

Pathogenetic Therapy Regimens for Classical Htn, Ensuring a Reduction in the Duration of Inpatient Treatment and an Increase in the Duration of Remission

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Annotation. Two anatomical structures are involved in the neurovascular conflict (NVK) in classical HTN: the trigeminal nerve root (CTN) and the artery (more often the superior cerebellar artery (BMA), less often the inferior anterior cerebellar artery (NPMA) and the basilar artery (BA). The occurrence of NVK occurs with a critical convergence of these structures and an increase in the traumatic effect of the artery on the CTN. The force of the artery hitting the CTN is subject to the physical laws of hydrodynamics. In turn, endothelial dysfunction contributes to atherosclerotic vascular modification with increased rigidity of the vascular wall. The existing methods of treating HTN reflect the evolution of ideas about its etiology and pathogenesis. Among the conservative methods of treatment of classical HTN, first-line drugs are anticonvulsants and, above all, carbamazepine, which suppresses cortical and stem foci of sensitization. In parallel with the increase in tolerance to the drug, the number of adverse events also increases.

Keywords: drug therapy, neurovascular conflict (NVK), basilar artery (BA)

Introduction

. If drug therapy is ineffective, surgical treatment methods are used. Microvascular decompression (MVD) of the trigeminal nerve root is considered the "gold standard" among them. The Ministry of Internal Affairs ensures the complete elimination of pain syndrome, however, the percentage of relapses of the disease varies widely.

The main cause of death is a violation of blood circulation in the brain stem. In this regard, it is urgent to develop new effective methods of pharmacotherapy of classical HTN, allowing to stop the pain syndrome, prevent the development of the above-described complications and increase the duration of remission. The degree of elaboration of the research topic In the literature available to us, we have not found any works devoted to the study of the state of elastic properties of the arterial wall in patients with classical hypertension. The analysis did not reveal any articles or dissertations on the problem raised in our scientific work. To date, no studies have been conducted reflecting the condition of blood vessels in patients with classical HTN and the involvement of endothelial dysfunction in the pathogenesis of this disease.

This implies insufficient knowledge of this topic, despite the pathogenetic significance of the vascular component in the formation of neurovascular conflict. In surgical patients, 16 A pulse wave type prevailed before treatment, indicating an unsatisfactory vascular condition. In patients receiving medication, the pulse wave before treatment in the first subgroup type A averaged 46.9%, type B 24.2%, type C 28.9%, in the second subgroup type A averaged 45.3%, type B 31.1%, type C 23.6%, in the third subgroup type A B The average was 53.1%, type B 23.9%, type C 22.9%. In the group of surgical patients in the pulse wave before treatment, type Ab averaged 57.8%, type B 17.6%, type C 24.3%. Deviations in the parameters of pulse wave types were observed both in the group of patients suffering from isolated classical HTN, and in the group with classical HTN and concomitant pathology, and differences in the average values in these groups before treatment turned out to be statistically insignificant ($p > 0.05$). After drug treatment, the frequency of pain attacks decreased, and differences in the frequency distribution before and after conservative therapy turned out to be statistically significant with a confidence level of $p < 0.05$). According to the results of angioscanning, the differences in the average values of vascular stiffness before and two months after

treatment using scheme 3, which included taking L-arginine, in the direction of improving its indicator turned out to be statistically significant ($p=0.001474$). Stiffness indices using scheme 3 were observed both in the group of patients suffering from isolated classical HTN ($p=0.007661$) and in the group of patients with HTN and concomitant pathology ($p=0.027709$). In 18 indicators of vascular stiffness two months after therapy, according to schemes 1 and 2, statistically insignificant changes in average values were revealed ($p=0.850619$ and $p=0.818295$, respectively), since these methods of drug treatment do not affect the elastic properties of the arteries. Positive dynamics in the indicators of pulse wave types was also observed in the third subgroup of patients who received complex treatment, including the administration of L-arginine (scheme 3). In this subgroup of patients, there was a tendency to decrease the value of the type of pulse curve A, increase the value of the type of curve B and type of curve C, which, in turn, indicates an improvement in the elasticity of arterial vessels. Using drug therapy according to scheme 3, two months after the treatment, a statistically significant ($p=0.003305$) change in the structure of the pulse wave was observed: the content of type A decreased from 53.1% to 33.7%, and the presence of type C increased from 22.9% to 44.6%. Those suffering in isolation from classical HTN ($p=0.003872$), and in the group of patients with HTN and concomitant diseases ($p=0.00009$). In the control subgroup of patients after treatment, type A in the pulse wave averaged 46.3%, type B 25.6%, type C 26.9%. The difference in the average composition of the pulse wave in this group of patients before and two months after treatment is statistically insignificant ($p=0.95090$). In the second subgroup of patients (who did not receive L-arginine) in the pulse wave after treatment, type A averaged 38.5%, type B 29.2%, type C 32.3%.

The difference in the average composition of the pulse wave before treatment and two months after therapy in this subgroup turned out to be statistically insignificant ($p=0.37331$). The absence of a positive trend in the pulse wave graph using schemes 1 and 2 also indicates the absence of influence of these treatment methods on the elastic properties of the arteries.

