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ТИББИЁТДА ЯНГИ КУН НОВЫЙ ДЕНЬ В МЕДИЦИНЕ NEW DAY IN MEDICINE

*Илмий-рефератив, маънавий-маърифий журнал
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STUDYING THE INFLUENCE OF SELECTIVE BETA-BLOCKERS ON BLOOD PRESSURE DAILY MONITORING

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✓ Resume

Arterial Hypertension remains one of the urgent problems of cardiology. Leading to the development of complications, arterial hypertension is accompanied by the development of structural and functional changes in the heart.

The study of insufficient reduction in blood pressure is important. At the same time, at present, using the method of daily monitoring of blood pressure, it has been established that with an insufficient nightly decrease in blood pressure, arterial hypertension is characterized by certain and very significant features of the course, prognosis and pathogenesis. At present, it seems quite reasonable to assume that in patients with uncomplicated hypertension and insufficient nocturnal BP reduction, the use of drugs with sympatholytic activity, that is, beta-blockers, may be especially effective.

Keywords: Arterial hypertension, beta-blockers, ABPM, bisoprolol, blood pressure

ИЗУЧЕНИЕ ВЛИЯНИЯ СЕЛЕКТИВНЫХ БЕТА-БЛОКАТОРОВ НА СУТОЧНЫЙ МОНИТОРИНГ АРТЕРИАЛЬНОГО ДАВЛЕНИЯ

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✓ Резюме

Артериальная гипертензия остается одной из важнейших проблем кардиологической практики. Повышение артериального давления неизменно приводит к развитию структурных и функциональных изменений сердца.

Недостаточное снижение артериального давления характеризуется определенными и весьма существенными особенностями течения, прогноза и патогенеза. В настоящее время представляется вполне обоснованным предположить, что у больных с неосложненной артериальной гипертензией и недостаточным ночным снижением артериального давления применение препаратов с симпатолитической активностью, то есть бета-адреноблокаторов, может оказаться особенно эффективным. Исследование посвящено изучению показателей СМАД под влиянием бета-адреноблокаторов у больных с гипертонической болезнью/

Ключевые слова: Артериальная гипертензия, бета-адреноблокаторы, СМАД, бисопролол, артериальное давление

SUTKALIK ARTERIAL QON BOSIMINIG MONITORING KO'RSATQICHLARIGA SELEKTIV BETA-BLOKATORLARNING TA'SIRINI O'RGANISH

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✓ **Rezyume**

Arterial gipertenziya kardiologik amaliyotda eng muhim muammolardan biri bo'lib qolmoqda. Qon bosimining oshishi doimo yurakdagi tarkibiy va funktsional o'zgarishlarning rivojlanishiga olib keladi.

Qon bosimining etarli darajada kamayishi kurs, prognoz va patogenezning ma'lum va juda muhim xususiyatlari bilan tavsiflanadi. Hozirgi vaqtda asoratlanmagan gipertoniya bilan og'rigan va tungi qon bosimi etarli darajada pasaymagan bemorlarda simpatolitik faollikka ega bo'lgan dorilarni, ya'ni beta-blokatorlarni qo'llash ayniqsa samarali bo'lishi mumkinligini taxmin qilish juda muxim. Tadqiqotning maqsadi beta- blokatorlarni ta'sirida ABPM parametrlarini o'rganish.

Kalit so'zlar: Arterial gipertenziya, betablokatorlar, arterial qon bosimining sutkali monitiringi, bisoprolol, arterial qon bosimi.

Relevance

Arterial Hypertension remains one of the urgent problems of cardiolpgy. Leading to the development of complications, arterial hypertension is accompanied by the development of structural and functional changes in the heart [3,8].

The international recommendations on the diagnosis and treatment of arterial hypertension (AH) declare the main goal of its treatment to reduce the risk of cardiovascular complications through: achieving the target blood pressure level, organoprotection and correction of modifiable risk factors. For a long time, the positions of beta-blockers in the treatment of hypertension looked virtually indisputable. [1,5]. However, in the last few years, this class of drugs has been seriously criticized, which has led to the fact that in the British recommendations for the treatment of hypertension, beta-blockers have ceased to be considered as "first-line" antihypertensive drugs and have even been ranked 4th among other antihypertensive drugs.

