MATERIŁY
XIV MIĘDZYNARODOWEJ NAUKOWI-PRAKTYCZNEJ KONFERENCJI

NAUKOWA MYŚL INFORMACYJNEJ POWIEKI

07 -15 marca 2018 roku

Volume 5

Biologiczne nauki
Weterynaria
Ekologia
Medycyna

Przemyśl
Nauka i studia
2018

Adres wydawcy i redacji:
37-700 Przemyśl ,
ul. Łukasińskiego 7

Materialy XIV Miedzynarodowej naukowi-praktycznej konferencji , «Naukowa myśl informacyjnej powieki» , Volume 5 Przemyśl: Nauka i studia -68 s.

Materialy XIV Miedzynarodowej naukowi-praktycznej konferencji , «Naukowa myśl informacyjnej powieki» , 07 -15 marca 2018 roku po sekcjach: Biologiczne nauki. Weterynaria. Ekologia. Medycyna.

e-mail: praha@rusnauka.com

Cena 54,90 zł (w tym VAT 23%)

ISBN 978-966-8736-05-6

Ilchenko I., Karamian A.
Kharkiv National Medical University, Ukraine

INFLUENCE OF HEART FUNCTION PARAMETERS - HEART RATE AND HEART RATE VARIABILITY ON THE COURSE OF CHRONIC HEART FAILURE IN PATIENTS WITH ARTERIAL HYPERTENSION

Despite the obvious successes of recent decades in the field of studying pathogenesis and searching for effective ways of treatment, chronic heart failure (CHF) continues to be a serious and prognostically unfavorable disease of the cardiovascular system, leading to disability and a decreased life expectancy of the population [1]. The results of studies carried out so far suggest that the dysfunction of the autonomic nervous system (ANS) can play an important role in determining the prognosis in the patients with CHF. It is shown that vegetative imbalance with activation of the sympathetic part of the ANS and a decrease in protective vagal control over the heart activity contributes to aggravation of endothelial dysfunction, coronary artery spasm and a decrease in the ventricular fibrillation threshold [3]. At the same time, interest in non-invasive methods for assessing the state of the autonomic nervous system has recently increased, the methods of assessing heart rate variability (HRV), the intensity of heart rate fluctuations in relation to its average level have become most widespread [2]. Analysis of HRV in short ECG regions involves simplicity and the possibility of standardizing the conditions for determination. There is evidence of a link between low HRV in short ECG regions with an unfavorable prognosis after myocardial infarction, including sudden cardiac death (SCD) [4]. However, the relationship between heart rate (HR) and HRV, their role in the course of CHF is not well understood.

Aim. To study the indices of frequency analysis of HRV and to estimate the prognostic value of heart rate and HRV on the course of CHF in patients with arterial hypertension (AH).

Material and methods. A prospective analysis of the course of CHF was made in 184 patients (of them 74 women), with AH 2-3 stages (mean systolic (SBP) and diastolic (DBP) arterial pressure, respectively): SBP -164.4 ± 8.6 mm Hg; DBP - 98.3 ± 7.4 mm Hg); age from 44 to 70 years (mean age - 58.4 ± 9.7 years); body mass index

(BMI) - 28.2 ± 2.0 kg / m²), patients received comparable therapy in individually selected doses). Patients with CHF II-A stages were consistently included in the study. Depending on the initial signs of the functional class (FC) of CHF in the NYHA classification, 2 groups were identified: 1 group - 2 FC (102 patients), 2 group - 3 FC (82 patients). All patients every 3 months for 1 year performed an electrocardiogram (ECG) in the morning 08: 00-09: 00 on an empty stomach in a 5-minute interval of recording. The spectral analysis of HRV was analyzed: high-frequency component (HF), low-frequency component (LF), their ratio (L/ H) and total spectrum power (TP). The control was the data of 20 healthy volunteers.

Results. The average heart rate for the day at the moment of inclusion was in groups 1 and 2, respectively: 82.2 ± 4.8 and 88.2 ± 6.4 in 1 min (control 60.2 ± 2.4, $p < 0.05$). When assessing HRV indicators, a decrease in the indices of spectral analysis, more pronounced in patients of the 2nd group, was established. In patients of groups 1 and 2, a decrease in TP was established (respectively: 1286.4 ± 78.6 ms² ($p > 0.05$), 967.8 ± 53.5 ms² ($p < 0.05$), control 1682.8 ± 83.2 ms²); a significant reduction in HF (respectively: 342.7 ± 38.9 ms² ($p < 0.05$), 289.5 ± 37.5 ms² ($p < 0.05$), control 486.2 ± 41.4 ms²) and LF (respectively: 219.3 ± 22.4 ms² ($p < 0.05$), 182.3 ± 20.3 ms² ($p < 0.05$), control 295.5 ± 18.2 ms2). During the follow-up period, in patients of Groups 1 and 2, elevated heart rate was associated with worse spectral HRV. A negative correlation was established between heart rate and HF [r = -0.48; CI 95%; 0.84-1.68, p = 0.042] LF [r = -52; CI 95%; 1.57-1.83; p = 0.034]. By the end of the follow-up period, with preserved high heart rate, the FC of CHF worsened in 23% and 36% of patients in Groups 1 and 2, respectively.

Conclusions. Increased heart rate in patients with AH and CHF is accompanied by a worsening of the spectral HRV indices, which has unfavorable prognostic significance, aggravates the course of CHF, and determines the need for active treatment.

LITERATURE:

1. Алиева А.М. Вариабельность сердечного ритма при хронической сердечной недостаточности (литературный обзор) / А.М.Алиева, Е.З.Голухова, Т.В.Пинчук // Архивъ внутренней медицины. - №6(14). – 2013. – С.47-54.

2. Газиянова В.М. Вариабельность сердечного ритма у пациентов с хронической сердечной недостаточностью и хронической обструктивной болезнью легких: клинические параллели / В.М.Газиянова, О.В.Булашова, Е.В.Хазова и др // Казанский медицинский журнал. – т.97.- №3. – 2016. – С.421-425.
3. Murad K., Brubaker P., Fitzgerald D. et al. Exercise Training Improves Heart Rate Variability in Older Patients With Heart Failure: A Randomized, Controlled, Single-Blinded Trial. Congest // Heart Fail. 2012. Vol. 10. P. 1751-7133.
4. Nussinovitch U., Cohen O., Kaminer K. et al. Evaluating reliability of ultra-short ECG indices of heart rate variability in diabetes mellitus patients//J. Diabetes Complications. 2012 Jun 6. [Epub ahead of print].

CONTENTS

MEDYCYNA

Eksperymentalna i kliniczna farmakologia

Kliniczna medycyna

Przygotowanie medycznych pracowników