International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 03 ISSUE 04 PAGES: 62-67
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

OSCAR PUBLISHING SERVICES

Journal Website: https://theusajournals.com/index.php/ijmscr

Research Article

USE OF BETASERCA IN PATIENTS WITH HD WITH COCHLEOVESTIBULAR DISORDERS

Submission Date: April 14, 2023, Accepted Date: April 19, 2023,
Published Date: April 24, 2023
Crossref doi: https://doi.org/10.37547/ijmscr/Volume03Issue04-09

U.S. Khasanov
Researcher Tashkent Medical Academy, Uzbekistan

N.A. Akhunjhanov
Researcher Tashkent Medical Academy, Uzbekistan

G.S. Khaydarova
Researcher Tashkent Medical Academy, Uzbekistan

K.E. Shaykhova
Researcher Tashkent Medical Academy, Uzbekistan

U.P. Abdullaev
Researcher Tashkent Medical Academy, Uzbekistan

ABSTRACT

Betahistine dihydrochloride is a synthetic drug that has the ability to bind to H1 histamine receptors, which are embedded in the neuroreceptor cells of the inner ear. It has a powerful stimulating effect by increasing the release of neurotransmitters (histamine) from the nerve endings of the inner ear receptor cells into the synapse. The neurotransmitter acts on the precapillary sphincters, causing vasodilation of the vessels of the inner ear, increasing their permeability and thereby normalizing intralabyrinthine pressure, i.e. eliminating hydrops.

KEYWORDS

Betahistine dihydrochloride, neuroreceptor cells, nerve.

International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 03 ISSUE 04 PAGES: 62-67
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

INTRODUCTION

In addition to affecting the receptors of the inner ear, betahistine has an effect on the H3 receptors of the vestibular nuclei located in the medulla oblongata. Experimental work on animals has shown an increase in the level of serotonin in the medulla oblongata. This leads to a decrease in the activity of the vestibular nuclei, a decrease in their excitability and the cessation of dizziness. Thus, a vestibulodepressive effect is manifested.

The aim of our study was to determine the efficacy and tolerability of Betaserc in the treatment of such clinical symptoms of hypertension as dizziness, subjective tinnitus, noise in the head, hearing loss. The tasks of the work included studying the dynamics of the clinical picture of the disease during therapy with Betaserc for 1 month.

MATERIAL AND METHODS

Under our observation were 23 patients with GB with LCVR treated in the clinical bases of the Research Institute of Cardiology of the Ministry of Health of the Republic of Uzbekistan. GB was diagnosed according to WHO criteria (1978). All examined were males, whose age ranged from 25 to 60 years. The duration of GB varied from 1 year to 20 years.

Regarding the research methods, it should be noted that all patients underwent a general clinical examination, which included: examination of the somatic (cardiological), neurological and otoneurological status, rheoencephalography (REG), electroencephalography (EEG), audiometry (AM) and electronystagmography (ENG) according to generally accepted methods.

Of the 23 patients with DCVR examined by us, 18 people (78.3%) complained of noises: of them, tinnitus was localized in 6 patients (33.3%), in the head - 3 people (16.7%), in the head and ears 9 patients (50%).

Results and discussion. Of the above 18 patients with GB with LCVR, 6 people noted constant noises, 12 - periodic. Most patients noted a relationship between the occurrence and intensity of noise with a deterioration in general well-being, increased blood pressure and increased headaches. These noises were usually subjective in nature and were expressed in a very diverse way: patients noted whistling, ringing, buzzing, murmuring water, slight wind noise, etc.

Of the 23 examined, deterioration in the perception of whispered speech was found in 17 (77.3%) patients, and only in 3 it was unilateral, and in the rest it was bilateral. In the majority of the surveyed, the hearing for whispered speech is reduced from 3 to 6 meters.

The perception of colloquial speech was not impaired in 9 (39.1%) of the examined, in 14 (60.9%) - the perception of colloquial speech was reduced; with NPNMK - in 3 out of 6 patients, GE - I st. in 5 out of 8, with GE - II st. - in 3 out of 5, and in HE with PNMK in 3 out of 4 examined.

