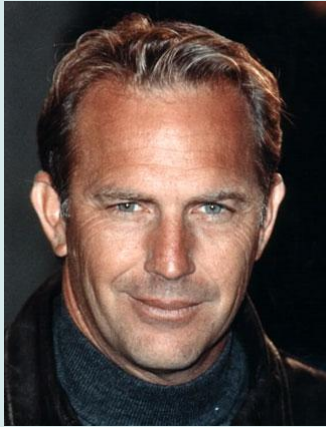


4 DE MAIO – 6^a FEIRA

SESSÃO TELEVOTER HIPERTENSÃO

**ANTÓNIO PEDRO MACHADO
BRAZ NOGUEIRA,
CARLOS RABAÇAL**

Que característica marcante distingue estes doentes e é determinante para a nossa decisão?

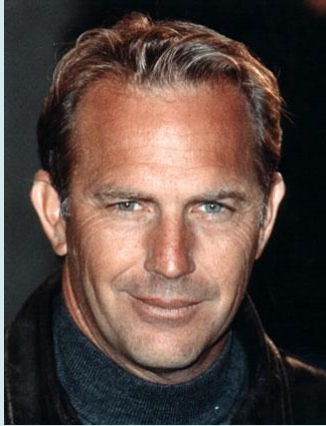


**Cefaleia ligeira.
PA: 220/120 mmHg.
ECG com HVE.**



**Cefaleias, náuseas,
vómitos e confusão
PA: 209/105 mmHg**

Que característica marcante distingue estes doentes e é determinante para a nossa decisão?



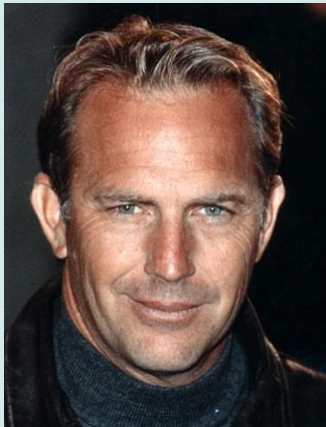
**Cefaleia ligeira.
PA: 220/120 mmHg.
ECG com HVE.**



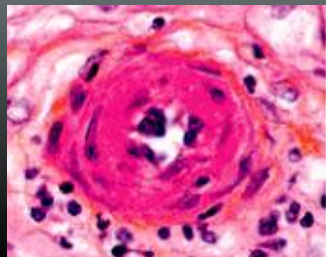
**Cefaleias, náuseas,
vómitos e confusão
PA: 209/105 mmHg**

Disfunção aguda de órgão

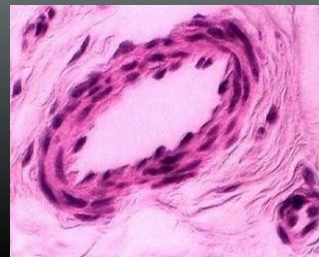
Porque razões Kevin tolera bem valores tensionais elevados e Meryl não?



**Cefaleia ligeira.
PA: 220/120 mmHg.
ECG com HVE.**



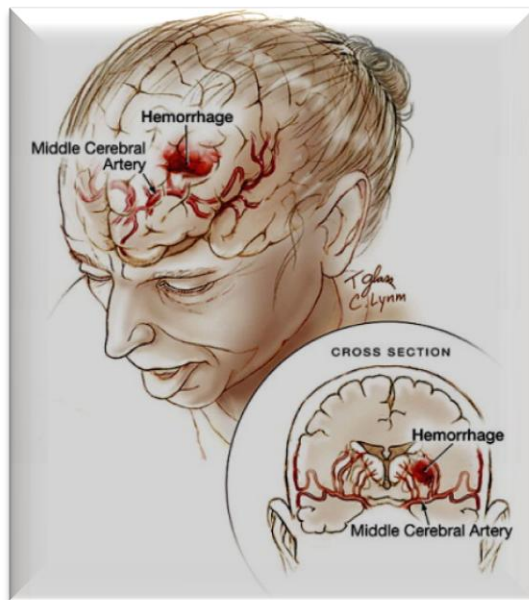
**Cefaleias, náuseas,
vômitos e confusão
PA: 209/105 mmHg**



Elevação da tensional



Diagnóstico: **AVC**



Terapêutica anti-hipertensiva de eleição:

