THE ROLE OF SEX HORMONES (FSH, LH) IN THE DEVELOPMENT OF CARIOUS AND NON-CARIOUS DENTAL DISEASES IN HYPERPARATHYROISIS

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Annotation. In the development of structural changes in teeth, the level of calcium in the blood is of great importance, which is controlled by parathyroid hormone and thyroid calcitonin, dysfunction and imbalance of which can cause irreversible, severe consequences for the body.

It has been established that the pathology of periodontium and carious teeth in women more often occurs during the period of hormonal changes, with a decrease in the amount of female sex hormones in the body.

The authors stated that in the development of carious and non-carious dental diseases in women, a significant role is mainly assigned to a low concentration of estrogen in the blood, which leads to a pathogenetic cause, and if we assume that the age cycle of women is associated with a gradual decrease in this hormone, then individuals of this sex can It is safe to say that all one hundred percent are at risk for developing osteoporosis.

Materials and Methods. This scientific work is based on our own clinical observations conducted from 2017 to 2022. Only 88 patients who applied for oral cavity sanitation were subjected to dental and somatic examination. The work is based on the results of a clinical, laboratory, instrumental study of patients of the endocrinological dispensary of the regional dental clinic at the Bukhara State Medical Institute.

For the objectivity and reliability of the results obtained, all 88 patients examined were divided into two groups: the first group consisted of 30 (34.1%) patients with various dental diseases without parathyroid pathology, considered as a comparison group; the second group consisted of 58 (65.9%) patients with carious and non-carious diseases of the teeth, after eruption, considered as the main patients suffering from hyperparathyroidism.

For the correct diagnosis and choice of therapy for the disease, the anamnesis was carefully collected from patients. To identify the main cause of the disease, we assessed the general condition of the body, studied the results of biochemical blood tests, and, if necessary, consulted with narrow specialists (endocrinologist, orthopedist, therapist, cardiologist, ENT).

The study used enzyme-linked immunosorbent, spectrophotometric analysis. When conducting ELISA, the surface of the well plates of the MW-12A Mindray washer was used as a solid phase, where the adsorption of the studied hormones from the composition of the serum (previously centrifuged from the patient's venous blood) by special enzymes was carried out.

Survey results. LH in patients of the comparative group was equal to an average of 10.0±0.82 IU/l (million units per liter), in the main group 14.2±0.87 IU/l. To determine and compare the results obtained with reference values, patients of all examined groups were divided by age categories and gender characteristics, according to the principles of interpretation of the physiological norm of hormones (Table 1).

So, in the comparative group, the LH level was within the reference data, both in men and women. Due to the absence of men aged 10 to 19 years in the comparison group, it was not possible to compare PH values with the main group of this age, however, based on the reference data, we were able to continue the statistical comparative analysis of PH values. In the main group, in patients with hyperparathyroidism, the LH level in men and women was statistically higher than in the reference group.

In the main group, in patients with hyperparathyroidism, the LH level in men and women was statistically higher than in the reference group. When comparing by age and gender categories, it was noted that the level of LH in men aged 10 to 14 years was significantly different, exceeding by 3.9 times even the maximum reference values (P<0.001). Despite the excess of LH levels in men of the main group aged 19 years and older by 1.3 times in relation to the comparative group and reference values, no statistically significant difference was observed between them. In postmenopausal age, LH indices in women were within the reference values, however, these values approached the minimum level, which, apparently, was associated with a compensatory response of the body to a long-term increase in parathyroid hormone in hyperparathyroidism.

Table 1.

LH level in the surveyed groups by age and gender

Group b-x	Gender	Indicator, avg. (IU/L)	Age (years)	Indicator (IU/L)	Reference
1-group (N=30)	husband	6,04±0,74	10 – 14	-	<0,2 – 3,28
			14 – 19	-	0,81 – 8,96
			19 <	6,04±0,74	1,24 – 8,62
	wives	12,0±0,86	10 – 14	-	<0,2 – 8,09
			14 – 19	5,9±0,71	1,59 – 18,99
			19 <	12,6±0,82	1,20 – 12,86
			Postmeno-pause	17,5±1,78	10,87 – 57,64
2-group (N=58)	husband	10,0±0,82	10 – 14	12,05±1,35	<0,2 – 3,28
			14 – 19	-	0,81 – 8,96
			19 <	9,6±0,9	1,24 – 8,62
	wives	15,7±1,05	10 – 14	9,7±0,9	<0,2 – 8,09
			14 – 19	13,5±1,1	1,59 – 18,99
			19 <	16,1±1,13	1,20 – 12,86
			Postmeno-pause	19,7±1,04	10,87 – 57,64

Further, we began to compare the obtained results of FSH in a similar direction.

Table 2.

FSH levels in the surveyed groups by age and gender

Group b-x	Gender	Indicator, avg. (IU/L)	Age (years)	Indicator (IU/L)	Reference

1-group (N=30)	husband	6,62±1,0	15 – 20	7,09±0,7	0,49 - 9,98
			21 <	6,48±1,1	0,95 - 11,95
	wives	13,2±2,1	15 <	7,51±0,7	3,03-8,08
			premenopause	7,03±0,8	1,7 - 21,5
			Postmeno-pause	17,5±1,78	26,72-133.41
2-группа (N=58)	husband	10,1±0,77	15 – 20	-	0,49 - 9,98
			21 <	9,92±0,9	0,95 - 11,95
	wives	14,6±0,98	15 <	14,9±1,0	3,03-8,08
			premenopause	13,0±2,34	1,7 - 21,5
			Postmeno-pause	18,1±1,12	26,72-133.41

The level of FSH in the comparative group was 11.3±1.61 IU/l, in the main group 13.4±0.80 IU/l, which practically had no significant differences.

However, according to gender indicators in men, the FSH level was within 6.62 ± 1.0 IU/l, in women 13.2 ± 2.1 IU/l, for comparison with the reference indicators, they were considered according to the age aspect in men and women .

In women of the main group suffering from hyperparathyroidism, the FSH level was 14.6±1.0 IU/l, while in men this figure reached an average of 10.07±0.8 IU/l. Since there were no men aged 15 to 20 in the sample, we were unable to conduct a comparative statistical analysis of this indicator in relation to the comparative group and reference indicators. While in men older than 20-21 years, the FSH level was within the reference values, which was comparable with the indicators of the comparative group.

In the premenopausal period, the FSH value was within the reference limits, however, despite this, it was almost 2 times higher than the FSH value of the same age in the comparative group (P<0.01). In postmenopausal age, there was a statistical decrease in the level.

Conclusions: Thus, sex hormones, in particular LH in patients with hyperparathyroidism, do not directly affect the pathogenesis of caries and non-carious dental diseases in women, while in younger men, an increase in the level of parathyroid hormone leads to a compensatory increase in the level of LH. Such a conclusion, in our opinion, is subject to further clarification, given the relatively small sample of male patients with hyperparathyroidism in our study.

Hyperparathyroidism, accompanied by the release of an excess amount of parathyroid hormone, leads to the leaching of calcium from the bones, causes the development of osteoporosis and structural changes in the teeth, affects the function of some sex hormones, determining the level of necessary electrolytes in the blood serum and tissues, such as phosphorus, magnesium and calcium, forming carious and non-carious lesions.

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