We conducted a tuning fork study of hearing in 23 patients. The perception of C128 from the middle of the crown was reduced in 18 (78.2%) of the examined. The perception of C128 from the mastoid processes in hypertensive patients with LCVR was shortened in 17 (73.9%) people, in 6 (26.1%) examined patients - within the normal range. The perception of bone-guided sounds from the mastoid processes was impaired in all stages of GE in the vast majority of the examined patients. Most often, perception is reduced by 25-50%.

Perception of C128 through the air was impaired in 16 patients. In the majority of patients with PNMC, its

International Journal of Medical Sciences And Clinical Research
(ISSN – 2771-2265)
VOLUME 03 ISSUE 04 PAGES: 62-67
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

perception was within the normal range; in the stage of HE with PNMC, it was impaired in all examined patients. Consequently, the impairment of C128 perception through the air increases with the progression of the disease.

Audiometric examination in 17 (73.9%) patients on the audiogram revealed damage to sound perception of varying degrees, in 6 (26.1%) patients, tonal hearing was within the normal range. If we consider the state of tonal hearing according to the stages of HE, then normal hearing was detected in 3 out of 6 patients with NPLMC, with HE - Ist. in 2 out of 8, with GE - II st. in 1 out of 5 patients and in HE with PNMK, normal hearing was not detected.

In the course of the study, it turned out that for damage to the organ of hearing in LCVR, a predominant decrease in the perception of high tones is characteristic. So, if during the perception of tones of the speech zone, hearing loss of more than 30% was detected in 3 (13.1%) patients, then with the perception of tones of 3000-8000 Hz in 14, which is more than 4 times more often. In patients with NPLMC and HE-I stage, a decrease in hearing acuity by more than 30% was not detected in any of them, in patients with HE-II stage. in 1 out of 5, and in those suffering from HE with PNMK - in 2 out of 4 examined. Consequently, with the aggravation of the disease, the volume of hearing for high tones decreases.

Thus, to accurately determine the hearing acuity in patients with LCVR, it is necessary to perform pure-tone audiometry. With the latter, the majority of those examined revealed a bilateral decrease in perception both during air and bone conduction of sounds. The curves are located almost at the same level, but the volume of hearing acuity in the vast majority of sounds examined during bone conduction decreases to a much greater extent, especially for high tones. Normal tonal hearing is quite rare. In the majority of the examined patients, there is a lesion of sound perception of varying degrees. The decrease in the acuity of tonal hearing increases depending on the stage of the disease, and not on age.

Studying the state of the vestibular analyzer in LCVR, we, before the caloric study of the labyrinth, revealed the presence or absence of spontaneous vestibular reactions.

Of the 23 patients with DCVR examined by us, 18 people noted dizziness of various severity (from a slight sensation of vibration of objects to seizures with a clear sensation of rotation of surrounding objects) and of a very different nature.

According to the nature of these dizziness, we divided the patients into two groups. We assigned 11 patients to the first group, who noted dizziness, characteristic of damage to the peripheral part of the vestibular analyzer, for which a sensation of rotational movement of one's own body or surrounding objects is typical. Another group of patients, numbering 7 examined, noted the so-called "tactile" dizziness, in which patients feel the imaginary movement of tangible objects, for example: the bed on which they lie, or the floor on which they stand.

We noted imbalances in the Romberg position with vision turned off in 6 people with a simple and 12 with a sensitized posture, a fall backwards in 1 with a simple and 3 with a sensitized posture. When the position of the head changed, the direction of fall did not change.

A caloric test was performed for all 23 patients. All patients underwent ENG assessment of the caloric test.

According to the functional state of the vestibular apparatus, patients can be divided into two groups:

International Journal of Medical Sciences And Clinical Research
(ISSN – 2771-2265)
VOLUME 03 ISSUE 04 PAGES: 62-67
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

with symmetrical and asymmetric reactions. Symmetrical changes were found in 17 (73.9%), asymmetric - in 6 (26.1%) examined. A normal response during the test was detected in 5 people (21.7%), a change in the excitability of the vestibular apparatus was detected in 18 (78.3%) patients. Of these, hyporeflexia was in 5 (27.7%), asymmetric reactions in 6 (33.3%), hyperreflexia in 5 (27.7%), areflexia in 2 (11.3%) patients.

