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Does the usual dietary intake of patients with depression require vitamin-mineral supplementation?

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Summary

Introduction. Research into diet and nutrition of patients with depression shows that their eating habits are frequently irrational and result in the inconsistent supply of nutrients, especially vitamins and minerals, whose deficiency leads to nervous system dysfunction.

Aim. The aim of the study was to evaluate the content of selected vitamins and minerals in daily food rations of patients suffering from recurrent depressive disorders.

Methods. The study involved a group of 69 people (54 women and 15 men, aged 18–65 years, mean age of women 45.7±12.2 years, men 46.0±12.2 years), treated for recurrent depressive disorders. A questionnaire designed in the Department of Dietetics and Clinical Nutrition, Medical University of Białystok, was used to collect dietary data. The quantitative assessment of eating habits used a 24-hour diet recall including 3 weekdays and 1 weekend day.

Results. The study showed that the supply of most nutrients assessed was inconsistent with recommendations.

Conclusions. The results indicate that the need for vitamin-mineral supplementation should be considered individually. Nutritional education related to the proper choice of groups of food products is indicated at the time of clinical improvement to ensure the optimum supply of vitamins and minerals.

Key words: depression, vitamins, minerals

Introduction

In recent years, there has been an increase in the incidence of depression which leads to many health complications and poses a serious public health problem [1]. It has been shown that patients suffering from depression are more likely to change eating behaviors associated with changes in appetite and food preferences, including avoiding consumption of certain groups of products and dishes [2–5].

These changes may result in serious deficiencies of certain nutrients, particularly vitamins and minerals. Even moderate deficiencies, especially if they persist for a long time, have adverse effects on human health, including the nervous system [6–8].

Thiamine (vitamin B_1) deficiency may lead to impaired memory, concentration and emotional imbalance, i.e. symptoms commonly observed in patients with depression [4, 9]. Deficiency of riboflavin (vitamin B_2) causes dizziness and insomnia. Pyridoxine (vitamin B_6) insufficiency results in apathy, insomnia, hypersensitivity, whereas too low level of niacin leads to insomnia, dizziness, headaches, neuritis, memory disorders and states of nervous disorder [9, 10]. Vitamins B_6 and B_{12} are directly involved in the synthesis of certain neurotransmitters. Vitamin B_{12} supplementation improves cognitive functions, especially in older people [9]. Folic acid acts as a coenzyme in the transfer of one-carbon moieties to the corresponding receptors, and its deficiency is linked to nervous system dysfunction (hyperactivity and difficulty falling asleep) [10, 11]. The involvement of the selected macro- and micronutrients (Mg, Zn, Cu) has also been demonstrated in the activation of the dependent enzymes engaged in catecholamine transmission, whose disorders are associated with the pathogenesis of depression [1, 12–14].

The aim of the present study was to evaluate the content of the selected vitamins and minerals in daily food rations of patients suffering from recurrent depressive disorders and to find out whether depressive patients, whose diet is frequently irrational, require additional vitamin-mineral supplementation.

Material

The study involved a group of 69 people (54 women and 15 men, aged 18-65 years, with mean age raging from 45.7±12.2 years in women and 46.0±12.2 years in men), treated in the Mental Health Clinic, Department of Psychiatry, Medical University of Bialystok. The group included patients diagnosed with recurrent depressive disorders (according to ICD-10), lasting up to 5 years, and with a current episode of depression no longer than one month [15]. Furthermore, the current treatment for depression was shorter than a month and included one antidepressant (paroxetine, sertraline, venlafaxine , citalopram , mirtazapine, escitalopram) and a sedative used as needed.

The course of the disease was assessed based on history data and available documentation. The depression severity was evaluated using the Hamilton Depression Rating Scale (version 17-point) and Beck's self-esteem scale [16, 17]. Patients participating in the study were informed of the purpose and methodology of the study. Each patient gave written consent for their participation. The study was approved by the local Ethics Committee No. R-I-002/325/2011.