Labetalol , nicardipina ou hidralazina

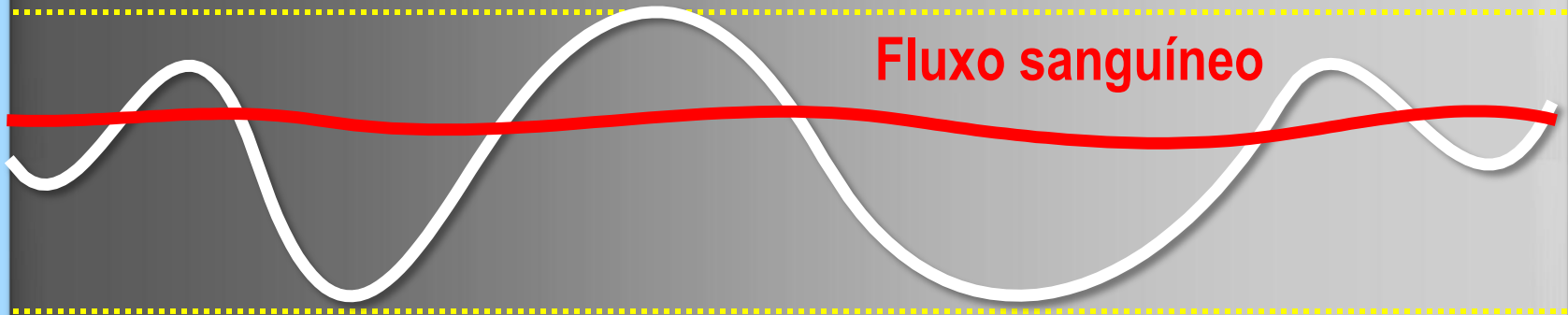
Objectivo:

Não baixar a PA no período agudo, excepto se:
PA > 220/120 mmHg no AVC embólico ou
PA > 180/100 mmHg, no AVC hemorrágico.

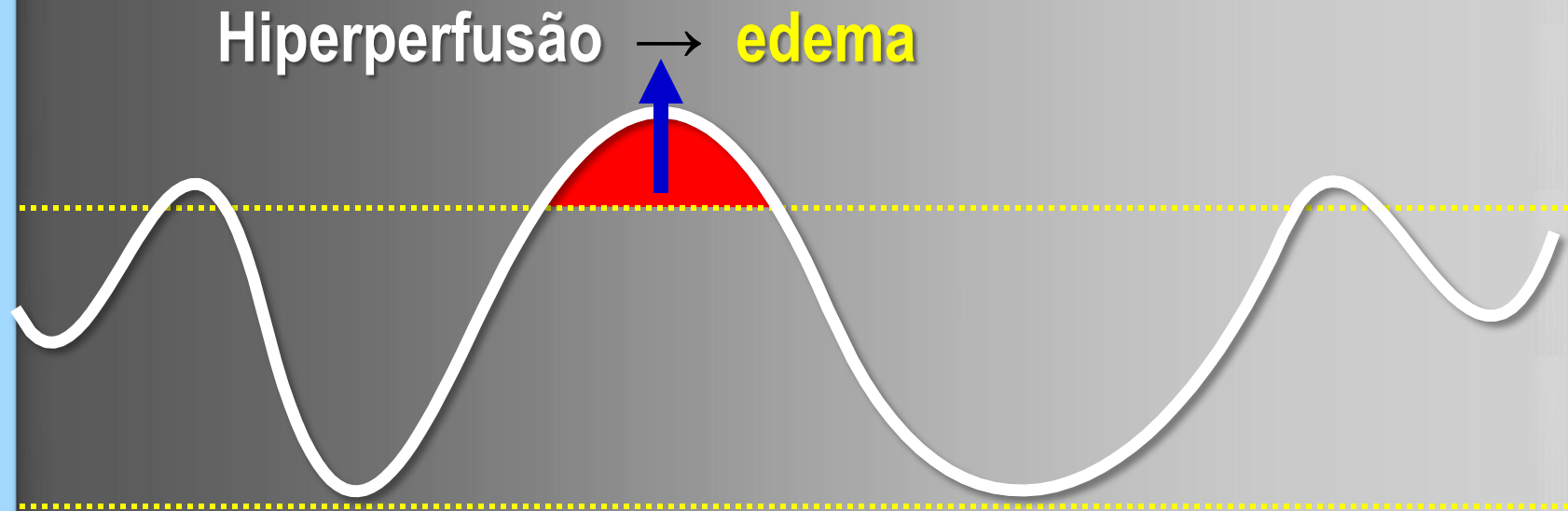
Auto-regulação da circulação cerebral

Pressão de perfusão (PA)

