

“... evening drug administration caused an additional lowering of 24-hour systolic blood pressure by 1.71 mmHg and 24-hour diastolic blood pressure by 1.38 mmHg. The clinical significance of this is not known.”

### Evening dosing of antihypertensive drugs more effective in lowering blood pressure

#### CLINICAL QUESTION

What are the time-related-effects of evening versus morning administration of once-daily antihypertensive drug monotherapy on all cause mortality, cardiovascular morbidity, and blood pressure reduction in patients with primary hypertension?

#### BOTTOM LINE

Based on data for six classes of antihypertensive drugs (ACE inhibitors, angiotensin II receptor blockers, calcium channel blockers, diuretics, alpha- and beta-blockers), evening drug administration caused an additional lowering of 24-hour systolic blood pressure by 1.71 mmHg and 24-hour diastolic blood pressure by 1.38 mmHg. The clinical significance of this is not known. No randomised controlled trial reported on all cause mortality, cardiovascular mortality or morbidity, and serious adverse events. There were no significant differences between the two regimens in overall adverse effects and withdrawals due to adverse effects.

#### CAVEAT

Meta-analysis showed significant heterogeneity across trials. Most trials had a risk of bias in at least two of several key criteria.

#### CONTEXT

Variation in blood pressure levels display circadian rhythms. The morning surge in blood pressure is known to increase the risk of myocardial events in the first several hours post awakening. Guidelines have recommended using once-daily long-acting antihypertensive drugs to provide more consistent 24-hour blood pressure control, reduce blood pressure variability, and improve adherence to therapy.<sup>1</sup>

#### COCHRANE SYSTEMATIC REVIEW

Zhao P, Xu P, Wan C, Wang Z. Evening versus morning dosing regimen drug therapy for hypertension. *Cochrane Database Syst Rev*

2011; **(10)**: CD004184.

*This review contains 21 studies, involving 1993 participants.*

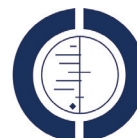
#### Brian R McAvoy,

Adjunct/Honorary Professor of General Practice, Universities of Auckland, Melbourne, Monash and Queensland.

#### Acknowledgements

Republished with permission of *New Zealand Doctor*.

DOI: 10.3399/bjgp13X660887



THE COCHRANE  
COLLABORATION®

#### REFERENCE

1. World Health Organization. 1999 World Health Organization-International Society of Hypertension Guidelines for the Management of Hypertension. Guidelines Subcommittee. *J Hypertens* 1999; **17(2)**: 151-183.

#### ADDRESS FOR CORRESPONDENCE

#### Brian R McAvoy

26 Tohunga Crescent, Parnell, Auckland 1052, New Zealand.

E-mail: brmcavoy@gmail.com