Method

A dietary questionnaire developed in the Department of Dietetics and Clinical Nutrition, Medical University of Bialystok, containing e.g. questions related to eating habits, was used to collect data. The quantitative assessment used a 24-hour diet recall including 3 weekdays and 1 weekend day, and the results were averaged. Patients did not additionally take vitamin-mineral supplements. The nutritional value of all-day food rations was assessed by a computer program Diet 5.0 designed by the Institute of Food and Nutrition in Warsaw, taking into account the loss of nutrients during the

cooking process (Package Diet 5.0 for planning and current assessment of individual nutrition. Institute of Food and Nutrition -license contract no. HBBxtpINI). When estimating portion sizes of food products, "Album of photographs of food products and dishes" elaborated by IFN in Warsaw was used [18].

The final results are summarized in the form of the arithmetic mean, standard deviation, median and percentage calculations. In assessing the intake of the selected nutrients, recommended nutrition standards (Recommended Dietary Allowances or Adequate Intake) for the Polish population were used as reference [19]. The proper intake of nutrients was considered at the level of 90-110% of the nutrition standards. Statistical analysis of the results was performed using the computer program Statistica 10.0, StatSoft.

Results

The study included 69 patients suffering from recurrent depressive disorders. Mean disease duration for 50% of the women was 4 years, for 16.7% 2-3 years, and for 33.3% it was less than 1 year. A single episode of depression was reported in 33.3% of women, 2-4 episodes in 38.9%, more than 4 episodes occurred in 27.8% of female patients. In the group of men, for 33.3% mean disease duration was 4 years, for 13.3% 2-3 years, and for 53.4% it was less than 1 year. A single episode of depression affected 40% of men, 2-4 episodes were reported in 26.7% of men and more than 4 episodes occurred in 33.3% of patients. The average score obtained on the Hamilton depression scale was 13.7±7.1 in females and 12.3±5.2 in males.

The average score obtained on the Beck self-assessment scale was 25.1±12.9 in women and 16.9±13.2 in men. In the group of women, 11.1% received paroxetine, 26% sertraline and venlafaxine, 9.2% citalopram 12.9% mirtazapine and 14.8% escitalopram. Among men, 13.3% of respondents received escitalopram, 33.3% venlafaxine, 26.7% mirtazapine and sertraline. In the female group, 14.8% had primary education, 20.5% vocational education, 55.5% secondary and 9.2% higher education. In the male group, 13.3% had primary education, 33.3% vocational education, 26.7% secondary education and 26.7% higher education.

The average energetic value of daily food rations consumed by women was found to be 1670.7±612.4kcal/day (79.5% coverage of daily requirement), and by men - 2188.9±627.9kcal/day (78.0% coverage). At the same time, it was noted that 57.4% of women's food rations had a very low energetic value, 25.9% of food rations provided energy in accordance with demand, and 16.7% were characterized by a higher energetic value than required for a given age and gender. In the group of men, 73.3% of food rations had lower energetic value than recommended, and only 26.7% covered energy requirements. The average value of energy consumed by the patients meals did not differ statistically significantly depending on the type of drug and was accordingly for patients taking paroxetine 2286.6±1161.2 kcal; taking sertraline 1643.0 ± 558.2 kcal; venlafaxine 1646.9 ± 655.2 kcal; citalopram 1759.0±359.0kcal; mirtazapine 1552.0 ± 273.9 kcal; escitalopram 1519.3 ± 365.7 kcal. The average value of energy of food rations of men received escitalopram was 2388.5±910.8 kcal; venlafaxine 2362.8±483.1 kcal; 2259.1±213.1 kcal mirtazapine; sertraline 2320.5±154.6 kcal.

Table 1. **Mean content of chosen vitamins in daily food rations of the study patients**