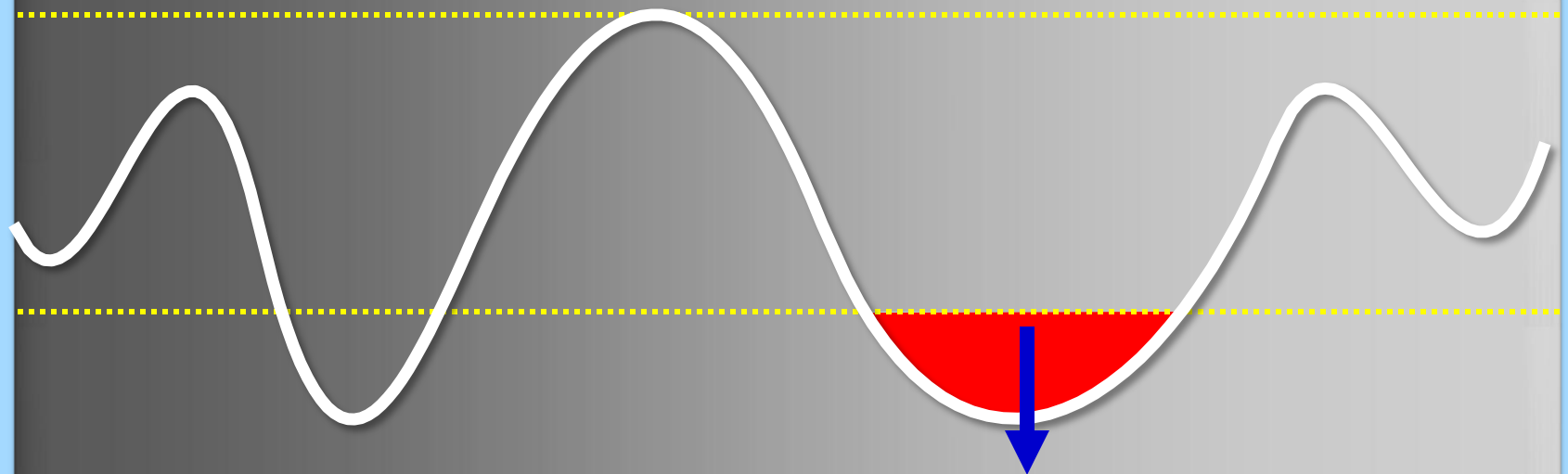
Fluxo sanguíneo



Auto-regulação da circulação cerebral

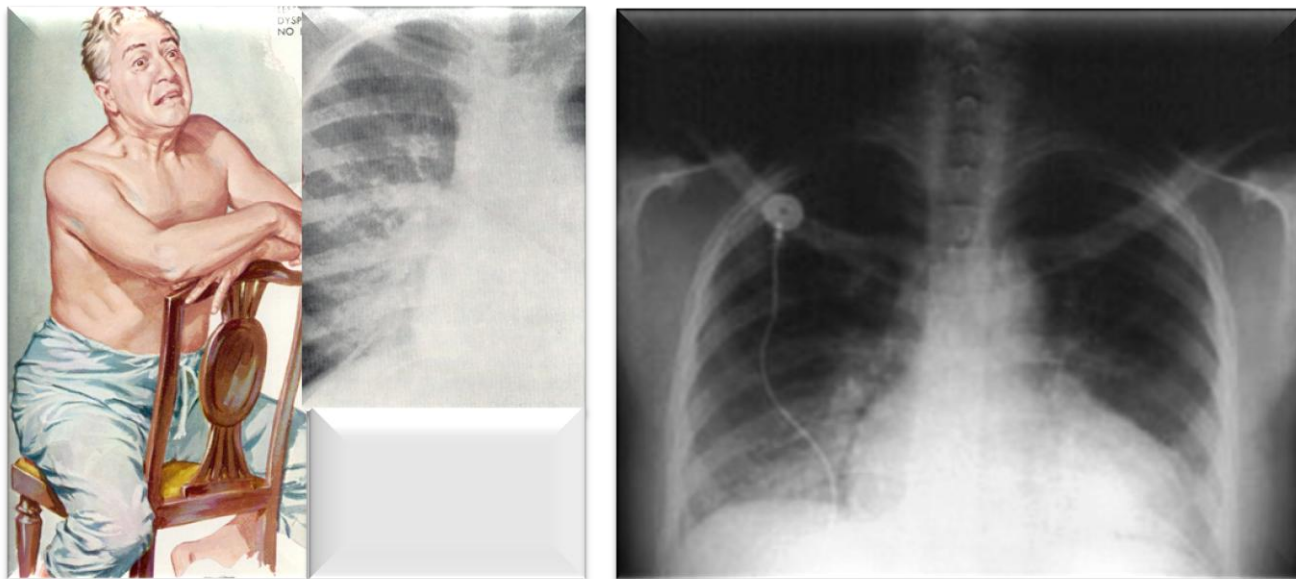


Auto-regulação da circulação cerebral



Hipoperfusão → isquémia

Diagnóstico: **Insuficiência cardíaca aguda**

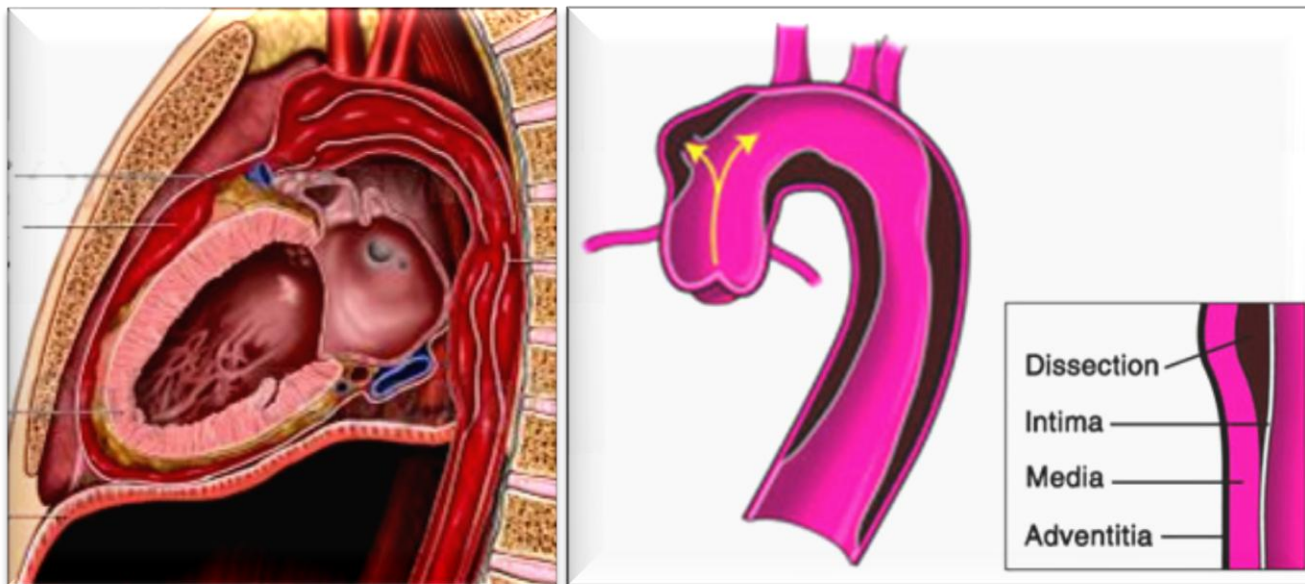


Terapêutica de eleição na fase aguda

Nitratos em perfusão

Furosemida

Diagnóstico: **Dissecção aórtica**



Terapêutica anti-hipertensiva de eleição

Esmolol em perfusão seguido de **Nitroprussiato**
Labetalol iv, em bólus ou infusão, como alternativa.

Objectivo:

Redução rápida da PAS para 110 mmHg, na ausência de hipoperfusão

EM AUDIÇÃO E TESTE DE
APLICABILIDADE
ATÉ 30 DE OUTUBRO DE 2011

NORMA

DA DIREÇÃO-GERAL DA SAÚDE

Francisco
Henrique
Moura
George

Digitally signed by
Francisco Henrique Moura
George
DN: c=PT, o=Ministério da
Saúde, ou=Direcção-Geral
da Saúde, cn=Francisco
Henrique Moura George
Date: 2011.10.10 17:33:17
+0100

1899-2011
111 anos

Direção-Geral da Saúde
www.dgs.pt



Ministério da Saúde

NÚMERO: 026/2011

DATA: 29/09/2011

ASSUNTO:	Abordagem Terapêutica da Hipertensão Arterial
PALAVRAS-CHAVE:	Hipertensão Arterial
PARA:	Médicos do Sistema Nacional de Saúde
CONTACTOS:	Departamento da Qualidade na Saúde (dqs@dgs.pt)

I – NORMA

