

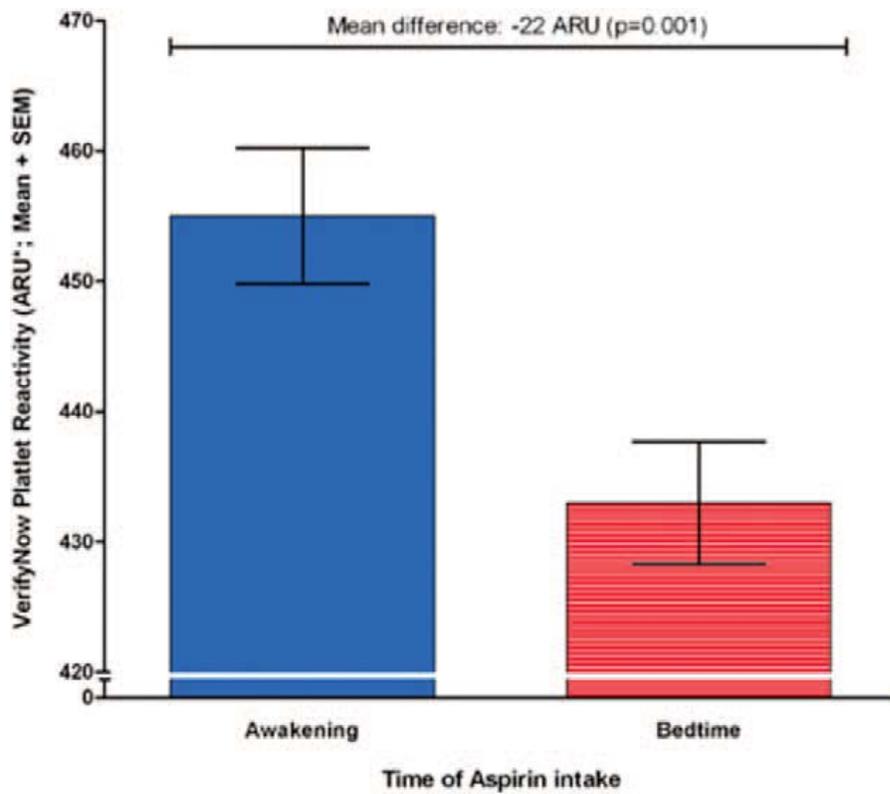
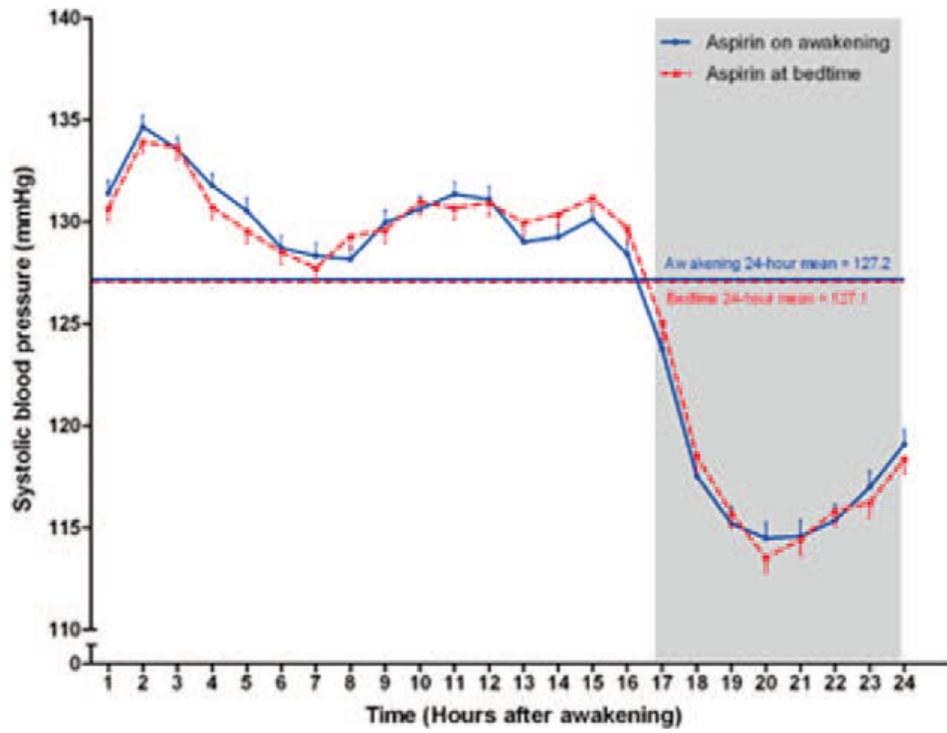
Does Aspirin Intake at Bedtime Decrease Blood Pressure and Morning Peak of Platelet Reactivity?: A Randomized Cross-over Trial

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Background- Aspirin is used for cardiovascular disease (CVD) prevention by millions of patients on a daily basis. Previous studies in hypertensive subjects suggested that aspirin intake at bedtime reduces blood pressure (-7/5mmHg) compared with on awakening. This has never been studied in CVD patients. Moreover, platelet reactivity and CVD incidence is highest during morning hours. Bedtime aspirin intake may attenuate morning platelet reactivity. This clinical trial examined the effect of aspirin intake at bedtime compared with intake on awakening on 24h ambulatory blood pressure measurement (ABPM) and morning platelet reactivity in patients using aspirin for CVD prevention.

Methods and Results- This randomized open-label cross-over trial randomized 290 patients to take 100mg aspirin on awakening or at bedtime during two periods of 3 months. At the end of each period ABPM and morning platelet reactivity was measured. The primary analysis population comprised 263 (ABPM) and 133 (platelet reactivity) patients. Aspirin intake at bedtime did not reduce blood pressure compared with intake on awakening (difference systolic/diastolic: -0.1 [95%CI: -1.0; 0.9] / -0.6 [95% CI: -1.2; 0.0] mmHg). Platelet reactivity during morning hours was reduced with bedtime aspirin intake (difference: -22 ARU [95% CI -35; -9]).

Conclusions- This study showed that intake of aspirin at bedtime compared with intake on awakening does not reduce blood pressure of patients with CVD. However, bedtime aspirin reduced morning platelet reactivity, which might reduce excess cardiovascular events during high risk morning hours. Clinical Trial Registration- <http://clinicaltrials.gov/>: NCT01379079.



*Aspirin reaction units; higher units represent higher platelet reactivity

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