

BEST Bedtime Medicine

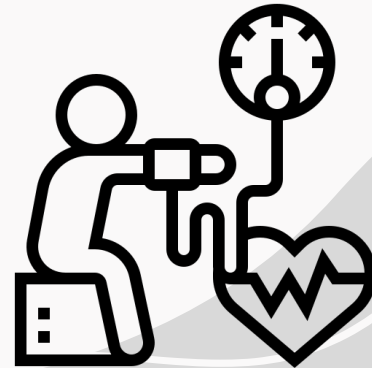
By: Lubna Zabalawi

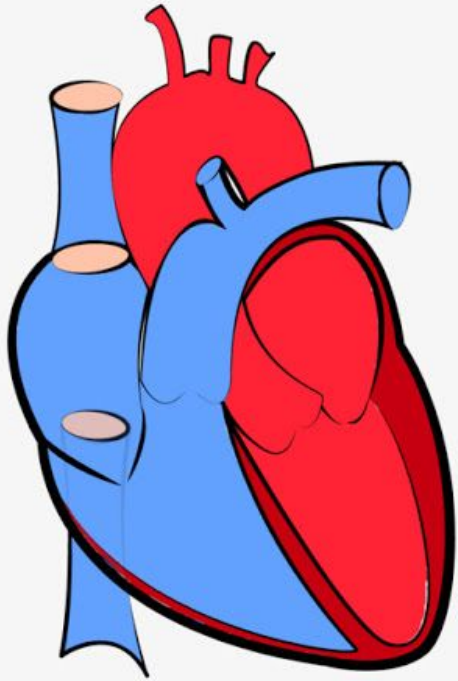


OBJECTIVE

- Sleep-time blood pressure (BP) is a stronger risk factor for cardiovascular disease (CVD) events than awake and 24 h BP means, but the potential role of asleep BP as therapeutic target for diminishing CVD risk is uncertain.

-
- My objective is to find out if CVD risk reduction is most associated with progressive decrease of either office, ambulatory awake, or asleep BP mean.