12. A administração de captopril sublingual ou de nifedipina de acção rápida nas crises hipertensivas é considerada má prática. Nas crises hipertensivas decorrentes da suspensão da terapêutica prévia, deve retomar-se a medicação anteriormente prescrita.
13. Nas emergências hipertensivas o tratamento deverá ser preferencialmente administrado a nível hospitalar.

6. No tratamento da hipertensão de risco acrescido moderado, alto ou muito alto, nos termos do Anexo, deverão ser utilizadas associações de medicamentos com mecanismo de acção complementar, preferencialmente:
 - a) de diuréticos tiazídicos com modificadores do eixo renina-angiotensina;
 - b) de bloqueadores da entrada de cálcio com modificadores do eixo renina-angiotensina.
7. No tratamento da hipertensão arterial são utilizadas, sempre que possível, associações fixas com acção durante 24 horas, com o objectivo de melhorar a adesão à terapêutica (toma única diária).

BERA

HCTZ

ou

BERA

DHP

HTA Ligeira / moderada
↓ Factores de resistência
ao tratamento



BERA

HCTZ
25 mg



BERA

HCTZ
25 mg

+

DHP

HTA moderada / grave
↑ Factores de resistência
ao tratamento



BERA

DHP



BERA

DHP

+

CLTD
25 mg

Hipertensão Resistente

Definição

Toda a hipertensão não controlada apesar do tratamento com três anti-hipertensores, sendo um deles um diurético.