When compared with calcium antagonists, ACE inhibitors and angiotensin II receptor antagonists with comparable hypotensive activity during atenolol therapy, there were significantly higher risks of cerebral strokes (by 30%), mortality from cardiovascular diseases (by 16%) and overall mortality (by 13%). It is noteworthy that, among other conclusions, the authors of this meta-analysis did not recommend the use of atenolol as a comparison drug in new clinical trials. A year later, another meta-analysis was published, based on 14 randomized controlled trials on the efficacy and safety of various beta-blockers with placebo and other antihypertensive drugs in hypertension. [2,4,6]. Only one of them used metoprolol, and all the others again used atenolol, propranolol and oxprenolol. This meta-analysis showed that β -blockers increased the risk of stroke by more than 16% compared with diuretics, ACE inhibitors, and antagonists.[7,10] A huge number of articles and reviews have been written on the existence of a powerful evidence base for the use of beta-blockers in hypertension and concomitant cardiovascular pathology. Therefore, it hardly makes sense to prove what has been proven. However, it is worth emphasizing right away that bisoprolol is one of the undoubted leaders both in terms of the number of studies and the number of patients who participated in them [9,11,16]. It seems more appropriate and important for a practitioner to answer the question of how the properties of bisoprolol can guarantee a worthy response to modern challenges from the side of hypertension. The study of insufficient reduction in blood pressure is important. At the same time, at present, using the method of daily monitoring of blood pressure, it has been established that with an insufficient nightly decrease in blood pressure, arterial hypertension is characterized by certain and very significant features of the course, prognosis and pathogenesis. [12,14] At present, it seems quite reasonable to assume that in patients with uncomplicated hypertension and insufficient nocturnal BP reduction, the use of drugs with sympatholytic activity, that is, beta-blockers, may be especially effective [13,15].

The purpose of the study. To study the effect of selective beta blockers on daily blood pressure monitoring.

Material and methods

The study was conducted in multidisciplinary clinic No. 1 of Samarkand State Medical University at the Department of Propaedeutics of Internal Diseases (under the guidance of Associate Professor S.H. Yarmukhamedova). Prior to the start of the study, the consent of the patients was obtained. The study included 61 patients with stage II arterial hypertension; of these, 26 women and 35 men aged

from 33 to 67 years. Clinical observation lasted 12 weeks. Blood pressure was measured using the Korotkoff method with the patient sitting and standing. All patients were prescribed the selective beta-blocker with the active substance bisoprolol. Active substance bisoprolol was prescribed at an initial dose of 100 mg per day for 2 doses. If the hypotensive effect was insufficient, after 2 weeks the dose was increased by 50 mg per day to a maximum dose of 200 mg per day. At the same time, patients underwent ABPM initially and at the end of treatment. The following indicators of ABPM were studied: average daily, average daytime, average night values of systolic blood pressure, diastolic blood pressure; determination of blood pressure variability. The normal level according to ABPM was taken to be less than 135/85 mmHg. Initially and after monotherapy with Active substance bisoprolol, this group of patients underwent an echocardiographic study and determined the main structural and functional indicators of central hemodynamics.

Result and discussions

During therapy with a Selective beta-blocker without its own sympathomimetic activity, positive dynamics of ABPM indicators were noted before and after treatment. The hypotensive effect during therapy with a selective beta-blocker in a dose titration mode developed gradually; the dynamics of office blood pressure and heart rate in patients with arterial hypertension taking this therapy are presented in Table 1. After 12 weeks of treatment with a selective beta-blocker, the target blood pressure level (less than 140/90 mmHg) in 16 people (26%) reached the office level. In 9 patients who did not achieve target BP, during office measurement, mean BP in the sitting position decreased by 10 mmHg. and more. In total, during the treatment period, 21 patients required an increase in the dose of the drug to 200 mg per day

Table 1
Dynamics of blood pressure and heart rate in patients with arterial hypertension during therapy with a selective beta-blocker

Indicator		After 4 weeks	After 8 weeks	After 12 weeks
SBP, mmHg.	167,6±9,8	154,7±8,7	142,8±8,2*	135,3±7,3*
DBP, mmHg.	94,2±5,7	95,9±5,3*	90,4±5,1*	84,0±4,7*
Heart rate, beats/min	79,3±4,6	75,2±4,3	63,8±4,1*	64,8±4,8*

