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**ТИББИЁТДА ЯНГИ КУН
НОВЫЙ ДЕНЬ В МЕДИЦИНЕ
NEW DAY IN MEDICINE**

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EVALUATION OF THE EFFICIENCY OF COMPLEX THERAPY USING IODOMARINE AND L-THYROXINE IN CHILDREN WITH AUTONOMIC DYSFUNCTION SYNDROME UNDER IODINE DEFICIENCY CONDITIONS

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✓ *Resume*

The article studies the effectiveness of combination therapy using iodomarin and L-thyroxine in children aged 11-15 years with autonomic dysfunction syndrome under iodine deficiency conditions. In order to evaluate the effectiveness of including iodomarin and L-thyroxine in combination therapy of patients with ADS, patients from the main group with low thyroid function (26 children) were divided into two subgroups. The first subgroup consisted of 13 patients who received conventional therapy, the second - 13 children who received combination therapy with the addition of iodomarin and L-thyroxine. The inclusion of iodomarin and L-thyroxine in the treatment complex for children with ADS with low thyroid function under iodine deficiency conditions has a clear positive effect on clinical and instrumental parameters. At the same time, there is a tendency towards normalization of such indicators as daily excretion of iodine in urine, thyroid hormones and TSH, which allows us to recommend it for this pathology.

Keywords: cardiovascular changes, vegetative dysfunction, thyroid gland.

ОЦЕНКА ЭФФЕКТИВНОСТИ КОМПЛЕКСНОЙ ТЕРАПИИ С ПРИМЕНЕНИЕМ ЙОДОМАРИНА И L-ТИРОКСИНА У ДЕТЕЙ С СИНДРОМОМ ВЕГЕТАТИВНОЙ ДИСФУНКЦИИ В УСЛОВИЯХ ЙОДНОГО ДЕФИЦИТА

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✓ *Резюме*

В статье изучается эффективность комбинированной терапии с применением йодомарина и L-тироксина у детей в возрасте 11–15 лет с синдромом вегетативной дисфункции (СВД) в условиях йодного дефицита. Для оценки эффективности включения йодомарина и L-тироксина в комплексную терапию пациентов с СВД пациенты основной группы с низкой функцией щитовидной железы были разделены на две подгруппы. Первую подгруппу составили 65 пациентов, получавших стандартную терапию, вторую — 55 детей, получавших комбинированную терапию с добавлением йодомарина и L-тироксина. Включение йодомарина и L-тироксина в лечебный комплекс для детей с СВД со сниженной функцией щитовидной железы в условиях йодного дефицита оказывает выраженное положительное влияние на клинично-инструментальные показатели. При этом наблюдается тенденция к нормализации таких показателей, как суточная экскреция йода с мочой, уровень тиреоидных гормонов и ТТГ, что позволяет рекомендовать данную схему терапии при указанной патологии.

Ключевые слова: сердечно-сосудистые изменения, вегетативная дисфункция, щитовидная железа.

YOD TANQISLIGI SHAROITIDA VEGETATIV DISFUNKSIYA SINDROMI BO'LGAN BOLALARDA YODOMARIN VA L-TIROKSIN QO'LLANGAN KOMPLEKS TERAPIYA SAMARADORLIGINI BAHOLASH

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✓ Rezyume

Maqolada yod tanqisligi sharoitida vegetativ disfunktsiya sindromi (VDS) bo'lgan 11–15 yoshli bolalarda iodomarin va L-tiroksinni qo'llagan holda kompleks terapiyaning samaradorligi o'rganilgan. VDS bilan kasallangan bemorlarni kompleks davolashga iodomarin va L-tiroksinni kiritish samaradorligini baholash maqsadida qalqonsimon bez funksiyasi past bo'lgan asosiy guruhdagi bemorlar (120 nafar bola) ikkita kichik guruhga ajratildi. Birinchi kichik guruhni standart terapiya olgan 65 nafar bemor, ikkinchi kichik guruhni esa iodomarin va L-tiroksin qo'shilgan kompleks terapiya olgan 55 nafar bola tashkil etdi. Yod tanqisligi sharoitida qalqonsimon bez funksiyasi past bo'lgan VDS bilan kasallangan bolalarni davolash kompleksiga iodomarin va L-tiroksinni kiritish klinik va instrumental ko'rsatkichlarga aniq ijobiy ta'sir ko'rsatadi. Shu bilan birga, siydik bilan kunlik yod ajralishi, qalqonsimon bez gormonlari va TG (qalqonsimon bezni stimullovchi gormon) kabi ko'rsatkichlarning normallasuvi tendensiyasi kuzatiladi, bu esa ushbu patologiyada mazkur davolash usulini tavsiya etish imkonini beradi.

