EFFECTS OF ANTIHYPERTENSIVE THERAPY ON THE CIRCADIAN BLOOD PRESSURE PATTERN OF ELDERLY PATIENTS WITH MILD-TO-MODERATE HYPERTENSION


Previous studies have postulated that antihypertensive treatment does not modify the circadian pattern of blood pressure (BP). Recent results, however, indicate that non-dipping in treated hypertensive patients may be related to the absence of 24-hour therapeutic coverage [3 Hypertens. 2002;20:1097-1104]. In the elderly, the circadian amplitude of BP (extent of change along the 24 hours) is already diminished due to an increase in nocturnal BP as compared to younger patients. Accordingly, we studied the impact of antihypertensive therapy on the circadian pattern of BP in elderly subjects. We studied 414 elderly patients (age ≥65 years) with mild-to-moderate essential hypertension (149 men), 71.4±5.3 (mean±SD) years of age. Among them, 88 patients (25 men) did not receive antihypertensive medication before nor during the study. Two thirds of the treated patients received all their medication at the morning. BP was measured by ambulatory monitoring at 20-min intervals during the day and at 30-min intervals at night for 48 consecutive hours. Physical activity was simultaneously evaluated at 1-min intervals by wrist actigraphy, and the data used to calculate diurnal and nocturnal means of BP for each subject according to individual resting time. Circadian BP parameters established by population multiple-components analysis were compared between treated and untreated patients by non-parametric testing. In untreated patients, 59.1% of whom were non-dippers (nocturnal BP decline <10% of the diurnal mean), the circadian pattern of BP is characterized by two peaks at 2 and 12 hours after awakening, with a post-prandial valley and a larger trough at about 4 hours after bedtime. In treated patients, BP is highly reduced during diurnally active hours, but not during nocturnal sleep, as compared to untreated patients, in the absence of any significant change in activity. The percentage of non-dippers among treated patients was significantly increased to a high 73%. Antihypertensive therapy, mostly given at the morning, significantly modifies the circadian pattern of BP. In the elderly, pharmacological therapy should take into account when to treat with respect to the rest-activity cycle of each patient, as a function of the therapeutic coverage of the drugs and the baseline circadian BP profile of the patient.

Key Words: Elderly patients, chronopharmacology, ambulatory blood pressure monitoring

BLOOD PRESSURE VALUES AND DEMENTIA IN ELDERLY PATIENTS

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The purpose of this study was to demonstrate, if clinical blood pressure (BP) and Pulse Pressure in elderly patients were connected with dementia, evaluated by Mini Mental State Examination (MMSE).

As a part of a quality project, MMSE was estimated by a medical doctor in all the patients at admission to a geriatric clinic. A medical doctor or a trained nurse in accordance with the WHO recommendations measured clinical BP with an aneroid manometer. The project is still ongoing.

During a period of fourteen months 865 (100%) geriatric patients, average age 82.3 years, were examined. MMSE was performed in 704 (81.4%) of the patients. BP was estimated in 856 (99.0%). Out of 30 possible MMSE points, 9 (1.3%) of the patients scored between 0-10 points, corresponding to severe dementia, 76 (10.8%) scored between 11-17 points, corresponding to moderate to severe dementia, 183 (26.0%) scored between 18 - 23 points, corresponding to a moderate dementia, 145 (20.6%) scored between 24 - 26 points corresponding to a mild degree of dementia, and 291 (41.3%) scored between 27 - 30 points, corresponding to no apparent dementia.

In average the clinical BP was 128/82 mmHg. A MMSE-score < 24 was found in 413 patients (58.7%), who had significantly higher BP 132/84 mmHg, than the 291 patients (41.3%) with a MMSE ≥24 with BP 125/80 mmHg.

We found significantly higher BP and pulse pressure in geriatric patients with impaired cognitive functions identified by MMSE < 24 points compared with patients having MMSE ≥24 points. More attention to cognitive functions and BP is recommendable.

ETHNIC DIFFERENCES IN FACTORS AFFECTING AMBULATORY BLOOD PRESSURE VARIATION

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When clinically evaluating ambulatory blood pressure (BP), it is critical to have appropriate information about the conditions of measurement in order to differentiate adaptive physiological responses from true cardiovascular pathology. While several factors have been shown to increase BP during the day, few studies have evaluated whether these effects differ among ethnic groups. Therefore, the purpose of this study was to compare the effects of mood (happiness, anger and anxiety), posture (sitting or standing) and location (work, home and elsewhere) on BP variation between ethnically white (N=88, age=37.5±8.7 yrs) and black (N=49, age=38.6±8.9 yrs) normotensive women. The subjects of the study worked in professional and clerical positions at two major medical centers in New York City and all worked a day shift. As part of a larger study, the women wore an ambulatory monitor over the course of one working day. Pressures were taken every 15 minutes while awake. The assessment of posture, location and mood was determined from diary entries recorded at each reading by the subject. A total of 1175 pressures from the white women and 799 pressures from the black women could be cross-classified by all three factors and were included in the analysis. To examine the effects of the factors on BP variation, the pressures were first transformed to z-scores using each individual subject’s 24-hr mean pressure and standard deviation and then analyzed using ANOVA models that evaluated main effects and all possible interactions. The results show that for white women, systolic BP significantly varies by posture (p<.001), and location (p<.001). Moods also have effects such that they elevate pressure more while standing (p<.06) and have further varying effects depending upon the location where pressures are taken (p<.001). However for black women, posture (p<.025) is the only factor that contributes to pressure variation. For diastolic BP, among white women, posture (p<.005) and location (p<.011) contributes to pressure variation, whereas again, only posture (p<.004) contributes to variation among the black women. In both white and black women, each mood increases diastolic BP, but do so equally across the moods studied. These results suggest that the factors influencing daily BP variation during the day may differ between black and white women.

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Key Words: ambulatory blood pressure, ethnic differences, women