ABSTRACTS - Vascular Disease, Hypertension, and Prevention

2010-134 Administration Time-Dependent Effects of Aspirin on Blood Pressure in Untreated Hypertensive Patients
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Background: Previous studies on the potential influence of aspirin (ASA) on blood pressure (BP) have not taken into consideration the chronopharmacologic effects of nonsteroidal antiinflammatory drugs. This study investigated the effects of ASA on BP in untreated hypertensive patients who received ASA at different times of the day according to their rest-activity cycle.

Methods: We studied 147 patients with mild hypertension (57 men, 43±12.1 years of age, divided in 3 groups: non-pharmacological hygienic-dietary recomman-dations (HNR) and ASA 100 mg/day on awakening, or HNR and ASA 100 mg/day before bedtime. BP and heart rate (HR) were measured every 20 minutes during the day (07:00 to 23:00 hours) and every 30 minutes at night for 4 consecutive hours before and after-3 months of intervention. The circadian pattern of BP I in each group was established by population multiple-component analysis.

Results: After 3 months of non-pharmacological intervention, there was a small and non-significant reduction of BP (1.1 mm Hg for systolic BP, 1.0 mm Hg for diastolic BP; P>0.34). There was no effect of ASA on BP when given on awakening (P=0.229). A BP reduction was, however, highly significant when ASA was given before bedtime (decrease of 6 and 4 mm Hg in systolic and diastolic BP, respectively, P<0.001). There was no significant change in HR in any group.

Conclusion: Results indicate a statistically significant administration-time dependent effect of low-dose aspirin on blood pressure in untreated patients with mild hypertension. These results could be related to the circadian-time dependent effects of ASA on b-adrenergic receptors and/or the previously demonstrated time-dependent reduction by ASA of oscillating levels of angiotensin II, an issue that deserves further investigation. In any trial of ASA effects, inquiries about the time when subjects take the drug are indicated and may account for discrepancies in the literature. Moreover, the influence of ASA on BP demonstrated here indicates the need to identify and control for ASA effects in patients using this drug before or during their participation in antihypertensive medication trials.