Note: * $p < 0.05$ compared to outcome

table 2
ABPM indicators in patients with arterial hypertension during therapy with a selective beta-blocker (n=61)

Indicators	Initially	After 12 weeks
Average SBP, mm Hg.	160,0±5,6	135,3±4,2*
Average DBP, mm Hg.	98,3±3,4	80,2±4,6*
Average daily SBP, mmHg	168,6±5,7	139,5±11,8*
Average daily DBP,	102,8±4,6	88,4±7,0*
Average nighttime SBP, mmHg	148,0±5,7	123,5±7,8*
Average night DBP, mmHg	92,5±3,2	79,7±5,1*
SI SBP, %	8,3±4,7	11,7±4,2*
SI DBP, %	11,8±4,6	17,8±4,0*
Var DBP daily, mmHg	14,2±1,5	10,2±1,1*
Var SBP day, mm Hg.	26,2±1,4	13,2±2,8*
Var DBP day, mmHg	16,2±1,5	12,4±1,7*
Var SBP night, mm Hg.	16,7±1,2	11,4±1,7*
Var SBP n., mm Hg.	12,7±0,6	10,1±0,8*
Heart rate, day, beats/min	87±12	66±7,5*

Note: * $p < 0.05$ - compared with the outcome

As can be seen from the data presented in the table, according to the results of office blood pressure measurements as a result of treatment with bisoprolol, a significant decrease in systolic and diastolic blood pressure was achieved in the studied group of patients. Analysis of the initial data of daily blood pressure monitoring made it possible to identify an increase in the average daily, average daily and average values of systolic and diastolic Blood pressure, disturbances in the daily blood pressure profile (table 2).

In the study, all patients belonged to the group of increased BP variability (the critical indicator of variability of average daytime BP was more than 15 mm Hg). According to the degree of nocturnal reduction in blood pressure, 47% of patients were in the category of dippers, 37% - nondippers, 12% nightpickers and 4% hyperdippers. Over 12 weeks of treatment, according to 24-hour blood pressure monitoring, a significant decrease in the average daily, average daily, average night systolic indicators was revealed and diastolic blood pressure (Table 2). A significant decrease in the variability of systolic and diastolic blood pressure during the day and night hours was also recorded, which was also more pronounced for daytime and night systolic blood pressure ($p < 0.05$).

After 12 weeks of bisoprolol therapy, the daily index for systolic and diastolic blood pressure significantly increased by 40.3% and 43.8%, respectively, and therefore, in the group of patients examined there were no patients with an excessive nocturnal decrease in blood pressure. In 80% of patients in the nightpickers group, normalization of the circadian rhythm of blood pressure was registered, the proportion of patients with a normal circadian rhythm of blood pressure (dippers) from 41.1% of the original, reached 64.7%. Thus, the beta-blocker bisoprolol has high clinical efficacy in the treatment of patients with stage II hypertension. 12-week therapy with bisoprolol allows you to maintain the target blood pressure level, reduce blood pressure variability during the day and night hours, and normalize the degree of nighttime decrease in systolic and diastolic blood pressure. When studying the dynamics of clinical symptoms, it was noted that after treatment, patients did not present complaints such as pain in the precordial region, palpitations, interruptions in cardiac function, anxiety and low mood. The antihypertensive effectiveness of bisoprolol is determined by its pathogenetic mechanism of action, namely a decrease in the pressor activity of the sympathetic part of the autonomic nervous system, which is manifested by a decrease in the concentration of norepinephrine, leading to a decrease in cardiac output and a decrease in total peripheral resistance. The result of these effects is the positive dynamics of systolic and diastolic blood pressure during the day and night hours. One of the most important properties of bisoprolol, identified during this study, is its effect on blood pressure variability during the day. The high variability of blood pressure that occurs in patients with hypertension is one of the risk factors for the development of various complications, including those of the LV myocardium.

Therefore, the data obtained that bisoprolol during a 12-week intake significantly reduced the variability of systolic and diastolic blood pressure, both during the day and at night, testifies in favor of the organoprotective effect of the drug, as well as the entire group of beta-blockers, standard of which he is a representative.

Conclusion

Consequently, in patients with arterial hypertension, a selective beta-blocker for 12 weeks provides a reduction in the average values of systolic and diastolic blood pressure, as well as daytime and nighttime blood pressure variability.

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