Assessment of vitamin D level in women with abnormal uterine bleeding and chronic psychogenic stress

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The objective: to study the level of vitamin D (25-hydroxycalciferol – (25(OH)D) in blood serum of women with abnormal uterine bleeding (AUB) and chronic psychogenic stress.

Materials and methods. We examined 100 women of reproductive age with AUB and chronic psychogenic stress (basic group) and 50 patients with AUB without psychogenic chronic stress (comparison group). 30 women without AUB and chronic stress were included in the control group. AUB was diagnosis according to the Order No. 353 of the Ministry of Health of Ukraine dated April 13, 2016. The concentration of vitamin D was determined in blood serum in all the women using the ELISA method.

Results. The concentration of vitamin D in the blood serum in patients with AUB and chronic psychogenic stress was on 28.01 % lower compared to the controls (p < 0.001), in the patients with AUB without psychogenic chronic stress – 13.94 % (p = 0.045). The number of individuals with optimal concentration of vitamin D in the control group (36.67 %) was in 2.29 times higher compared to the basic group (16.00 %; p=0.03) and in 1.41 times more compared to the comparison group (26.00 %). Suboptimal level of vitamin D had 53.33 % women in the control group, 43.00 % – basic and 58.00 % – comparison one. The rate of persons with deficiency of vitamin D among the patients with AUB and chronic psychogenic stress was in 4.56 times higher compared to the healthy women (41.00 % and 9.00 % individuals, respectively; p = 0.003), and in patients with AUB without chronic stress –1.78 time (16.00 % women).

Conclusions. There is the insufficient vitamin D concentration in women with abnormal uterine bleeding which is more severe in the persons with chronic psychogenic stress.

Keywords: abnormal uterine bleeding, reproductive age, chronic psychogenic stress, vitamin D.

Материалы и методы

100 женщин репродуктивного возраста с AUB и хроническим психогенным стрессом были включены в основную группу. Группа сравнения состояла из 50 здоровых женщин без AUB. Средний возраст женщин в основной группе 31,09±0,60 года, в группе сравнения 33,06±0,91 года. Однако, в основной группе 22,37±0,35 кг/м², в группе сравнения 23,89±0,43 кг/м². Средний массовый балл в основной группе 22,37±0,35 кг/м², в группе сравнения 23,89±0,43 кг/м².

Результаты и их обсуждение

Среднее значение уровня витамина D установлено у 53,33 % женщин контрольной группы, у 43,00 % – основной и у 58,00 % – группы сравнения. Доля лиц с дефицитом витамина D среди больных с AUB и хроническим психогенным стрессом в 4,56 раза больше по сравнению со здоровыми женщинами (41,00 % и 9,00 % обследованных соответственно; p = 0,003), а среди больных с АМК без хронического стресса – в 1,78 раза (16,00 % женщины).

Выводы. Отмечается недостаточная концентрация витамина D у женщин с аномальными маточными кровотечениями, что более выражено у лиц с хроническим психогенным стрессом. 

Ключевые слова: аномальное маточное кровотечение, репродуктивный возраст, хронический психогенный стресс, витамин D.
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and 8 (16.00 %) persons, respectively, infrequent menstruations – 4 (4.00 %) and 1 (2.00 %); normal duration of the menstrual bleeding – 66 (66.00 %) and 34 (68.00 %), prolonged menstrual bleeding – 34 (34.00 %) and 16 (32.00 %); regular menstrual cycle – 64 (64.00 %) and 36 (72.00 %), irregular – 36 (36.00 %) and 14 (28.00 %); normal volume of the monthly blood loss – 68 (68.00 %) and 32 (64.00 %), heavy menstrual bleeding – 27 (27.00 %) and 18 (36.00 %), light menstrual bleeding had 5 (10.00 %) patients in the basic group; 43 (43.00 %) women in the basic group and 19 (38.00 %) persons in the comparison group had intermenstrual bleeding; 8 (8.00 %) and 1 (2.00 %) patients, respectively, unscheduled bleeding on progestin, estrogen gonadal steroids.

The causes of the AUB according to the PALM-COEIN classification in the patients with AUB: polyps were diagnosed in 8 (8.00 %) patients in the basic group and 10 (20.00 %) – comparison group, adenomyosis – 15 (15.00 %) and 8 (16.00 %) persons, respectively, leiomyoma – 24 (24.00 %) and 18 (36.00 %), hyperplasia of endometrium – 9 (9.00 %) and 5 (0.00 %), ovulation dysfunction – 36 (36.00 %) and 5 (10.00 %), endometrial factor – 8 (8.00 %) and 5 (0.00 %), ovulation dysfunction – 36 (36.00 %) and 14 (28.00 %); normal volume of the monthly blood loss – 64 (64.00 %) and 36 (72.00 %), irregular – 36 (36.00 %) and 1 (2.00 %), respectively, chronic salpingitis and psychogenic stress and 5 (16.67 %) healthy individuals, algo-/dysmenorrhea – 41 (41.00 %), 11 (22.00 %) and in 3.36 times more compared to the healthy women (41 (41.00 %) and 3 (9.00 %) individuals, respectively; χ² = 4.80, p = 0.03) and in 1.41 times more compared to the comparison group (13 (26.00 %) individuals). Suboptimal level of vitamin D had 16 (53.33 %) women in the control group, 43 (43.00 %) – basic and 29 (58.00 %) – comparison one. The rate of deficiency of vitamin D in patients with AUB and chronic stress was increased in 4.56 times compared to the healthy women (41 (41.00 %) and 3 (9.00 %) individuals, respectively; χ² = 8.57; p = 0.003) and in patients with AUB without chronic stress – 1.78 time (8 (16.00 %) women).

Vitamin D deficiency was found in the patients with different reproductive pathologies. In patients with chronic AUB and posthemorrhagic anemia caused by adenomyosis and polyps the concentration of vitamin D was decreases till 49.6–49.7±26.2 nmol/l [17]. It’s known that hypovitaminosis of vitamin D is a risk factor for the development of uterine fibroids [18]. That is why additional use of vitamin D during the treatment of uterine fibroids is an effective approach of the management to correct the uterine sizes, severity of the symptoms and improve the quality of life of the patients. The results of our study correspond with these researches.

**CONCLUSIONS**

There is the insufficient vitamin D concentration in women with abnormal uterine bleeding which is more severe in the persons with chronic psychogenic stress.

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