These 4 subgroups were compared with arterial wall stiffness assessed by brachial-ankle pulse wave velocity (baPWV) and atherosclerosis assessed by carotid intima-media thickness (CIMT).

Patients with MHT (72.5 years) and SHT (71.0 years) were older than other groups, but comparable with other parameters. BaPWV was higher in the MHT (1978.1 cm/sec) and in the SHT (2167.1 cm/sec) than in the other groups. CIMT was higher in the MHT (0.88 mm) than in the NT (0.72 mm) and the WCHT (0.77 mm).

In conclusion, this study suggests that the functional and structural changes in the arteries progress in masked hypertensive patients detected by home BP.

Key Words: atherosclerosis, pulse wave velocity, home blood pressure

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PROGNOSTIC SIGNIFICANCE OF NOCTURNAL DIPPING FOR STROKE AND HEART DISEASE MORTALITY RISK: THE OHASAMA STUDY
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Objective: To examine the relationship between pattern of circadian blood pressure (BP) variation and the risk of mortality from stroke and heart disease (HD).

Methods: Mortality in 1507 subjects aged 40 years and over in Ohasama, Japan, was followed for average 10.6 years. The association between mortality risk from cardiovascular disease and the pattern of circadian BP was analyzed by Cox proportional hazards model adjusted for possible confounding factors. Definition of types of circadian BP variation is as follows: dipper (10-19% nocturnal decline from diurnal level), non-dipper (0-9%), inverted dipper (0%, nocturnal elevation) and extreme dipper (≥20%).

Results: HD mortality risk was significantly high in inverted dippers and in non-dippers compared with dippers, [relative hazard (RH) 3.73, 95% confidence intervals (95%CI) 1.54 to 9.02 and RH 2.28 (95%CI 1.05 to 4.93), respectively]. HD mortality risk significantly increased with decrease in nocturnal decline [RH 1.9 per 1-SD (12.7%) decrease in nocturnal decline in systolic BP (SBP) (95%CI 1.23 to 2.84)]. There was a significant inverse association between cerebral infarction (CI) mortality risk and nocturnal dipping [RH 2.81 per 1-SD (12.7%) decrease of nocturnal decline in SBP (95%CI 1.08 to 7.34)]. Significantly higher mortality risk from intracerebral hemorrhage (ICH) was observed in extreme dippers compared with that in dippers [RH 9.9 (95%CI 2.17 to 44.79)]. The mortality risk from ICH increased with increase in nocturnal decline in SBP [RH 5.8 per 1-SD (12.7%) increase of nocturnal decline in SBP (95%CI 2.19 to 15.28)].

Conclusion: Circadian BP variation affects types of cardiovascular mortality risk. A large nocturnal decline in BP or a large diurnal peak in BP mediates ICH mortality, while, disturbed circadian BP variation or high nighttime BP was associated with HD and CI mortalities.

Key Words: Japanese, population study, blood pressure measurements

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IMPACT OF SLEEP SYSTOLIC BLOOD PRESSURE ON BRAIN ATROPHY IN ELDERLY HYPERTENSION: JICHI MEDICAL SCHOOL ABPM STUDY, WAVE 2 CORE
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Background: Recent studies demonstrated a relationship between brain atrophy in the elderly. However, the insular cortex (IC) has been suggested to be a key site in limbic-autonomic integration, modulating our cardiovascular system. Especially, in human, the left IC is associated with parasympathetic cardiovascular tone, while the right IC with sympathetic cardiovascular tone. We examined ambulatory blood pressure (BP) and brain atrophy including IC.

Methods: We performed ambulatory BP monitoring and brain MRI in 29 elderly hypertensives. The volume of total brain matter (TBM) and IC were measured using an Intensity Contour-Mapping Algorithm.

Results: Mean values of 24-hr, awake, and sleep systolic/diastolic BP (SBP/DBP) were 141.2±14.1/76.8±10.2mmHg, 145.0±14.2/78.9±10.8mmHg and 134.7±20.3/72.0±12.0mmHg. Mean values of TBM, left IC and right IC were 969.1±122.2cm³, 6.17±1.07cm³ and 7.22±0.90cm³. On stepwise regression analysis including clinical characteristics and ambulatory BP measures during 24-hr, awake, and sleep periods, sleep SBP (B = −0.5, 95%CI: −3.80 to −0.20, p = 0.00088) and sleep DBP (B = 3.58, 95%CI: 1.17 to 10.24, p = 0.0017) were significant and independent predictors of TBM volume. Sleep SBP (B = −0.0218, 95%CI: −0.42 to −0.002, p = 0.035) was a significant and independent predictor of left IC volume. There were no predictors of right IC volume.

Conclusion: In elderly hypertensives, sleep systolic BP was a significant independent predictor of brain atrophy including that of the left IC. These findings may provide some insight into a possible role of sleep systolic BP in the pathogenesis of cognitive dysfunction and autonomic disturbance in elderly hypertensives. Particularly, left IC atrophy may shift the predominant sympathovagal balance during sleep toward a more increased sympathetic tone. From this perspective, strict BP control including sleep period may be important for preventing cognitive and autonomic dysfunction.

Key Words: sleep blood pressure, insular cortex, brain

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THE FEASIBILITY OF 24-H AMBULATORY BLOOD PRESSURE MONITORING AND THE PREVALENCE OF WHITE-COAT EFFECT IN VERY ELDERLY AGED ≥80 YEARS
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Background: In a developed country, the prevalence of very elderly aged ≥80 years is rapidly increasing. However, there is few data on feasibility of 24-h ambulatory blood pressure monitoring (ABPM) and white-coat effect (WCE). The purpose of this study was to evaluate 1) the feasibility of 24-h ABPM and 2) the WCE (defined as the difference between clinic blood pressure [CBP] and awake ambient blood pressure [ABP]) in very elderly aged ≥80 years.

Method: We consecutively recruited 51 Japanese patients (10 men and 41 women) aged ≥80 years, who receive regular treatment for stable chronic diseases such as hypertension, hyperlipidemia, diabetes, chronic gastritis, and osteoporosis. 27 patients live alone without any family member. 24-h ABPM was performed after detailed explanation according to a predefined checklist. CBP were taken before and after 24-h ABPM. ABP readings were obtained automatically with a 30 min interval. The number of BP data successfully obtained was documented for each patient. First 24-h BP measurements (Maximum 48 measurements) were used for analysis.

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