

The influence of phytocompositions of the "Russian Natural Pharmacy" series on the state of the vegetative balance among students

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Introduction

The tone of the autonomic nervous system (ANS) is determined by many factors. The level of intoxication of the body depends on the endoecological pollution of the body caused by environmental pollution, the state of the digestive and excretory systems, the level of adaptation of the body to toxic effects and the level of physical activity.

During movement, physiotherapy or the use of infusions of certain plants, the accumulated toxic substances enter the blood from the intercellular space [4, 5] and cause a corresponding response of the ANS [10]. A.M. Wayne et al. [2] proposed to determine the tone of the ANS on the basis of calculating the indicators of diastolic pressure and pulse (Kerdo index) in combination with determining the level of conjugation of the work of the cardiovascular and bronchopulmonary systems - the Hildebrant index.

The health of students with increased psycho-emotional stress, in conditions of hypodynamia, vitamin deficiency and partial hypoxia raises serious concerns [8] and requires study and correction. Slowing down the processes of detoxification and elimination of toxic substances leads to the development of endoecological disease, which is determined in the majority of young students [4]. Discomfort in students caused by endoecological disease is eliminated by using herbal teas of the "Russian Natural Pharmacy" series [8]. Plant substances from infusions supply the body with well-absorbed vitamins and minerals necessary for detoxification [6, 9]. Plants have lymphatic drainage and lymph-stimulating effects, helping to cleanse the body [4, 5]. Herbal tea "Monomakh" cleanses the gastrointestinal tract,

We set a goal to study the state of vegetative balance in 1st year students before and after taking the instant herbal tea "Monomakh", which has a tonic and cleansing effect. For control, the VNS reaction to the Blagovest herbal tea, which has a calming effect, was studied.

Methods

The research was carried out among 28 first-year students of 17-18 years old. Instant herbal tea "Monomakh" (dry, water extract of plants) was taken once by 10 women and 4 men. Blagovest instant herbal tea - 10 women and 4 men. An hour after taking the herbal tea, blood pressure was determined (ADS - systolic and ADP - diastolic, PAP - pulse blood pressure), the number of heart contractions and the number of breaths per minute. The Kerdo index (IC) $(1 - BPP / \text{pulse}) \times 100$ and the Hildebrant index (ICB) $(\text{pulse} / \text{number of breaths per minute})$ were calculated (norm indicators 2.5–4.9). An increase in the indicator indicates tension and the threat of a breakdown in adaptation and the development of pathological processes. Sympathicotonia (a positive indicator of the Kerdo index) indicates a low level of adaptation, an increase in intoxication processes [3, 11].

The use of antihomotoxic drugs for vegetative-vascular dystonia leads to a decrease in the Kerdo index [1]. Parasympathicotonia testifies to the economical use of energy resources and an increase in the level of adaptation [3]. To process the results obtained in the course of the study, we used the generally accepted methods of mathematical statistics. All calculations were made in accordance with the generally accepted requirements of mathematical and statistical processing in the Statistica 6.0 program. Descriptive statistics were used, assessment of the normality of the distribution of the sample using the Shapiro-Wilk test. To assess the significance of the differences in mean values, the nonparametric Wilcoxon tests for related samples and Mann-Whitney tests for independent samples were used [10].

Research results

Our studies have shown (tab. 1) that according to the average data, the level of systolic blood pressure and diastolic blood pressure under the influence of herbal tea "Monomakh" tends to increase. At the same time, the number of heart contractions tends to decrease within the normal range. In a control study with the herbal tea "Blagovest", pulse pressure increases (the difference between systolic and diastolic pressure). The number of breaths according to the average data, as well as the Hildebrant index - the conjugation in the work of the cardiovascular and bronchopulmonary systems do not have significant differences.

When studying the Kerdo index, we determined that before taking the herbal tea "Monomakh" 43% of students have a positive Kerdo index, 57% - negative. Eutonia is not observed. After taking herbal tea "Monomakh", we noted significant changes in indicators, even according to average data. Sympathicotonia is no longer observed in students, and eutonia is already noted in 28% of students. The majority of students (72%) switch to the parasympathetic type of autonomic regulation with a tendency to hyperparasympathicotonia. Statistically significant is not only an increase in the level of parasympathicotonia, but also a change in the index towards sympathicotonia in a control study under the influence of herbal tea of a different direction of influence. In the control group, diastolic pressure decreases under the influence of Blagovest herbal tea, and pulse blood pressure rises. Thus,

Control studies carried out with the use of herbal tea "Blagovest" showed, on the contrary, a decrease in the level of parasympathicotonia, increasing sympathicotonia. The index of conjugation of the work of the cardiovascular and bronchopulmonary systems, as well as the indicators of blood pressure, blood pressure and pulse, according to the average data, practically did not change. This proves a certain specificity of the effect of herbal teas of the "Russian Natural Pharmacy" series. Herbal tea "Monomakh", which has a cleansing effect, promotes the activation of autonomic regulation, a decrease in the level of sympathicotonia, which is not observed when using herbal tea "Blagovest".