Kalit so'zlar: yurak-qon tomir o'zgarishlari, vegetativ disfunktsiya, qalqonsimon bez.

Relevance

Autonomic dysfunction syndrome (ADS) has a large proportion in the structure of childhood diseases. The prevalence of ADS in the general child population, according to various authors, ranges from 28.7 to 82% [1,8]. Manifestations of the syndrome in 33.3% of children persist in subsequent periods of life, and in 17-20% of cases progress, transforming into diseases such as coronary heart disease, hypo- and hypertension, vascular atherosclerosis, cerebrovascular diseases, and aggravating their course [1,3]. The figures given indicate the undoubted relevance of the ADS problem in childhood.

The thyroid gland (TG) is one of the most important endocrine organs in humans. The TG is especially important for a developing organism [11]. At a young age, TG hormones are factors that ensure the correct physical development of the organism. A deficiency of thyroid hormones significantly slows down the growth and mental development of a child's organism.

In recent years, an increase in the number of thyroid diseases has been noted. Most often, thyroid diseases are caused by iodine deficiency, which is an essential microelement [1]. Iodine deficiency poses the greatest threat to children, since it leads to disruption of the structural and functional maturation of the brain and a decrease in the child's intelligence [4,6]. The close connection between the nervous and endocrine systems is recognized by most researchers [5,7,9]. Thus, according to A.M. Vein [12], a decrease in thyroid secretion entails disruption of the endocrine-vegetative balance. A decrease in thyroxine secretion is a factor contributing to the occurrence of generalized vegetative disorders. The above data indicate the need to study the SVD in children with iodine deficiency in a broader aspect.

Objective of the study: To study the effectiveness of complex therapy using iodomarin and L-thyroxine in children with autonomic dysfunction syndrome in conditions of iodine deficiency.

Materials and methods of the study

In order to determine the effect of iodine deficiency on the course of vegetative dysfunction syndrome in children, we examined 120 sick children aged 11-15 years and 25 healthy children of the

same age. The subjects were divided into 2 groups: Group 1 included 65 children with vegetative dysfunction syndrome against the background of iodine deficiency (main group), and Group 2 included 55 patients with vegetative dysfunction syndrome who did not show signs of iodine deficiency (control group).

L-In order to evaluate the effectiveness of including iodomarin and L-thyroxine in the complex therapy of patients with VDS, patients from the main group with decreased thyroid function (26 children) were divided into two subgroups.

M-The first subgroup consisted of 13 patients who received conventional therapy, the second - 13 children who received complex treatment with the addition of iodomarin and L-thyroxine.

N-We prescribed Iodomarin tablets 200 mcg 1 time per day during meals for at least 3 months.

Levothyroxine sodium 50 and 100 mcg was administered at a dose of 2 mcg/kg once in the morning 30 minutes before breakfast for 3 months. The following adverse events were observed during drug administration: tremor in 1 patient, tachycardia in 1 patient. A previously developed set of anamnestic, clinical, laboratory, and instrumental (ECG, CIG) diagnostic criteria was used to confirm the diagnoses of iodine deficiency syndrome (IDS) and iodine deficiency.

Belokon's classification (1987) [3] was used for the diagnosis of IDS. Autonomic tone was assessed using cardioenterography (CIG); this method also allowed for assessment of autonomic reactivity by determining the TI. CIG was generally used to assess the child's functional capacity and to identify and promptly correct autonomic disorders. Registration of cardiointervalograms (100 complexes in each case) was performed on a single-channel electrocardiograph EK1T-03M with subsequent computer processing. The following parameters were calculated and evaluated: mode (MO) — the values of the most frequently occurring R-R intervals in the studied series, s; mode amplitude (AMO) — the percentage of R-R interval values corresponding to the mode; variation range (ΔX) — the difference between the maximum and minimum R-R intervals, s; The index of tension of regulatory systems is determined by the ratio of the tension index in the orthoclinal position to the tension index (TI1). The tension index (TI) itself is calculated using the formula $AMO (\%)/(2 MO \times \Delta X(s))$.