Vitamins		women (n=54)	men (n=15)
Vitamin A (mcg) (% RDA)	Mean±SD	735.5±469.8 (105.1)	1015.9±860.9 (112.9)
	Median	623.4 (89.0)	844.4 (93.8)
Vitamin D (mcg) (% AI)	Mean±SD	2.0±1.7 (40.0)	3.2±2.1 (64.0)
	Median	1.6 (32.0)	3.1 (62.0)
Vitamin E (mg) (% AI)	Mean±SD	5.5±3.7 (68.7)	7.5±4.8 (75.0)
	Median	4.5 (56.2)	6.4 (64.0)
Vitamin C (mg) (% RDA)	Mean±SD	60.6±47.4 (80.8)	95.3±134.0 (105.9)
	Median	45.5 (60.7)	56.6 (62.9)
Vitamin B_1 (mg) (% RDA)	Mean±SD	1.3±0.5 (118.2)	1.6±0.5 (123.1)
	Median	1.2 (109.1)	1.5 (115.4)
Vitamin B_2 (mg) (% RDA)	Mean±SD	1.3±0.6 (118.2)	1.6±0.9 (123.1)
	Median	1.2 (109.1)	1.5 (123.1)
Vitamin B_6 (mg) (% RDA)	Mean±SD	1.7±0.6 [106.2]	1.9±0.6 [146]
	Median	1.7 (130.8)	2.0 (153.8)
Vitamin B_{12} (mcg) (% RDA)	Mean±SD	2.4±1.2 (100.0)	3.2±2.5 (133.0)
	Median	2.1 (87.5)	2.6 (108.3)
Folate (mcg) (% RDA)	Mean±SD	193.4±76.7 (48.3)	243.4±129.7 (60.8)
	Median	183.6 (45.9)	235.5 (58.9)
Niacin (mg) (% RDA)	Mean±SD	14.7±6.7 (105)	16.4±3.7 (102.5)
	Median	13.4 (95.7)	16.1 (100.6)

RDA – Recommended Dietary Allowances
AI – Adequate Intake

Table 1 shows the average content of vitamins in daily food rations consumed by the study patients. The usual diet of women with depression that did not meet energetic requirements was found to exhibit deficiencies of vitamins D, E, C, and folates. Vitamins B_1 and B_2 were consumed in excess. The supply of vitamins A, B_6, B_{12} and niacin was in line with recommendations. At the same time, despite implementation of these standards, over 40% of food rations supplied vitamins A and B_{12} below recommendations (table 2).

Table 2. **Distribution of food rations of the study patients according to the implementation of the standards for chosen vitamins**

Vitamins	% of rations	Women	Men
Vitamin A	below norm	40.7	40.0
	within norm	27.8	13.4
	above norm	31.5	46.6
Vitamin D	below norm	88.9	66.7
	within norm	7.4	20.0
	above norm	3.7	13.3
Vitamin E	below norm	76.0	66.7
	within norm	14.8	13.3
	above norm	9.2	20.0
Vitamin C	below norm	63.0	80.0
	within norm	22.2	0.0
	above norm	14.8	20.0
Vitamin B_1	below norm	16.7	20.0
	within norm	37.0	33.4
	above norm	46.3	46.6
Vitamin B_2	below norm	20.4	26.7
	within norm	40.7	20.0
	above norm	38.0	53.3
Vitamin B_6	below norm	7.5	13.3
	within norm	37.0	13.3
	above norm	55.5	73.4
Vitamin B_{12}	below norm	48.2	33.4
	within norm	14.8	20.0
	above norm	37.0	46.6
Folate	below norm	94.5	86.6
	within norm	5.5	6.7
	above norm	0.0	6.7
Niacin	below norm	31.5	20.0
	within norm	37.0	33.4
	above norm	31.5	46.6

Moreover, one third of food rations consumed by women did not provide a satisfactory amount of niacin. Nearly 75% of the female food rations provided vitamins D, E and folate below recommended norms (89%, 76% and 94% of food rations, respectively).

Likewise, men whose diets did not meet the recommended levels of the caloric value showed a shortage of vitamins D, E, and folate. There was an oversupply of vitamins: B_1, B_2, B_6 and B_{12}. Vitamins A, C and niacin were supplied according to recommendations. However, despite implementation of higher standards, over 30% of food rations provided vitamins A and B_{12} below recommended norms. An even higher percentage (about 70%) of food rations in men also provided insufficient amounts of vitamins D, E, and vitamin C and folate (80%).

The assessment of the mean content of minerals in daily food rations in women showed insufficient supply of potassium, calcium, magnesium, iron and iodine (table 3).