Chronotherapy in Resistant Hypertension

Chronotherapy Improves Blood Pressure Control and Reverts the Nondipper Pattern in Patients With Resistant Hypertension

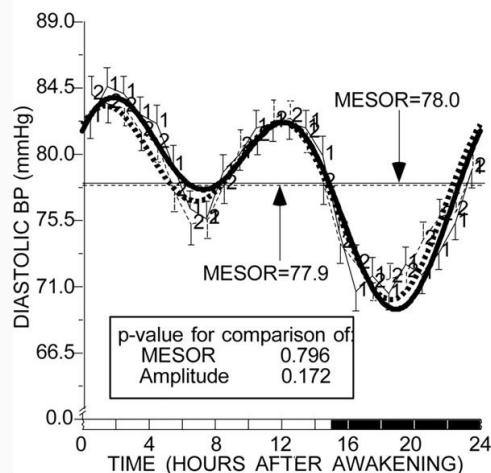
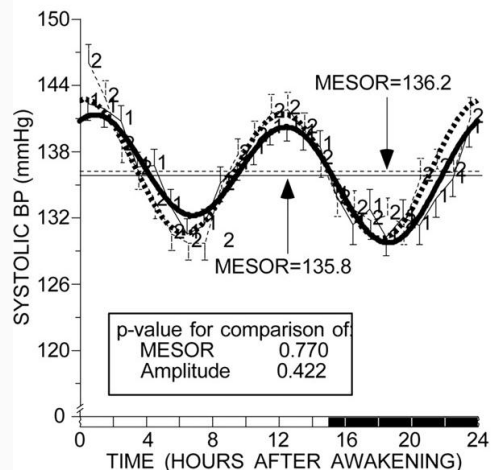
Ramón C. Hermida, Diana E. Ayala, José R. Fernández, Carlos Calvo

Abstract—Therapeutic strategies in resistant hypertension include adding another drug or changing drugs in search for a better synergic combination. Most patients, however, receive all of their drugs in a single morning dose. We have evaluated the impact on the circadian pattern of blood pressure on modifying the time of treatment without increasing the number of prescribed drugs. We studied 250 hypertensive patients who were receiving 3 antihypertensive drugs in a single morning dose. Patients were randomly assigned to 1 of 2 groups according to the modification in their treatment strategy: changing 1 of the drugs but keeping all 3 in the morning or the same approach but administering the new drug at bedtime. Blood pressure was measured for 48 hours before and after 12 weeks of treatment. There was no effect on ambulatory blood pressure when all of the drugs were taken on awakening. The baseline prevalence of nondipping (79%) was slightly increased after treatment (86%; $P=0.131$). The ambulatory blood pressure reduction was statistically significant (9.4/6.0 mm Hg for systolic/diastolic blood pressure; $P<0.001$) with 1 drug at bedtime. This reduction was larger in the nocturnal than in the diurnal mean of blood pressure. Thus, whereas only 16% of the patients in this group were dippers at baseline, 57% were dippers after therapy ($P<0.001$). Results indicate that, in resistant hypertension, time of treatment may be more important for blood pressure control and for the proper modeling of the circadian blood pressure pattern than just changing the drug combination. (*Hypertension*. 2008;51:69-76.)

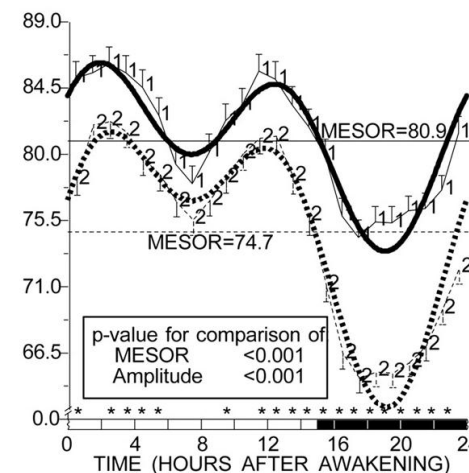
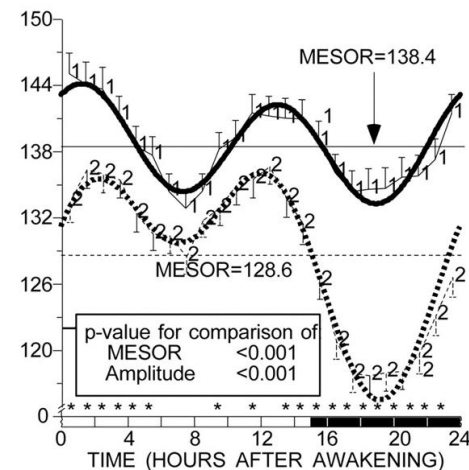
Key Words: resistant hypertension ■ ambulatory blood pressure monitoring ■ circadian rhythm ■ chronotherapy
■ dipper ■ nondipper

Cronoterapia da Hipertensão

Antes e após 3 meses de tratamento com 3 fármacos de manhã



Antes e após 3 meses de tratamento com 2 fármacos de manhã e 1 ao deitar



Influence of Time of Day of Blood Pressure-Lowering Treatment on Cardiovascular Risk in Hypertensive Patients With Type 2 Diabetes

RAMÓN C. HERMIDA, PHD
DIANA E. AYALA, MD, MPH, PHD

ARTEMIO MOJÓN, PHD
JOSÉ R. FERNÁNDEZ, PHD

OBJECTIVE—We prospectively investigated in hypertensive patients with type 2 diabetes if bedtime treatment with ≥ 1 hypertension medications exerts better blood pressure control and cardiovascular risk reduction than conventional therapy, in which all medications are ingested in the morning.