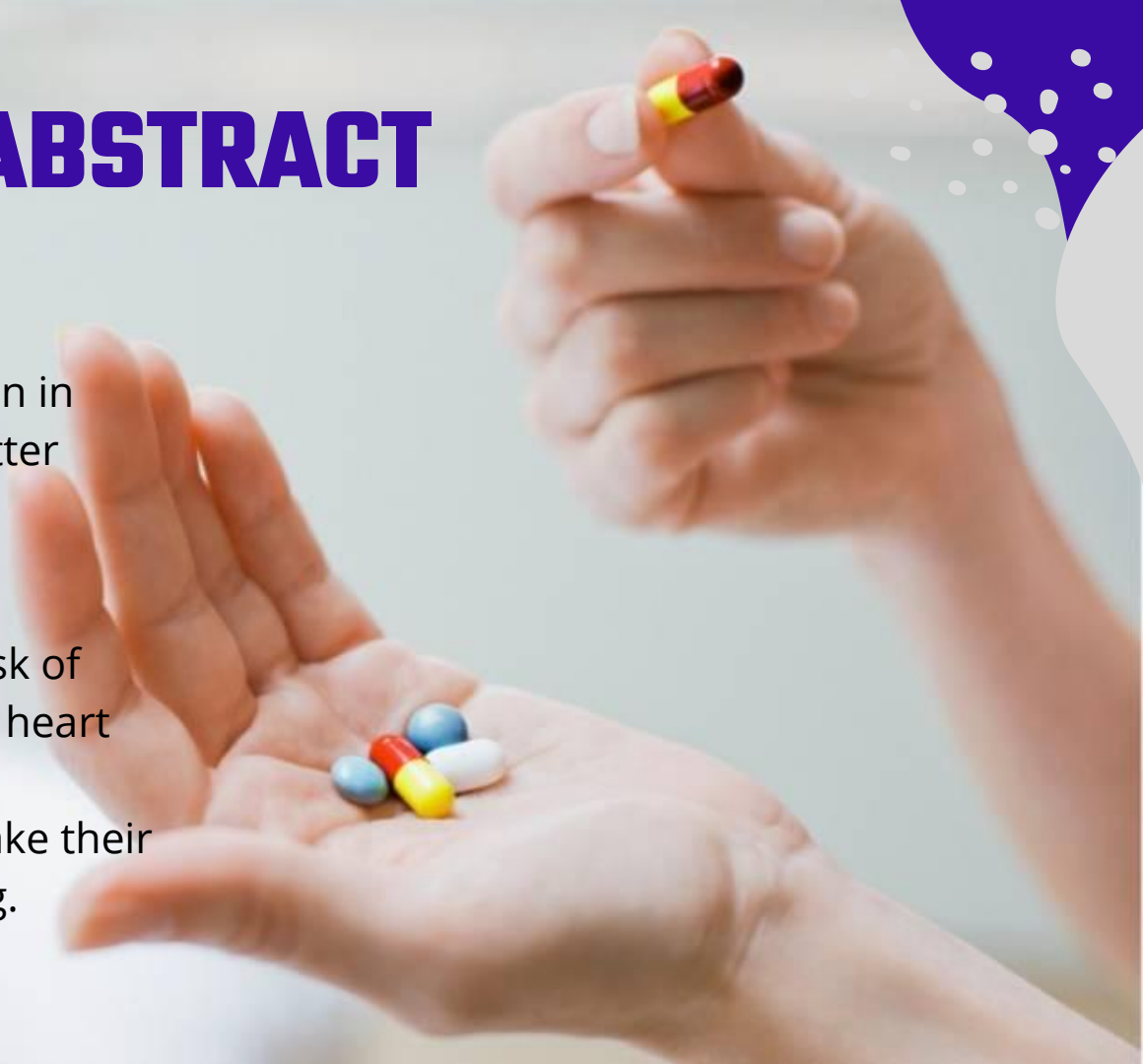


INTRODUCTION

The Hygia Chronotherapy Trial is the largest to investigate the effect of the time of day when people take their anti-hypertensive medication on the risk of cardiovascular problems.

ABSTRACT

- ❑ People with high blood pressure who take all their anti-hypertensive medication in one go at bedtime, have better controlled blood pressure.
- ❑ Have significantly lower risk of death or illness caused by heart or blood vessel problems, compared to those who take their medication in the morning.



Methods

18,078

Participants

Individuals with baseline ambulatory BP ranging from normotension to hypertension were investigated.

48h

Ambulatory BP

At inclusion and at scheduled visits (mainly annually) during follow-up, ambulatory BP was measured for 48 consecutive hours.

17,084

Pills

It randomized 17,084 patients to taking their pills on waking or at bedtime.

Duration

It has followed them for the longest length of time - an average of more than six years - during which time the patients' ambulatory blood pressure was checked over 48 hours at least once a year.

Events

During the 5.1-year median follow-up, 2311 individuals had events, including 1209 experiencing the primary outcome.



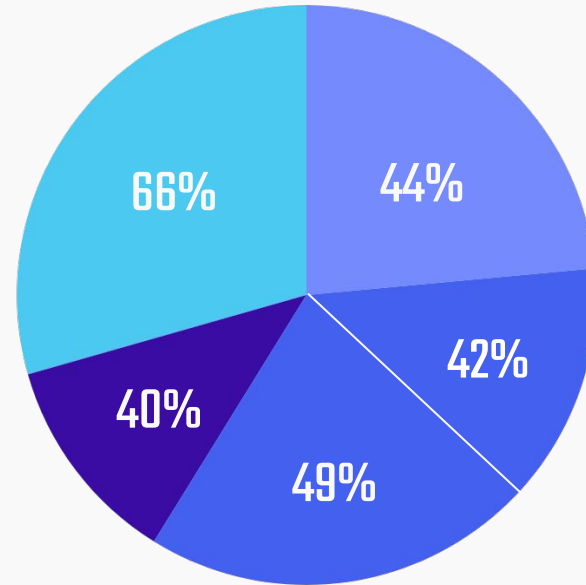
Adjusted factors

That could affect the results, such as age, sex, type 2 diabetes, kidney disease, smoking, and cholesterol levels.

RESULTS

Individual Outcomes

- Heart/ Blood vessel problems
- Myocardial infarction
- Heart failure
- Stroke
- Coronary revascularisation