Table 3. **Mean content of chosen minerals in daily ford rations consumed by the study patients**

Minerals		Women (n=54)	Men (n=15)
Sodium (mg) (% AI)	Mean±SD	3332.6±1174.4 (222.2)	4244.0±1381.1 (282.9)
	Median	3319.7 (221.3)	4326.0 (288.4)
Potassium (mg) (% AI)	Mean±SD	2870.7±1000.7 (61.1)	3171.8±959.6 (67.5)
	Median	2801.4 (59.6)	3171.8 (67.5)
Calcium (mg) (% AI)	Mean±SD	481.3±275.3 (48.1)	531.1±330.3 (53.1)
	Median	458.6 (45.9)	433.9 (43.4)
Phosphorus (mg) (% RDA)	Mean±SD	1045.6±380.5 (149.4)	1232.0±527.0 (176.0)
	Median	979.3 (139.9)	1185.9 (169.4)
Magnesium (mg) (% RDA)	Mean±SD	251.9±86.4 (78.7)	283.1±89.0 (67.4)
	Median	243.7 (76.1)	273.4 (65.1)
Iron (mg) (% RDA)	Mean±SD	8.6±3.1 (47.8)	11.4±4.3 (114.0)
	Median	8.2 (45.5)	10.7 (107.0)

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Zinc (mg) (% RDA)	Mean±SD	8.7±3.1 (108.7)	11.3±3.4 (102.7)
	Median	8.5 (106.2)	10.5 (95.4)
Copper (mg) (% RDA)	Mean±SD	1.1±1.0 (122.2)	1.0±0.3 (111.1)
	Median	0.9 (100.0)	0.9 (100.0)
Iodine (mcg) (% RDA)	Mean±SD	124.5±69.0 (83.0)	131.6±66.2 (87.7)
	Median	119.3 (79.5)	147.8 (98.5)

As many as 90% of food rations had a very low content of potassium, calcium and iron (table 4).

Table 4. **Distribution of food rations of the study patients according to the implementation of the standards for chosen minerals.**

Mineral components	% of rations	Women	Men
Sodium	below norm	0.0	0.0
	within norm	5.5	0.0
	above norm	94.5	100.0
Potassium	below norm	87.0	80.0
	within norm	13.0	20.0
	above norm	0.0	0.0
Calcium	below norm	90.7	80.0
	within norm	9.3	13.3
	above norm	0.0	6.7
Phosphorus	below norm	13.0	0.0
	within norm	13.0	13.3
	above norm	74.0	86.7
Magnesium	below norm	64.8	73.3
	within norm	31.5	26.7
	above norm	3.7	0.0
Iron	below norm	98.1	20.0
	within norm	1.9	26.7
	above norm	0.0	53.3

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Zinc	below norm	33.3	26.7
	within norm	24.1	33.3
	above norm	42.6	40.0
Copper	below norm	31.5	26.7
	within norm	37.0	26.7
	above norm	31.5	46.6
Iodine	below norm	55.6	46.6
	within norm	22.2	26.7
	above norm	22.2	26.7

Sodium, phosphorus and copper were provided in excess with the usual diet. At the same time, 13% of food rations had insufficient amounts of phosphorus and 31% of copper. In women, only zinc intake was in line with recommendations, but almost in one third of the food rations this micronutrient was below the recommended standards.

However, men's food rations were too poor in potassium, calcium and magnesium, and very rich in sodium, phosphorus and iron. Zinc, copper and iodine supplies were consistent with recommendations, yet about 27% of food rations failed to meet recommendations for zinc and copper, and 47% for iodine. Even higher percentage (about 80%) of men's food rations provided insufficient amounts of potassium, calcium and magnesium.

Discussion of the results

The widespread dietary model among the Polish population frequently ignores adequate supply of certain nutrients, especially vitamins, minerals and unsaturated omega-3 fatty acids [20]. As shown by studies conducted in various research centers worldwide, the shortage of these compounds can be observed in patients suffering from mental disorders [6, 21, 22].

Moreover, the diet containing sufficient amounts of folate and polyunsaturated omega-3 fatty acids, rich in such products as olive oil, fish, fruit, nuts and vegetables, has been reported to have a beneficial effect on the course of depression [1, 4, 5]. On the other hand, it has been shown that the intake of processed foods, chocolate, refined grains, full-fat dairy products and frozen foods may be associated with a higher risk of developing depression [2, 4].