RESEARCH DESIGN AND METHODS—We conducted a prospective, randomized, open-label, blinded end point trial on 448 hypertensive patients with type 2 diabetes, 255 men/193 women, mean \pm SD age 62.5 ± 10.8 years, randomized to ingest all their prescribed hypertension medications upon awakening or ≥ 1 of them at bedtime. Ambulatory blood pressure was measured for 48 h at baseline and again annually or even more frequently (quarterly) after adjustments in treatment.

RESULTS—After a median follow-up of 5.4 years, patients ingesting ≥ 1 hypertension medications at bedtime showed a significantly lower cardiovascular risk (adjusted by age and sex) than subjects ingesting all medications upon awakening (hazard ratio 0.33 [95% CI 0.21–0.54]; $P < 0.001$). The difference between groups in the adjusted risk of major events (cardiovascular death, myocardial infarction, and stroke) was also statistically significant (0.25 [0.10–0.61]; $P = 0.003$). Patients treated at bedtime showed significantly lower sleep time blood pressure mean and higher prevalence of controlled ambulatory blood pressure (62.5 vs. 50.9%; $P = 0.013$). There was a significant 12% cardiovascular risk reduction per each 5 mmHg decrease in asleep systolic blood pressure during follow-up ($P < 0.001$).

CONCLUSIONS—Among patients with diabetes, treatment with ≥ 1 hypertension medications at bedtime, compared with all medications upon waking, resulted in improved ambulatory blood pressure control and significantly reduced cardiovascular morbidity and mortality.

Diabetes Care 34:1270–1276, 2011

A number of published prospective trials reviewed elsewhere (1) have reported clinically meaningful morning/evening treatment time differences in blood pressure lowering efficacy, duration of action, safety profile, and/or effects on the circadian blood pressure pattern for different classes of hypertension medications. For instance, a once-daily evening, in comparison with morning, ingestion schedule of angiotensin receptor

blockers (ARBs) and angiotensin-converting enzyme inhibitors (ACEIs) results in greater therapeutic effect on asleep blood pressure, independent of the terminal half-life of each individual medication (1).

The impact of bedtime chronotherapy on sleep time blood pressure regulation might be of clinical importance. This perspective is based on the growing number of studies, all concerning ambulatory blood pressure monitoring (ABPM), that have

consistently shown an association between blunted sleep time blood pressure decline and increased incidence of cardiovascular disease (CVD) events, both in subjects without (2–4) as well as with diabetes (5–7). Independent prospective studies have also found that the sleep time blood pressure mean is a better predictor of CVD risk than the daytime or 24-h blood pressure mean (3,8–12), a relevant finding also documented for patients with diabetes (13–15). Nocturnal hypertension is not only frequent but also highly predominant in patients with diabetes (6,7,13–15). A limitation of all of these previous studies on the prognostic value of nighttime blood pressure is their reliance on a single baseline ABPM profile from each participant at the time of inclusion, without accounting for changes in the blood pressure pattern or level during the years of follow-up. Thus, the potential reduction in CVD risk associated with specifically reducing sleep time blood pressure, which has been found to be much more feasible by bedtime than by upon waking dosing of conventional hypertension medications (1), is still a matter of debate.

The MAPEC (Monitorización Ambulatoria para Predicción de Eventos Cardiovasculares [Ambulatory Blood Pressure Monitoring for Prediction of Cardiovascular Events]) study was specifically designed to investigate prospectively whether bedtime treatment with ≥ 1 hypertension medications exerts significantly better blood pressure control and CVD risk reduction than conventional therapy, in which all medications are ingested upon waking (16,17). We here report results on the differential effect of blood pressure-lowering chronotherapy on CVD risk in hypertensive patients with type 2 diabetes.

RESEARCH DESIGN AND METHODS

Inclusion and exclusion criteria

An extended version of the methods is available in the Supplementary Data. In

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This article contains Supplementary Data online at <http://care.diabetesjournals.org/lookup/suppl/doi:10.2337/dc11-0297/-/DC1>.

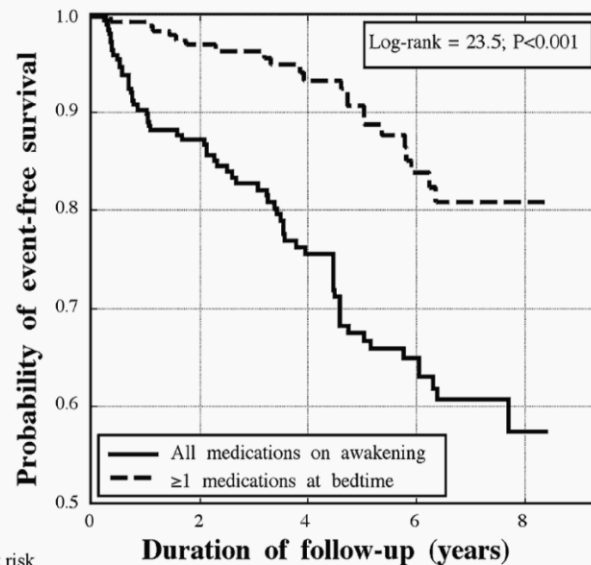
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See accompanying editorial, p. 1438.