Consequently, when conducting a caloric test, the majority of hypertensive patients showed altered responses to calorization, and only 5 had normal excitability. Asymmetric reactions prevailed, which were expressed in differences in the duration of nystagmus, in amplitude, and in vegetative and protective reactions.

REG study was performed in all 23 patients. In the visual analysis of rheoencephalograms, the waveform was most often "double-humped" or "hump-shaped", or biphasic of the "plateau" type. The apex had a rounded configuration, the additional wave and incisura were displaced towards the apex and were weakly expressed, which indicated a high tone of the cerebral vessels and difficulty in venous outflow from the cranial cavity. In patients with SPNMK, the normotonic type was found in 3 examined patients. The rest had mild changes in the REG of the hypertonic type, 1 patient had a moderate form of hypertonicity. In patients with GE-I st. in most cases, there was a REG picture of a moderate increase in the tone of large and small vessels of the brain. In persons GE-II Art. normotonic type was found only in 1 case. The REG picture of a moderate and pronounced increase in the tone of the cerebral vessels was mainly observed. In persons with GE with PNMK, the normotonic type did not occur at all. In all patients of this group, an increase in the tone of cerebral vessels of varying degrees was noted, but mostly a pronounced form. Signs of obstruction of venous outflow increased as the disease progressed. So, if in case of SLIMC, RVO was observed in 33.3% of patients with a change in the tone of the cerebral vessels, then in HE with MIMC, it was already in 100%, and the REG picture was qualitatively different: the number and severity of presystolic waves increased in comparison with SICM.

An electroencephalographic study was also performed in all 23 patients. As our studies have shown, violations of the functional activity of the brain, according to electroencephalography, are detected in 21 (91.3%) of the examined.

Analyzing encephalograms according to CVR forms, it can be noted that mild and moderate changes in bioelectrical activity (BEA) predominate in NLUMC, while HE-Ist. and GE-IIst. more moderate and pronounced changes in BEA. The aggravation of neurological pathology is naturally accompanied by a corresponding aggravation of the EEG state. Thus, there is a shift towards an increase in the severity class: with HE with PNMK, mild EEG changes are extremely rare, the frequency of occurrence of pronounced ones increases sharply, in addition, in cases with the development of acute cerebrovascular accidents, focal EEG changes are noted in 10.5%, which indicate the development local vascular pathology.

In conclusion, it can be noted that LCVR, being complicated by disorders of cerebral circulation, has not only a pronounced clinical, but also a corresponding paraclinical picture: spasm of cerebral vessels with impaired pulse blood filling, difficulty in venous outflow from the cranial cavity with symptoms of secondary cerebrospinal fluid hypertension, disorders of bioelectrical activity various degrees of expression. Moreover, the degree of the above

International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 03 ISSUE 04 PAGES: 62-67
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

changes is directly dependent on the severity of the systemic and cerebral vascular process.

Achieving high clinical efficacy in therapy of patients with cochleovestibular disorders is possible due to the use of the optimal scheme of complex treatment, developed for patients individually. The plan of therapeutic measures was compiled on the basis of the analysis of the results of a multifaceted examination.

The analysis showed the prevalence of polymorbidity in patients, i.e. the presence of two or more diseases, especially in elderly patients. Therefore, drug therapy included, in addition to betaserc and antihypertensive drugs, also nootropic, diuretic, antianginal drugs, and vitamins. An increase in the clinical effectiveness of the pharmacological correction of cochleovestibular disorders was facilitated by the use of non-drug methods: physical therapy and massage of the collar region in osteochondrosis of the cervical spine, reflexology, etc.

As a result of the complex treatment, positive clinical dynamics was registered in the vast majority of cases. After treatment, the noise disappeared or significantly decreased in 15 (83.3%) patients. When examining hearing with whispered speech, improvement in perception was noted by 15 people (83.3%), and the perception of spoken speech improved in 12 patients (85.7%), and these indicators improved in all patients with NPLMC and GE-1st, and with HE- 11st and HE with PNMK improvement was noted not in everyone.