A special role in the treatment of psychiatric disorders has been attributed to group B vitamins (especially B_1, B_6, B_{12}, folate), vitamin D, antioxidants: C and E, and mineral components: Fe, Zn, Mg, J, Cu [1, 9, 13, 14, 21, 23]. As demonstrated by Murakami et al., patients with depression consumed the recommended levels of group B vitamins (B_2, B_6), but the consumption of B_{12} and folate did not meet the standards [24]. However, Davison observed a significantly reduced supply of all vitamins B in the food rations of women suffering from depression (about 25% of food rations

contained lower amounts than recommended) [6]. When evaluating the diet of patients with depression, Park reported no statistically significant differences in the supply of B vitamins (B_1, B_2, B_6) between healthy women and those with depression [3]. In the Park's study, the average intake of B vitamins was similar to the mean content of these vitamins in DFR assessed in the current study. Our findings revealed low dietary levels of folate, accounting only for about 50% of the recommended standards in women and approximately 60% in men. The potential protective role of folate in the fight against depression is associated with their involvement in the regulation of certain neurotransmitters [4, 24]. A study conducted in patients with neuropsychiatric disorders showed low level of the serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) in the cerebrospinal fluid, whereas after folate supplementation, the recommended levels of 5-HIAA were restored [11]. It has also been shown that folic acid is the donor of methyl groups used for homocysteine methylation to methionine. Vitamin B_{12} also participates in this process [11]. Inadequate intake of dietary folate in patients with depression has also been confirmed by other authors [8, 24]. In Park's study, the mean folate content in food portions consumed by patients with depression was lower than that obtained in the current study: 151.8±6.5mcg/day (significantly lower than the supply of this vitamin in control diets -172.1±7.7 mcg/day) [3]. Due to a low folate intake in some countries (USA, Canada), chosen food products are obligatorily enriched, e.g. 0.14mg of folate per 100g of the product is added to cereals [11]. The recommended daily intake of folate in food rations of patients with depression has been found to be 2mg/day [25]. According to another study, supplementing the diet with folic acid in an amount of 0.8mg/day and 0.4mg of vitamin B_{12} allowed for a reduction in the symptoms of depression [1].

Some researchers associate mental pathology with the activity of free radicals that particularly affect the central nervous system. Hence, adequate supply of the antioxidant vitamins, A, E and C, is recommended [6, 9, 10]. We found proper supply of vitamin A (in both sexes) and C in men, whereas lower than recommended levels of vitamin E in both women and men. Lower levels of vitamins A and C, and higher level of vitamin E than those obtained in the current study were reported by Park et al. [3]. They also showed that the intake of vitamins A and C in food rations in patients with depression was significantly lower compared to the supply of these vitamins in the control group and did not meet the recommendations [3].

In the present study, the intake of vitamin D was too low regardless of patients' gender and its content in daily food rations was lower than the levels reported by other authors [7]. Vitamin D has been shown to play a protective role in neurodegenerative and neuroimmunological diseases [9]. Research on the functioning of the CNS suggests that vitamin D deficiency during the first year of life may be treated as one of the risk factors of schizophrenia. Research on schizophrenia etiology defines it as a consequence of impaired gene transcription regulation during brain development. Hormone-dependent nuclear receptors of vitamin D are involved in the development of the nervous system and the regulation of gene expression [23].

Dietary content of chosen minerals was also evaluated in the current study. The levels of potassium, calcium, magnesium and iodine in food rations consumed by

patients of both sexes and of iron in women were too low, which was consistent with the results reported by other authors [3, 8, 21]. According to WHO, depression was the leading mental disorders in the 1990s and it may become the most common worldwide by 2020 together with cardiovascular diseases [12]. Magnesium deficiency plays a key role in these diseases. Research has shown that magnesium has a high antidepressant and anxiolytic potential, resulting from NMDA receptor antagonism. It has been noted that the possible involvement of magnesium balance disturbances in the pathogenesis of depression may be associated with the effect of this element on glutaminergic transmission. Magnesium in physiological concentrations regulates P-glycoprotein function, which is one of the transport proteins responsible for the correct transmission of the blood-brain barrier for many substances, including gluco- and mineral corticoids. Excessive penetration of corticosteroids into the central nervous system may be associated with impaired activity of the hypothalamic-pituitary-adrenal axis and hippocampal damage observed in depression [14].