A administração de ≥ 1 anti-hipertensor à noite melhora o controle tensional e reduz o risco de eventos vasculares.

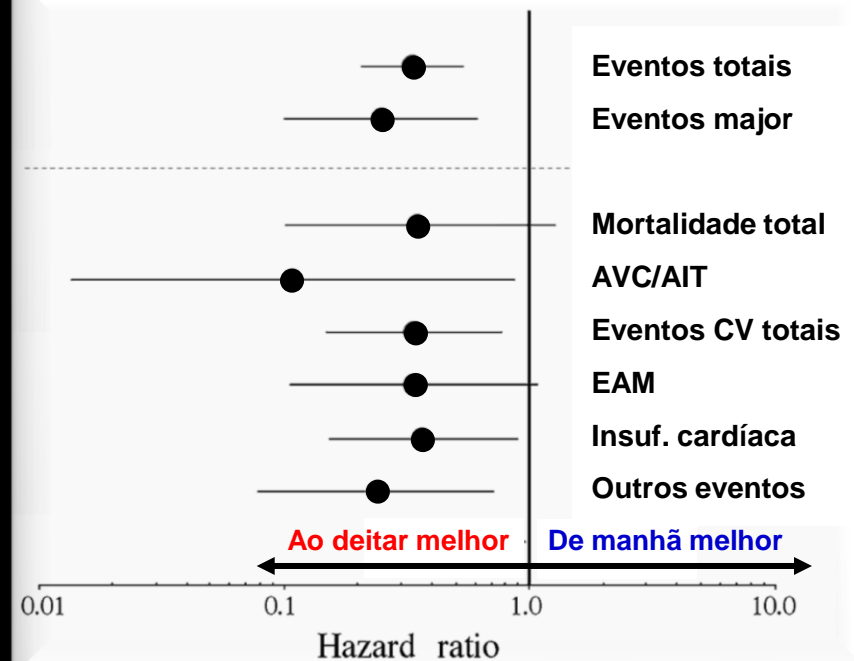
Probabilidade de sobrevivência livre de eventos

Chronotherapy and cardiovascular risk in diabetes



No. at risk				
Awakening	232	198	119	76
Bedtime	216	206	124	77

Influência da cronoterapia na incidência de eventos



Bedtime Dosing of Antihypertensive Medications Reduces Cardiovascular Risk in CKD

Ramón C. Hermida, Diana E. Ayala, Artemio Mojón, and José R. Fernández

Bioengineering and Chronobiology Laboratories, University of Vigo, Campus Universitario, Vigo, Spain