The vascular stiffness index, as well as a change in the pulse wave structure towards an increase in the percentage of type C using scheme 3, indicates a decrease in the severity of endothelial dysfunction in patients with classical HTN and an increase in the elasticity of arterial vessels. In patients of the surgical group, differences in angioscanning results before and two months after the MIA turned out to be statistically insignificant. The average vascular stiffness in surgical patients before and after MVD was $7.66\% \pm 3.74\%$ and $9.06\% \pm 3.80\%$ ($p=0.343253$). In the surgical group of patients after MVD, a change in the structure of the pulse wave was observed: the content of type A decreased from 57.8% to 46.7%, the content of type B increased from 17.6% to 25.6%, and the presence of type C increased from 24.3% to 27.8%. However, these indicators turned out to be statistically insignificant ($p=0.23531$). The indicators of the average composition of the pulse wave before and after the MIA both in the group of patients suffering from isolated classical HTN ($p=0.26034$) and in the group of patients with HTN and concomitant pathology, including those accompanied by vascular damage, turned out to be statistically insignificant ($p=0.20219$).

Pharmacotherapy according to the scheme turned out to be the most effective. Thus, the level of significance of differences in clinical parameters after treatment between a subgroup of patients who received drug therapy according to scheme 3 and a subgroup of patients who received treatment according to scheme 1 (control) was: according to the frequency of pain attacks $p=0.000007$, according to VAS $p=0.000001$, BNI scale $p=0.000002$, night sleep assessment questionnaire $p=0.000413$, Hamilton scale $p=0.006653$. Comparing the results of treatment according to scheme 3 with the results of treatment according to scheme 2, statistically significant differences were observed in such indicators as: YOUR ($p=0.036135$), the night sleep assessment questionnaire ($p=0.019746$), the Hamilton scale ($p=0.031163$).

The results of drug treatment according to the scheme of 3 patients with complete remission of pain syndrome were also compared with a group of 20 operated patients according to the same indicators. Pain syndrome was relieved in both groups by the time of discharge. In addition, night sleep scores and Hamilton Depression Scale scores improved. The level of significance of the differences in the results according to these indicators between the compared groups turned out to be statistically insignificant was $p=0.247889$ and $p=0.126028$, respectively. The data obtained indicate the high effectiveness of pharmacotherapy scheme 3, comparable with the results of the Ministry of Internal Affairs in the immediate postoperative period.

Two months after conservative therapy, according to scheme 1, complete remission was achieved in 6.9% of patients, drug remission in 93.1%; according to scheme 2, complete remission was achieved in 68.8%, drug remission in 31.2% of patients; according to scheme 3, complete remission was achieved in 88% of patients, drug remission in 12%. By developing and applying the classic HTN scheme 2 in the treatment of patients, we achieved an increase in the effectiveness of treatment of the disease by reducing the duration of inpatient treatment (from 5 to 9 days) and increasing the remission period (relapse was not observed in 57.4% of patients during the first year after treatment). With the use of scheme 3, an increase in the effectiveness of treatment of classical HTN was achieved by increasing the duration of remission (recurrence during the first year after treatment was not observed in 92.3% of patients).

CONCLUSIONS 1. In the formation of neurovascular conflict and the occurrence of classical NT, it is not the size of the exit cranial openings that is significant, but a decrease or loss of elasticity of the artery wall involved in the conflict, which is confirmed by an increase in the level of endothelin-1 (on average $0.95\pm 0.19\text{fmol/ml}$), total cholesterol (on average $6.21\pm 0.16\text{mmol/l}$) and the results angioscanning (increased arterial stiffness (on average $5.44\% \pm 1.09\%$), predominance of pulse wave type A (on average $59.75\% \pm 4.53\%$)) in patients with classical hypertension. 2. In patients with classical HTN, before treatment, there were no deviations in homocysteine (on average $9.29\pm 0.38\text{mmol/l}$) and cytokines (IL-1 β (on average $3.27\pm 0.11\text{pg/ml}$), IL-8 (on average $13.91\pm 0.47\text{pg/ml}$), TNF- α (on average $5.30\pm 0.18\text{pg/ml}$)). The differences in their mean values before and after treatment turned out to be statistically insignificant ($p>0.05$). 3.

Two schemes of pathogenetic therapy of classical HTN were developed: using L-lysine escinate (scheme 2) and additional use of L-arginine. The use of scheme 2 made it possible to reduce the duration of inpatient treatment by an average of 7 days and increase the duration of achieved remission to an average of 9.8 months. The best results were obtained using scheme 3, which allowed to increase the duration of the achieved remission to an average of 11 months. A decrease in the severity of endothelial dysfunction and an improvement in the elastic properties of the arterial wall were achieved in patients with classical HTN treated according to scheme 3, which was confirmed by a decrease in the level of endothelin-1 ($p=0.000132$), total cholesterol ($p=0.000060$) and angioscanning results (decrease in arterial stiffness ($p=0.001474$), a decrease in the predominance of A pulse wave type and increased presence From pulse wave type ($p=0.003305$).

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