In a repeated audiometric study, 13 patients (76.5%) out of 17 showed an improvement in sound perception, only 1 patient with HE-11st and 2 patients with HE with MIMC did not show a clear improvement.

We observed the most striking positive dynamics with the use of betaserc when such a symptom of the disease as dizziness was detected. If 18 patients noted attacks of dizziness before treatment, then after using the drug for 10 days, 17 patients (94.4%) noted the absence or significant decrease in dizziness.

The results of electronystagmography during a caloric test before and after treatment also showed a good efficiency of using this drug. So, if before treatment a change in the excitability of the vestibular apparatus was detected in 18 (78.3%) patients, and asymmetric reactions prevailed, then after treatment, altered responses were determined only in 6 examined (26.1%), and asymmetric reactions were only in 1 patient.

Thus, our observations showed that the inclusion of betaserc in the treatment regimen for patients with cochleovestibular disorders reduces the time for the onset of compensation of the vestibular function in comparison with patients who did not use betahistine dihydrochloride in similar basic therapy.

CONCLUSION

In conclusion, we believe that an integrated approach to the treatment of HD patients with CVD is the key to its high clinical efficacy. The use of betahistine-dihydrochloride in the complex therapy of cochleovestibular disorders can stop dizziness, normalize statics and coordination, and improve hearing. In addition, given the possibility of recurrence of chronic diseases, it seems appropriate to conduct a long-term course maintenance monotherapy with betaserc, or its combined use with other drugs.

REFERENCES

1. Vokhidov U. N. STATE OF COCHLEOVESTIBULAR DISORDERS IN PATIENTS WITH ARTERIAL HYPERTENSION //Oriental Journal of Medicine and Pharmacology. – 2022. – Т. 2. – №. 06. – С. 7-20.

International Journal of Medical Sciences And Clinical Research (ISSN – 2771-2265)
VOLUME 03 ISSUE 04 PAGES: 62-67
SJIF IMPACT FACTOR (2021: 5. 694) (2022: 5. 893) (2023: 6. 184)
OCLC – 1121105677
Publisher: Oscar Publishing Services

2. Kari E. et al. A de novo SIX1 variant in a patient with a rare nonsyndromic cochleovestibular nerve abnormality, cochlear hypoplasia, and bilateral sensorineural hearing loss //Molecular genetics & genomic medicine. – 2019. – Т. 7. – №. 12. – С. e995.
3. Mei C. et al. Genetics and the individualized therapy of vestibular disorders //Frontiers in neurology. – 2021. – Т. 12. – С. 633207.
4. Vilchez-Madrigal L. D. et al. Children with unilateral cochlear nerve canal stenosis have bilateral cochleovestibular anomalies //The Laryngoscope. – 2019. – Т. 129. – №. 10. – С. 2403-2408.
5. Ekobena P. et al. Four cases of audio-vestibular disorders related to immunisation with SARS-CoV-2 mRNA vaccines //International Journal of Audiology. – 2022. – С. 1-5.
6. Daneshi A. et al. Cochlear implantation in children with inner ear malformation: a multicenter study on auditory performance and speech production outcomes //International Journal of Pediatric Otorhinolaryngology. – 2020. – Т. 132. – С. 109901.
7. McNeill A. et al. SLC12A2 variants cause a neurodevelopmental disorder or cochleovestibular defect //Brain. – 2020. – Т. 143. – №. 8. – С. 2380-2387.
8. Lemasson J. et al. Cochleovestibular toxicity induced by immune checkpoint inhibition: a case series //European Journal of Cancer. – 2019. – Т. 117. – С. 116-118.
9. Sluydts M. et al. The relationship between cochleovestibular function tests and endolymphatic hydrops grading on MRI in patients with Menière's disease //European Archives of Oto-Rhino-Laryngology. – 2021. – С. 1-11.
10. Khoza-Shangase K. Cochleovestibular findings linked to COVID-19: A scoping review for clinical care planning in South Africa //South African Journal of Communication Disorders. – 2022. – Т. 69. – №. 2. – С. 899.