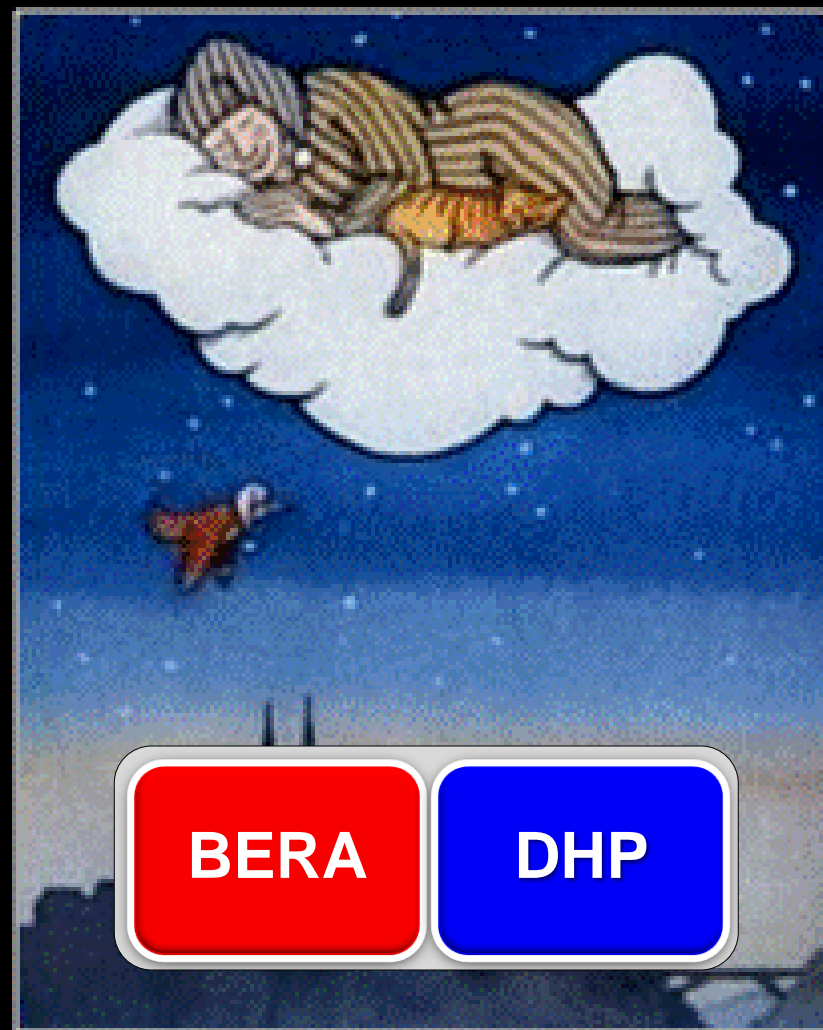
ABSTRACT

Time of ingestion of hypertension medications can affect circadian patterns of BP, but whether this translates into an effect on clinical outcomes is unknown. Here, in an open-label trial, we randomly assigned 661 patients with CKD either to take all prescribed hypertension medications upon awakening or to take at least one of them at bedtime. We measured 48-hour ambulatory BP at baseline and 3 months after any adjustment in treatment or, at the least, annually. After a median follow-up of 5.4 years, patients who took at least one BP-lowering medication at bedtime had an adjusted risk for total cardiovascular events (a composite of death, myocardial infarction, angina pectoris, revascularization, heart failure, arterial occlusion of lower extremities, occlusion of the retinal artery, and stroke) that was approximately one-third that of patients who took all medications upon awakening (adjusted HR 0.31; 95% CI 0.21 to 0.46; $P < 0.001$). Bedtime dosing demonstrated a similar significant reduction in risk for a composite outcome of cardiovascular death, myocardial infarction, and stroke (adjusted HR 0.28; 95% CI 0.13 to 0.61; $P < 0.001$). Furthermore, patients on bedtime treatment had a significantly lower mean sleep-time BP and a greater proportion demonstrated control of their ambulatory BP (56% versus 45%, $P = 0.003$). Each 5-mmHg decrease in mean sleep-time systolic BP was associated with a 14% reduction in the risk for cardiovascular events during follow-up ($P < 0.001$). In conclusion, among patients with CKD and hypertension, taking at least one antihypertensive medication at bedtime improves control of BP and reduces the risk for cardiovascular events.

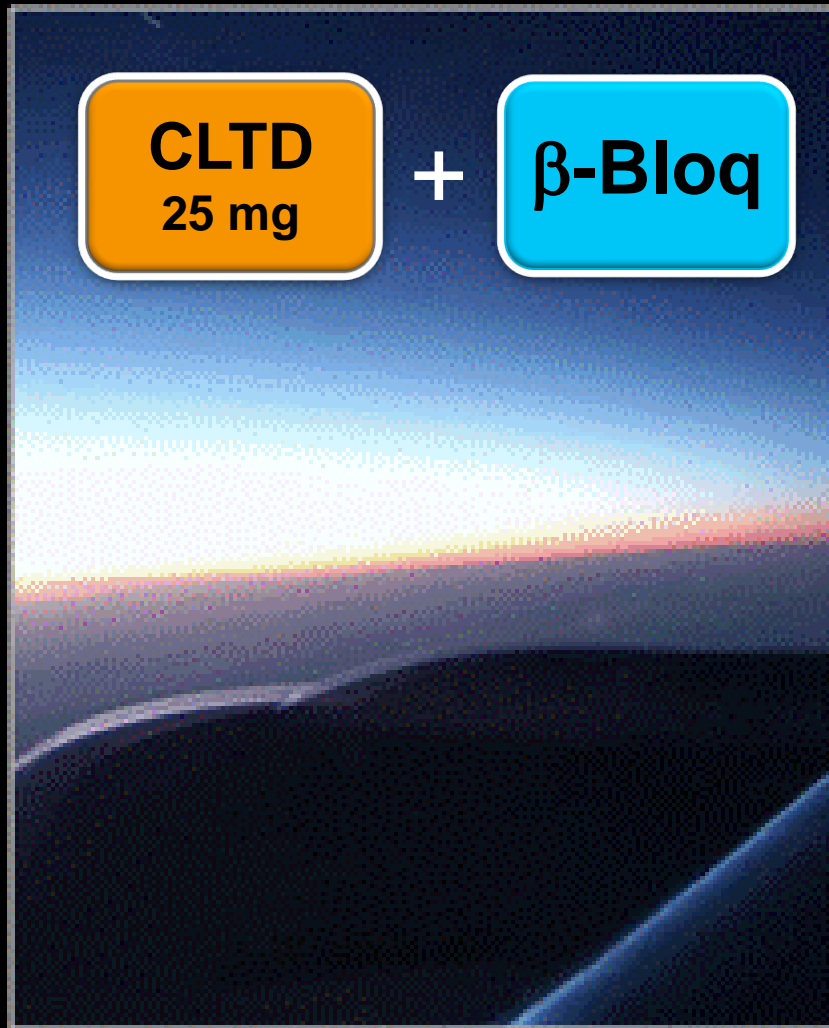
Cronoterapia da Hipertensão



Cronoterapia da Hipertensão



Cronoterapia da Hipertensão





Estais agora aptos a
tratar hipertensos não
controlados com três
anti-hipertensores,
incluindo um diurético