Thus, in the experimental group when using herbal tea "Monomakh" significant changes were noted in the indices of the Kerdo index, which characterizes the type of autonomic regulation.

The discussion of the results

Physical inactivity leads to the accumulation of toxins in the intercellular space. With physical activity and stresses in the classroom, toxic substances are released into the blood, which is reflected in the indicators of autonomic regulation before taking herbal tea by an increase in the level of sympathicotonia. Herbal components of herbal tea contribute to their neutralization and elimination. Both in average and in individual indicators, we see significant changes after taking herbal tea. This indicates that due to the lymphatic drainage action of plant components, the homeostasis system is activated. Herbal tea "Monomakh" increases the level of parasympathicotonia eliminating sympathicotonia.

Sympathicotonia occurs when the body is intoxicated [11]. Eutonia indicates a full-fledged autonomic regulation, and we observe an index equal to zero. Thus, the cleansing herbal tea in practically healthy students promotes the purification and restoration of adaptation processes under stress conditions, as evidenced by an increase in the level of parasympathicotonia. The direction of the changes indicates the normalization and enhancement of the system of compensatory adaptation. After taking herbal tea "Monomakh" sympathicotonia in students was not determined, and in some cases eutonia (normotonia) appeared, and, basically, the level of parasympathicotonia increased.

Control studies using herbal tea "Blagovest", which has a sedative effect, showed a different effect on the vegetative tone. As follows from the data in the table, significant changes in blood pressure do not occur, and the indicators of pulse and heart rate slightly increase, as well as a significant decrease in the level of parasympathicotonia.

Table 1

Changes in the main functional indicators under the influence of phytocompositions "Monomakh" and "Blagovest"

Показатель	Группа, принимавшая чай «Мономах», n = 14			Группа, принимавшая чай «Благовест», n = 14			p ₁₋₃	p ₂₋₄
	До применения, M ₁ ± m ₁	После применения, M ₂ ± m ₂	p ₁₋₂	До применения, M ₃ ± m ₃	После применения, M ₄ ± m ₄	p ₃₋₄		
АДС	123,29 ± 6,11	132,14 ± 3,94	> 0,05	118,86 ± 2,58	122,57 ± 3,98	> 0,05	> 0,05	> 0,05
АДД	76,29 ± 4,51	85,57 ± 3,72	> 0,05	74,43 ± 3,32	72,00 ± 3,07	> 0,05	> 0,05	< 0,05
ПАД	47,00 ± 3,02	46,57 ± 4,40	> 0,05	44,43 ± 2,95	50,57 ± 3,72	< 0,05	> 0,05	> 0,05
ЧСС	75,00 ± 2,80	70,71 ± 3,35	> 0,05	78,71 ± 3,50	78,29 ± 4,31	> 0,05	> 0,05	> 0,05
ЧД	18,57 ± 1,94	18,29 ± 2,37	> 0,05	20,71 ± 2,13	21,57 ± 2,15	> 0,05	> 0,05	> 0,05
ИК	-2,57 ± 3,95	-22,29 ± 7,59	< 0,05	1,00 ± 6,18	7,14 ± 4,68	> 0,05	> 0,05	< 0,01
ИХБ	4,30 ± 0,53	4,31 ± 0,63	> 0,05	4,01 ± 0,45	3,87 ± 0,51	> 0,05	> 0,05	> 0,05

Note: when calculating the Shapiro-Wilk criterion, it was found that the samples do not have a normal distribution, in this regard, comparison of two independent samples (p1-3 and p2-4) was performed using the Mann-Whitney test, two related samples (p1-2 and p3-4) - using the Wilcoxon test.

Legend: ADS - systolic blood pressure, mm Hg; ADP - diastolic blood pressure, mm Hg; PAP - pulse blood pressure, mm Hg; HR - heart rate, beats / min; RR - respiratory rate, breaths / min. The reliability of the results is shown in bold

However, showing its specific effect, herbal tea contributes to sympathicotonia. Herbal tea "Blagovest", according to the profile of its effect, lowers blood pressure (diastolic) and increases the level of pulse pressure. The average level of the pulse pressure indicator was significantly increased after taking herbal tea.

conclusions

1. The effect of herbal teas differs in terms of the Kerdo index, which characterizes the type vegetative regulation.
2. Under the influence of herbal tea "Monomakh" sympathicotonia is eliminated, and the indicators of pulse, respiration and heart rate, the indices of the conjugation of the cardiovascular and bronchopulmonary systems remain within the normal range.
3. Control studies with herbal tea "Blagovest" lead to changes in other focus: reducing the level of parasympathicotonia and increasing blood pressure.
4. Herbal tea "Monomakh" is indicated for patients with hypersympathicotonia.

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