There is evidence that the mean content of magnesium in food rations dropped from 450mg/day in the 19th century to 250mg/day, and even less, in the 20th and at the beginning of the 21st century. It has been found that approximately 68% of American adults have lower than recommended amounts of magnesium in their diets (420mg/day in men and 320mg/day in women), and about 19% of people consume less than half of the recommended intake level of this macroelement [12]. Recent studies also indicate a relationship of zinc and copper with the pathophysiology and treatment of depression [13, 14]. These microelements take part in the activation of enzymes involved in catecholamine transmission, whose disorders are associated with the pathogenesis of depression. Copper is responsible for proper functioning of dopamine beta-hydroxylase, which converts dopamine into noradrenalin in synaptic vesicles [14]. Zięba reported a statistically significant positive correlation between the ratio of mean concentrations of magnesium/copper in the blood and the severity of depressive episode measured by the Hamilton Depression Rating Scale [26].

The low mean content of the other minerals in daily food rations may contribute to a number of systemic disorders. The intake of calcium and potassium that does not meet the norms may cause hypertension. Deficiencies of these components play an important role not only in the etiology of cardiovascular diseases [3, 9, 19], but may lead to a higher incidence of osteoporosis (due to low dietary levels of calcium and a simultaneous increase in the supply of phosphorus) or iron deficiency anemia, especially in women. Inadequate supply of iron may impair concentration, mental performance and cognitive functions [9, 19]. The present study also showed unsatisfactory supply of iodine, which is consistent with the results of other authors [9, 27]. It has been demonstrated that iodine deficiency is widespread and this may cause hypothyroidism, which in its advanced form causes drowsiness, mental slowdown and reduced intellectual capacity [19, 27].

In our study, the food rations of both women and men suffering from recurrent depressive disorders were characterized by deficiencies and excesses of the vitamins and minerals assessed. Due to large discrepancies in the estimates of intake of nutrients between the groups, potential preventive supplementation with vitamins and minerals should be considered on individual basis depending on nutritional deficiencies.

Additionally, patients reporting changes in dietary habits should receive nutritional instructions concerning proper combining of groups of food products to ensure the optimum supply of vitamins and minerals.

Conclusions

1. The assessed daily food rations of women and men were found to show deficiency of vitamins D, E, folate, K, Ca, Mg, J, whereas shortage of C and Fe in the case of women. Excessive content of vitamins B_1, B_2, Na, P was noted in daily food rations of both men and women. The level of vitamins B_6 and B_{12} was too high in men and of Cu in women.
2. Mineral-vitamin supplementation can be considered in individual cases of nutritional deficiencies found.
3. At the time of declared changes in dietary habits patients suffering from depression should be educated in the principles of rational nutrition, including proper choice of groups of food products, to ensure the optimum supply of vitamins and minerals.

Требует ли обычный способ питания депрессивных пациентов дополнения витаминами и минералъными составляющими?

Содержание

Введение. Исследования способа питания проведены среди депрессивных пациентов указывают на факт, что их способ питания часто отличается от рационального и причиняется к ошибочному рациону питания больных. Это особенно касается употребления витаминов и минеральных веществ, недостаточность которых отрицательно влияет на деятельность головного мозга.

Задание. Заданием работы была оценка содержания избранных витаминов и минеральных веществ в суточных рационах питания депрессивных больных с рецидивами болезни.

Метод. Исследование проведено у 69 больных (54 женщины и 15 мужчин в возрасте 18–65 лет а средний возраст женщин равнялся 45,7 ± 12,2 года, а мужчин 46,0 ± 12,2 года), леченных по-поводу рецидивирующих депрессивных нарушений. Для собрания данных, относящихся к способу питания, использован опросник разработанный в Лаборатории диэтетики и клинического питания Медицинского университета в г. Белостоке. В количественной оценке способа питания проведено 24 часовое наблюдение в течение 3 обычных дней и 1 дня отдыха.

Результаты. В проведенных исследованиях показано несогласие с предложениями употребление большинства оценяемых питательных веществ.

