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Ambulatory blood pressure monitoring profile in stroke hypertensive patient: death associative parameters

Keywords: ischemic stroke, hypertension, ambulatory arterial stiffness index, symmetric slope, symmetric ambulatory arterial stiffness index.

Hypertension is one of the crucial heath problem among Ukrainian population which increases of mortality from cardiovascular diseases[1]. Moreover, hypertension plays a causative role in the pathogenesis of stroke. The association between BP and stroke mortality is strong and direct[2]. Clinical trials have unequivocally demonstrated that BP lowering in people with hypertension reduces stroke risk.

It has been reported that ABPM is superior predictor of future cardiovascular events than clinic BP[3].

There are some new indexes which is calculated from the ABPM data. In particularly, the ambulatory arterial stiffness index (AASI) is one of the strong predictor of stroke and cardiovascular mortality[4]. Moreover, there are some new ABPM parameters[5], like the symmetric AASI (Sym_AASI) and the symmetric slope (Sym_Slope), which have little information about clinical prognostic value.

In the present study, we sought confirmation that died hypertensive patients in acute phase of ischemic stroke (IS) would have a considerable difference in the AASI, (Sym_AASI), (Sym_Slope in compression with those in alive individuals.

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[2] Lewington S. C. R. Age-specific relevance of usual blood pressure to vascular mortality: a meta-analysis of individual data for one million adults in 61 prospective studies/S. C. R. Lewington//Lancet. – 2002. – Vol. 360. – P. 1903–1913.

[3] Ambulatory blood pressure monitoring and risk of cardiovascular disease: a population based study/T. W. Hansen, J. Jepesen, S. Rasmussen et al.//Am. J. Hypertens. – 2006. – Vol. 19. – P. 243–250.

[4] Ambulatory arterial stiffness index predicts stroke in a general population/T. W. Hansena, J. A. Staessend, Ch. Torp-Pedersenb et al.//Journal of Hypertension. – 2006. – Vol. 34. – P. 2247–2253.

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We investigated 173 patients (61.7±10.1 years old, 54% male) with arterial hypertension (42 patients in the acute phase of IS) and 21 healthy normotensive control (60.2±6.2 years old, 33% male). After obtaining written information consent, patients were asked to complete a questionnaire. Information on demographics and clinical characteristics was extracted from patients' medical records and purpose-designed questions in the questionnaire. All the patients underwent ambulatory blood pressure monitoring (ABPM).

ABPM was recorded using a bifunctional device (INCART, RF). After the baseline examination, participants were fitted with an ABPM device on their nondominant arm if there were no considerable difference of BP results. Appropriate cuff bladder size was determined based on arm circumference. Frequency of measurements was every 15–20 minutes throughout daytime and 30 minutes throughout nighttime. Daytime and nighttime ABPs were defined as the fixed period of time (from midnight to $06{:}00_{AM}$ for nighttime). Analysis was carried out using an oscillometric method. Quality of the ABPM studies was defined by the length of time that the monitor was actually worn and the number of successful BP recordings. Monitors worn for ≥21 hours with ≥18 hours with ≥1valid BP measured per two hours were acceptable for analysis, so that there were 14 measures for daytime and at least 7 measurements — for nighttime.

Statistical analysis performed using the STATISTICA version 6 software. The Shapiro–Wilk's test was used to test for deviation from normality. Categorical data are presented as percentages and continuous data as mean ± standard deviation or medians and interquartile ranges as appropriate after testing for normality of distribution. Comparisons between groups were done using the Student *t*, the Mann–Whitney *U* and χ^2tests as appropriate. Two-tailed P values < 0.05 were considered statistically significant.

The study protocol was approved by the Medical Ethics Committee of the Zaporizhzhia State Medical University, and the study was conducted according to the Helsinki Declaration.

The first group of patients (n=6) were in an acute phase of IS and died in a month after ABMP analyze and the second one (n=167) with alive individuals. All individuals underwent 24-h ABPM (stroke patients were ABPM analyzed within 2–10 days of the stroke). Exclusion criteria were atrial fibrillation/flutter, previous cardiovascular disease. The indexes were calculated as described previously (2). In brief, the AASI was calculated as one minus diastolic (DBP) versus systolic blood pressure (SBP); the Sym_Slope was calculated as slope SBP-versus-DBP divided by correlation r; the Sym_AASI was founded as 1–1 (1-AASI)/r in linear regression analysis.

The ABPM of interest included SBP and mean DBP for wake, sleep, and 24-hour periods.

It was found significant difference of the AASI in group of died patients and alive patients (0.65±0.17 vs 0.44±0.16, respectively; p=0.013,); of the Sym_Slope (1.38±0.35 vs 2.24±1.08, respectively; p<0.001); the Sym_AASI (0.59 (0.11–0,67) vs 0.28 (0.14–0.35), respectively; p<0.05,). However, there were no difference in SBP_{24} and DBP_{24}.

Overall, this study shows that the AASI, the Sym_AASI and the Sym_Slope can have a prognostic value of mortality in hypertensive patients in acute phase of IS.

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Bronchoobstructive syndrome in infants with atopic dermatitis

Actuality: respiratory diseases in children in comparison with diseases of other systems occupy first place[1]. Considering that among the causes of infant mortality in

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