The degree of thyroid enlargement was determined according to the classification proposed by WHO in 1994. The following degrees of enlargement are distinguished: 0 – no goiter, I degree – the thyroid lobe is larger than the distal phalanx of the patient's first finger, the goiter is palpable but not visible; II degree – the goiter is palpable and visible. All patients in the main group also underwent ultrasonographic determination of the thyroid gland size (ultrasound) using the Hormann Interscan-256 apparatus with a 5.5-7.5 MHz linear and convex sensor. Determination of the level of thyroid-stimulating hormone (TSH), thyroxine (T4), triiodothyronine (T3) was carried out by the enzyme immunoassay method. The content of inorganic iodine in daily urine was determined by the method of Yulaev M.F. (2000). Among the examined boys there were 46 (38.3%), girls - 74 (61.7%). In both groups, the predominance of the female sex was noted, however, in the main group this difference was distinct. Thus, in the 1st group there were 44 girls (67.7%), boys - 21 (32.3%); in the 2nd group, girls made up 30 (54.5%), and boys - 25 (45.5%).

The distribution of patients depending on age showed a predominance of children from older age subgroups in the study groups (Fig. 1), which corresponds to literature data: puberty is "critical" for both VD and iodine deficiency. [2,10].

Conflict of Interest: The authors declare no conflicts of interest.

Funding: The study was conducted without any specific funding from commercial or government entities.

Authors' Contributions: Study idea, concept, and design, statistical analysis.

Ethics Statement: The study was conducted in accordance with Good Clinical Practice standards and the principles of the Declaration of Helsinki.

Informed Consent: Written informed consent was obtained from all patients for the study and permission for anonymous publication of the results.

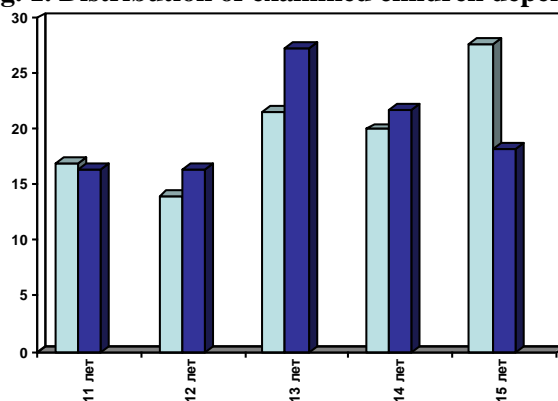
Results of the study

Against the background of complex treatment with the inclusion of iodomarin and L-thyroxine, a clear positive dynamics of clinical and instrumental indicators was observed. Thus, patients, against

the background of complex therapy, noted an easing of the course of the disease, the semiotics of the SVD weakened, the frequency of such severe manifestations of the disease as crises and syncope decreased. Characteristic were a decrease in edema, a tendency to restore body weight, the disappearance of polyadenamia, normalization of breathing, a decrease in bradycardia, stabilization of blood pressure, improvement of digestive function (appetite, intestinal motility). Complex therapy also had a pronounced positive effect on neurological symptoms. Patients who received complex therapy noted a decrease in the intensity of headaches and dizziness. Positive shifts in the psychoemotional sphere were noted: an increase in interest in the environment, improved memory and attention and, as a result, an increase in intellectual performance. At the same time, in patients of this group who received conventional therapy, no significant dynamics of the above symptoms were detected; the improvement of neurological symptoms was short-lived.

When comparing ECG parameters in patients with SVD with decreased thyroid function before and after treatment, it was found that the patients who received complex therapy also had a decreased severity of sinus arrhythmia, and there was a clear tendency to restore normal heart rate. Complex therapy had a good effect on such rhythm disorders as sick sinus syndrome in 2 patients, atrial conduction disorders in 4 patients, and grade I A-V block in 2 patients. At the same time, we did not find such dynamics of ECG parameters in patients who received conventional therapy over the same period.

Fig. 1. Distribution of examined children depending on age



Analysis of the EchoCG parameters after the treatment showed that against the background of complex therapy, reliably ($P < 0.05$) high values of Vc, Vd, SV, FI in 5 patients of the 2nd subgroup were restored rather quickly. In 6 patients with hypokinesia of the walls, normal kinetics was restored after treatment. In the other half of the patients with hypokinesia, included in the 1st subgroup, we did not observe changes in the kinetics of the walls.

A comparative assessment of the CIG parameters in patients who received different types of therapy also indicates the advantage of iodomarin and L-thyroxine in the complex treatment of VSV.