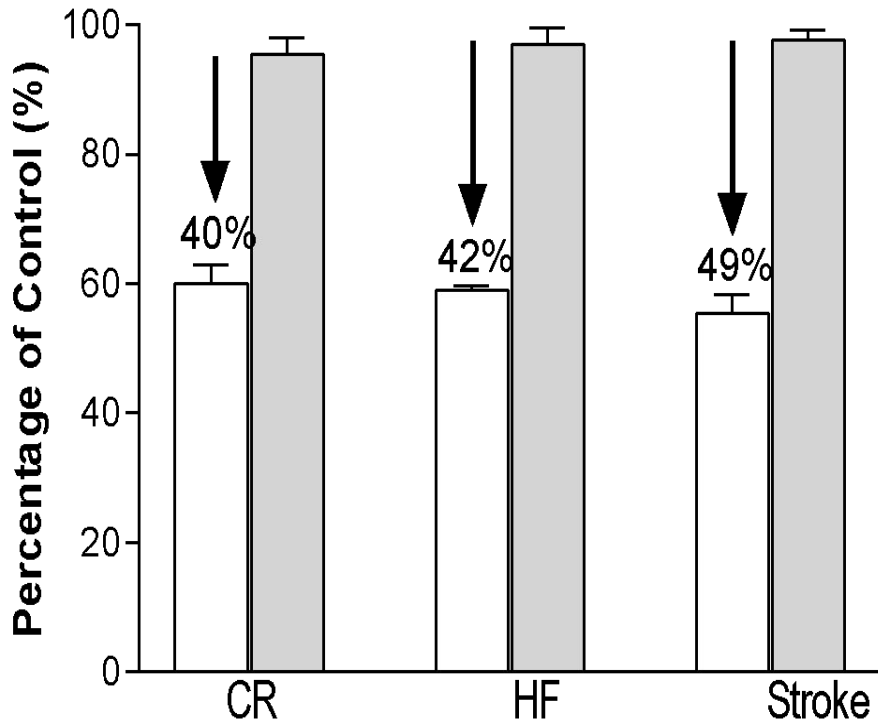
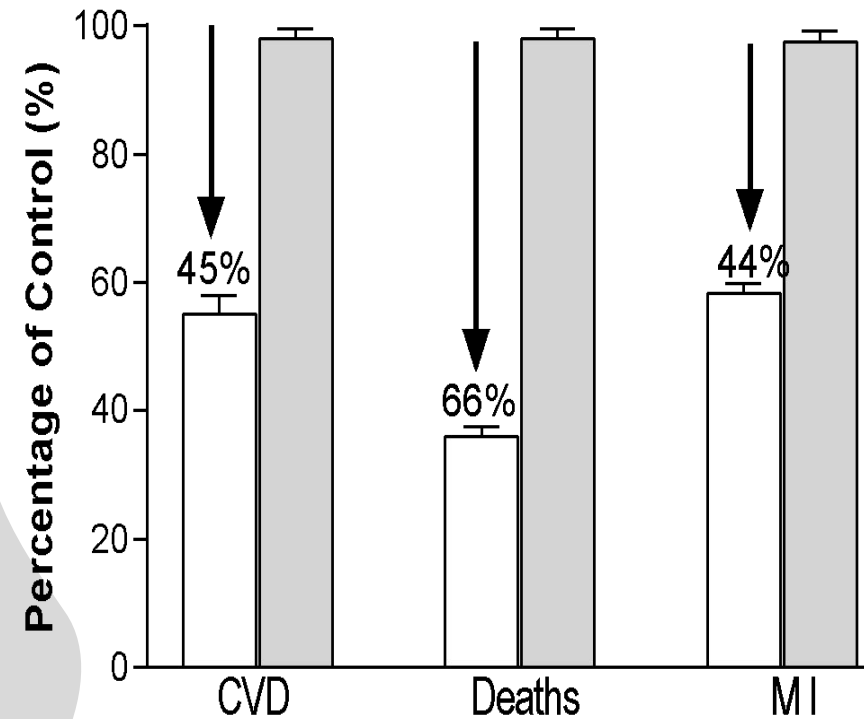


Risk of Death

It was found that patients who took their medication at bedtime had nearly half the risk (45% reduction) of dying.

□ Bed time BP
■ Awake time BP

□ Bed time BP
■ Awake time BP



DISCUSSIONS

Study has reported

- Average systolic blood pressure, when a person is asleep, is the most significant and independent indication of cardiovascular disease risk.



Current guidelines



- Do not mention or recommend any preferred treatment time.
- Morning ingestion has been the most common recommendation by physicians based on the misleading goal of reducing morning blood pressure levels.



- There are no studies showing that treating hypertension in the morning improves the reduction in the risk of cardiovascular disease.

CONCLUSIONS

In conclusion, these findings indicate that average blood pressure levels while asleep and night-time blood pressure dipping, but not day-time blood pressure or blood pressure measured in the clinic, are jointly the most significant blood pressure-derived markers of cardiovascular risk.

Blood Pressure Pills are Best at Bedtime

Blood Pressure



SYSTOLIC
TOP NUMBER

mm Hg



DIASTOLIC
BOTTOM NUMBER

normal	BELOW 120		AND		BELOW 80
elevated	120 - 129		AND		BELOW 80
high blood pressure STAGE 1	130 - 139		OR		80 - 89
high blood pressure STAGE 2	140 OR HIGHER		OR		90 OR HIGHER
hypertensive crisis	ABOVE 180		AND/OR		ABOVE 120

CONSULT YOUR DOCTOR IMMEDIATELY

LIMITATIONS

- ✔ • The results require validation in other ethnic groups.
- ✔ • The question of whether the same results would be seen in shift workers also requires investigation.
- ✔ • Patients were not assigned to specific hypertension medication classes or specific lists of medications within each class.
- ✔ • Their treatment was chosen by their doctors according to current clinical practice.



REFERENCES

[1] "Bedtime hypertension treatment improves cardiovascular risk reduction: the Hygia Chronotherapy Trial", by Ramón C. Hermida et al. European Heart Journal. doi:10.1093/eurheartj/ehz754

[2] Hygia Project, "Asleep blood pressure: significant prognostic marker of vascular risk and therapeutic target for intervention", by Ramón C. Hermida et al. European Heart Journal, 2018;39:4159-4171, doi:10.1093/eurheartj/ehy475

[3] Systolic blood pressure is the pressure in the arteries as the heart contracts to eject blood out into them. Diastolic blood pressure is the pressure in the arteries between heart beats when the cardiac muscles relax.

[4] Treatment of Hypertension During Sleep (THADEUS), <https://clinicaltrials.gov/ct2/show/NCT03457168>