Выводы. Результаты исследований указывают на факт, что необходимость дополнения диеты витаминами и минеральными веществами должны рассматриваться индивидуально. Во время улучшения клинического состояния больного необходмо их обучение способу питания с подбором продуктов с оптимальным содержанием витаминов и минеральных веществ.

Ключевые слова: депрессия, витамины, минеральные составляющие

Ist bei gewöhnlicher Nahrung der Patienten mit Depression die Supplementierung mit Vitaminen und Spurenelementen sinnvoll?

Zusammenfassung

Einleitung. Die Studien an der Ernährungsweise der Patienten mit Depression erwiesen, dass ihre Ernährung oft von der rationellen Ernährungsweise abweicht und trägt damit zur unrichtigen

Versorgung mit Nährstoffen bei, insbesondere mit Vitaminen und Spurenelementen, deren Defizite einen Einfluss auf die nicht richtige Funktionsweise des Nervensystems haben.

Ziel. Das Ziel der Arbeit war die Bewertung der Menge der gewählten Vitaminen und Mineralstoffen in der täglichen Nahrung der Patienten, die an rezidive depressive Störungen krank sind.

Methode. An die Studie wurden 69 Personen eingeschlossen (54 Frauen und 15 Männer im Alter von 18-65 Jahren, Durchschnittsalter der Frauen 45,7 ± 12,2 Jahre, Durchschnittsalter der Männer 46,0 ± 12,2 Jahre), die wegen der rezidiven depressiven Störungen behandelt wurden. Zur Erfassung der Angaben zur Ernährungsweise wurde der Fragebogen eingesetzt, der in der Anstalt für Diät und Klinische Ernährung der Medizinischen Universität in Białystok entwickelt wurde. In der quantitativen Bewertung der Ernährungsweise wurde das 24-Stunden-Interwiev aus 3 Wochentagen und 1 Tag am Wochenende eingesetzt.

Ergebnisse. In den durchgeführten Untersuchungen wurde eine nicht in Einklang mit den Anordnungen stehende Zufuhr der meisten bewerteten Ernährungsstoffen nachgewiesen.

Schlussfolgerungen. Die Ergebnisse beweisen, dass die Notwendigkeit einer Supplementation mit Vitaminen und Mineralstoffen individuell betrachtet sein soll. Bei der klinischen Besserung wäre es ratsam, für die Patienten eine Schulung zur richtigen Wahl der Gruppe von Produkten zur Sicherung der optimalen Nachfrage von Vitaminen und Mineralstoffen durchzuführen.

Schlüsselwörter: Depression, Vitamine, Mineralstoffe

Est-ce que le comportement alimentaire habituel des patients avec la dépression exige les suppléments de vitamines et de minéraux?

Résumé

Introduction. Les recherches concernant le régime alimentaire des patients avec la dépression démontrent que leurs comportements alimentaires sont souvent irrationnels en causant les déficits de vitamines et de minéraux et en conséquence les dysfonctions du système nerveux.

Objectif. Evaluer la teneur en vitamines et en minéraux dans les doses journalières de nourriture des patients avec la dépression.

Méthode. On examine le groupe de 69 personnes (54 femmes, 15 hommes, âgés de 18-65 ans, moyenne de l'âge de femmes : 45,7 ± 12,2 ans, d'hommes : 46,0 ±12,2 ans) traités à cause des troubles dépressifs récurrents. Le questionnaire, élaboré exprès dans le Département de la Diététique et de la Nutrition Clinique de l'Université Médicale de Białystok, est usé pour obtenir les données concernant les comportements alimentaires et pour obtenir les données qualitatives on use le questionnaire de 24 heures concernant la nourriture de trois jours quotidiens et un jour de weekend.

Résultats. Ces analyses démontrent que les repas des patients contiennent les quantités insuffisantes des substances nutritives.

Conclusions. Ces résultats indiquent la nécessité de suppléer la nourriture des vitamines et des minéraux de manière individuelle. Pendant l'amélioration de l'état clinique des patients il semble utile d'introduire l'éducation concernant les comportements alimentaires pour fournir les quantités de vitamines et de minéraux.

Mots clés : dépression, vitamines, minéraux

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