In patients with decreased thyroid function according to the CIG data before treatment, the IVT type was generally characterized as vagotonic, and the IN2/IN1 ratio value indicated an asympathicotonic type of autonomic reactivity. All the determined CIG indices in this subgroup significantly differed from the indices in the healthy group (Table 1). After the generally accepted treatment of SVD (1st subgroup), the studied CIG indices did not change significantly ($P > 0.1$), the type of autonomic reactivity remained the same. After the complex therapy, a reliable change in AMO ($P < 0.01$), ΔX ($P < 0.01$), IN1 ($P < 0.001$), IN2 ($P < 0.001$) was noted, as a result, the IN2/IN1 ratio value approached that for the healthy group - 1.2 ± 0.4 (Table 1), which corresponded to normal autonomic reactivity. Such indicators as AMO, ΔX after complex treatment did not differ significantly from the indicators of healthy children ($P^* > 0.1$).

Under the influence of therapy with the inclusion of iodomarin and L-thyroxine, positive dynamics of the clinorhastatic test indicators were also noted. As noted above, in patients with reduced thyroid function, the autonomic support was clearly insufficient: a drop in SBP and DBP, tachycardia - an asympathicotonic variant.

Table 1. Indicators of CIG in children with SVD in conditions of iodine deficiency and decreased thyroid function

Group	M _O , c	AM _O , %	ΔX, c	ИН ₁ , y.e.	ИН ₂ , y.e.	ИН ₂ / ИН ₁
Healthy (n=25)	0,79±0,02	23,0±1,2	0,25±0,02	58,2±2,7	63,1±3,9	1,08±0,4
Before treatment (n=26)	0,92±0,02 P* < 0,001	17,1±1,1 P* < 0,01	0,38±0,02 P* < 0,001	24,5±2,7 P* < 0,001	21,2±2,1 P* < 0,001	0,87±0,3 P* > 0,1
1st subgroup (n=19)	0,90±0,02 P > 0,1 P* < 0,001	18,0±1,1 P > 0,1 P* < 0,01	0,37±0,03 P > 0,1 P* < 0,01	27,0±2,9 P > 0,1 P* < 0,001	23,2±2,5 P > 0,1 P* < 0,001	0,86±0,4 P > 0,1 P* > 0,1
2nd subgroup (n=20)	0,88±0,02 P > 0,1 P* < 0,01	22,1±1,3 P < 0,01 P* > 0,1	0,28±0,02 P < 0,01 P* > 0,1	44,9±3,0 P < 0,001 P* < 0,01	52,2±3,2 P < 0,001 P* < 0,05	1,2±0,4 P > 0,1 P* > 0,1

P - reliability of indicators in relation to indicators before treatment

*P** - reliability of indicators in relation to the group of healthy people

After conventional therapy, this variant of vegetative support was preserved in 6 patients, and a sympathicoasthenic variant was detected in 7 patients. After complex treatment: 2 patients had an asthenosympathetic variant, 3 had a sympathicoasthenic variant, and the rest had a hypersympathicotonic variant. Consequently, when iodomarin and L-thyroxine were included, a tendency toward improvement of vegetative support was observed, in contrast to patients who received conventional therapy.

In order to evaluate the effect of combination therapy on the level of daily iodine excretion and the functional state of the thyroid gland in patients with VD against the background of iodine deficiency, a comparative characteristic of the corresponding indicators was carried out before and after treatment. It was found that if before treatment the daily excretion of iodine in urine was $37.8 \pm 6.8 \mu\text{g} / \text{l}$ ($P < 0.001$), then against the background of conventional therapy this indicator did not change significantly ($35.8 \pm 9.5 \mu\text{g} / \text{l}$ ($P > 0.1$)), after the inclusion of iodomarin and L-thyroxine, although it did not reach the level of healthy children ($P < 0.05$) during the observation period, it significantly improved ($100.3 \pm 14.8 \mu\text{g} / \text{l}$ ($P < 0.01$)). The content of T3 and T4 in children of this group before treatment was significantly reduced, which indicates a decrease in the functional activity of the thyroid gland. After conventional treatment, the T3 level was $2.6 \pm 0.1 \text{ nmol/l}$ ($P < 0.001$), T4 - $119.2 \pm 4.1 \text{ nmol/l}$ ($P > 0.1$) and remained reliably ($P < 0.001$) high, i.e. no significant dynamics were observed in relation to these indicators. After the inclusion of iodomarin and L-thyroxine in the complex therapy, the level of thyroid hormones significantly increased: T3 to 3.5 ± 0.2 ($P < 0.001$), T4 to 147.7 ± 3.9 ($P < 0.001$), and these indicators did not differ significantly from the standards ($P > 0.1$).

We noted a reliable increase in the TSH level before treatment in patients with iodine deficiency and decreased thyroid function: $5.02 \pm 0.13 \text{ mIU/l}$ ($P < 0.001$), which, according to the feedback mechanism, indicates a compensatory increase in pituitary gland activity. After conventional treatment, this indicator did not change significantly and amounted to: $5.1 \pm 0.2 \text{ mIU/l}$ ($P > 0.1$). After complex therapy, a clear positive trend in this indicator was observed ($3.1 \pm 0.2 \text{ mIU/l}$ ($P < 0.001$)) (Table 2).

Table 2.

Daily excretion of iodine, the content of thyroid hormones and TSH in the blood of children with SVD in conditions of iodine deficiency and decreased thyroid function

№	Indicators	Healthy children n=25	Before treatment n=26	1st Subgroup n=13	2nd Subgroup n=13
1	TSH, mIU/L	2,01±0,1	5,02±0,13 P < 0,001	5,1±0,2 P > 0,1 P* < 0,001	3,1±0,2 P < 0,001 P* < 0,001
2	T3, nmol/l	4,05±0,1	2,08±0,05 P < 0,001	2,6±0,1 P < 0,001 P* < 0,001	3,5±0,2 P < 0,001 P* > 0,1
3	T4, nmol/l	154,5±3,6	110,7±2,34 P < 0,001	119,2±4,1 P > 0,1 P* < 0,001	147,7±3,9 P < 0,001 P* > 0,1
4.	Daily iodine excretion in urine, mcg/l	162,2±15,6	37,8±6,8 P < 0,001	35,8±9,5 P > 0,1 P* < 0,001	100,3±14,8 P < 0,01 P* < 0,05

Note: *P* - reliability of the difference between the indicators before and after treatment; *P** - reliability of the difference between the indicators of the healthy group and after treatment

Conclusion

Thus, the inclusion of iodomarin and L-thyroxine in the treatment complex for children with SVD with reduced thyroid function under iodine deficiency conditions has a clear positive effect on clinical and instrumental parameters. In parallel, there is a tendency to normalize such parameters as daily iodine excretion in urine, thyroid hormones and TSH with this method of therapy, which allows us to recommend it for this pathology.

1. It has been established that VD in children aged 11-15 years with iodine deficiency occurs with pronounced clinical symptoms with damage to many organs and systems, and is characterized by a more severe course.

2. The use of iodomarin in the treatment complex for children with VD in conditions of iodine deficiency, and with a decrease in thyroid function and L-thyroxine, helps to alleviate the course of the underlying disease, improve clinical and instrumental indicators and stabilize the state of the autonomic nervous system.

LIST OF REFERENCES:

1. Abdurakhmanov JN, Sharipova OA, Melieva GA. Dysfunction of the autonomic nervous system in children living in iodine-deficient conditions. Higher School: Scientific Research. 2021:106-113.
2. Arslanbekova ACh, et al. Microcirculation in thyroid disorders. 2021.
3. Belokon NA, Kuberger MB. Heart and vascular diseases in children: a guide for doctors. Vol. 1-2. Moscow; 1987. 927 p.
4. Efimova ES, et al. The problem of iodine deficiency: consequences and prevention (literature review). Youth, Science, Medicine. 2021:236-242.
5. Jennings KJ, De Lecea L. Neural and hormonal control of sexual behavior. Endocrinology. 2020;161(10):bqaa150. DOI: 10.1210/endo/bqaa150.
6. Karmokov IA. Modern aspects of preventing iodine deficiency disorders in high-risk groups. In: Medicine and Healthcare in Modern Society: Collection. 2020. p. 49.
7. Khan Y, et al. Chemicals that disrupt the endocrine system and their effects on human health. Journal of Endocrinology. 2022;6(1):000179. DOI: 10.33552/OJENDO.2022.06.000627.
8. Mironenko ES. Clinical features of autonomic dysfunction syndrome in children and adolescents. 2021.
9. Osolodkova EV. Peculiarities of studying the topic "Regulation of body functions" in the elective course on human physiology. In: Scientific Revolutions as a Key Factor in the Development of Science and Technology. 2021. p. 11-15.
10. Samoylova YuG, et al. Thyroid diseases in children and adolescents: a textbook for students enrolled in specialist degree programs in Pediatrics and General Medicine. 2019.
11. Savchenkov Yu, Soldatova O, Shilov S. Age physiology (physiological characteristics of children and adolescents): university textbook. Litres; 2022.
12. Vein A.M. Autonomic disorders: clinical presentation, diagnostics, treatment. Moscow; 2003. 752 p.

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