

ОРИГИНАЛЬНЫЕ ИССЛЕДОВАНИЯ

DIAGNOSIS AND TREATMENT OF MALE INFERTILITY IN PATIENTS
WITH COMMON PATHOLOGY OF GENITALS
AND INGUINAL REGION

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The article presents a study of reproductive function and fertility prognosis in 27 male patients of reproductive age with common diseases of genitals and inguinal region. These patients were under observation in the outpatient clinics with the diagnosis of male infertility. Blood levels of sex hormones and spermograms were evaluated in dynamics before and after surgical treatment of the main disease. In the research it was found that surgical removal of the probable cause of infertility in marriage resulted in normalization of spermogram parameters in 15% of cases and to the onset of pregnancy in 22.2% of cases. No significant changes in the dynamics of sex hormones were found. Besides, in the course of research a positive clinical effect of conservative treatment for the connective tissue dysplasia associated with the main disease and infertility in marriage, was obtained. This effect was confirmed by the onset of pregnancy in 29.4% of patients who underwent drug therapy.

Keywords: *inguinal hernia, varicocele, connective tissue dysplasia, infertility.*

The problem of diagnosis and treatment of male infertility remains urgent in the unfavorable demographic situation [1].

The causes of male infertility are numerous and diversified. A common cause of reproductive dysfunction in young males is considered to be pathologies of genitals and of inguinal region including such widely spread in surgery and urology nosologies as varicocele, spermatocele, hydrocele and inguinal hernia [2-4].

The main mechanisms of infertility in patients with the above diseases are believed to be thermal and mechanical alterations in the trophism of testes referred to in literature as "thermal castration" [5]. However, clinical research conducted by many authors indicate polyetiological character of testicular disorders in patients with common diseases of the inguinal region which may as well be caused by genetically determined disorders in formation of organs due to dysplastic alterations of connective tissue [6].

Connective tissue dysplasia is a congenital genetic disorder in synthesis of connective tissue [7, 8].

Connective tissue dysplasia is characterized by defects in structures and in the main substance of connective tissue [9]. These are genetic alterations in glycoproteins, proteoglycans, collagen, elastic fibrils and fibroblasts [10].

There are many publications concerning diagnosis, clinical symptoms and classifications of connective tissue dysplasia, however, publications concerning therapy of the given pathology and clinical effect of the conducted treatment are scarce [11, 12].

Materials and Methods

Into the research 27 male patients of the reproductive age (under 36 years) were included who referred to an outpatient clinic with the main complaint of the absence of children in marriage with regular attempts of conception.

The average age of patients was 24.4 ± 3.1 years. Additional examination of each patient revealed a disease that required surgical removal and could affect fertility prognosis in itself. These diseases were: varicocele in 20 patients, spermatocele in 1 patient, hydrocele in 2 patients, inguinal hernia in 4 patients.

The patients' karyotype was 46 XY.

From the research there were excluded patients diagnosed with sexually transmitted infections. Sexual partners of the patients were subject to the gynecological examination, no reproductive disorders in these females were revealed.

After additional examination at the pre-clinical stage all patients were operated on: 12 laparoscopic resections of the left internal testicular vein were conducted, 2 Ivanissevich surgeries, 6 Marmar operations; Bergman operation ($n=1$), spermatocelectomy ($n=1$), 4 TAPP operations.

The investigation program included: evaluation of the external phenotypic markers of connective tissue dysplasia by L.N. Abbakumova scale (2005), examination of the blood level of sex hormones and of spermogram in preoperative and postoperative periods. The patients were under observation within not less than 3 months.

From the results of dynamic observations of the patients, the expected positive effect of surgical treatment was considered to be the onset of pregnancy. After 4 months of ineffective conception the patients, with their consent, were administered the treatment reg-

imen for connective tissue dysplasia that included 3 stages. At the 1st stage they were given succinic acid 1 capsule 2 times a day for 3 weeks, preparations of magnesium + vitamin B6 100 mg 3 times a day for 10 days; ascorbic acid 1 g a day for 3 weeks. The 2nd stage of treatment was conducted in 1.5 months after the 1st one and included administration of 20% carnitine chloride solution 1 teaspoonful 3 times a day for 4 weeks; chondroitin sulfate 1.5 g a day for 8 weeks. The 3^d treatment course: vitamin E 800 ME for a month, complexes of amino acids for 5 weeks (Akti-5).

The obtained data were processed using methods of variation statistics in Microsoft Office Excel program (2007) with calculation of the arithmetic mean (M) and the arithmetic mean error (m). The parameters were evaluated using Student's t-test taking into account the normal distribution of data. Statistically significant were considered differences with $p < 0.05$.

Results and Discussion

In evaluation of external phenotypic markers of connective tissue dysplasia there was noted enhanced background of external dysembriogenic stigmas in the patients manifested by mild extent connective tissue dysplasia (below 12 points of scale) in 16 patients, moderate extent dysplasia in 9 patients and severe connective tissue dysplasia in 2 patients (1 patient with varicocele and one with inguinal hernia).

Evaluation of dynamics of the level of sex hormones and of spermogram is given in table 1.

Table 1

Dynamics of Mean Levels of Sex Hormones in Patients Included into Study

Studied Parameter	Mean Values of Studied Parameters		
	Before surgery	In a month	In 3 months
Hormonal profile, mean values			
Testosterone (nmol/l)	21.4 ± 2.12	23.1 ± 2.8 (+7.4%)	26.1 ± 2.93 (18%)
Follicle-stimulating hormone (mME/l)	5.3 ± 1.1	6.1 ± 1.3 (+13.1%)	6.2 ± 1.1 (+14.5%)
Prolactin (mME/l)	170.3 ± 22.4	166.7 ± 21.1 (-2.1%)	185 ± 23.1 (+8%)
Luteinizing hormone (mME/l)	5.0 ± 0.62	5.1 ± 0.73 (+2%)	5.6 ± 0.8 (+10.7%)

Thus, the dynamics of the level of sex hormones in blood is characterized by the following parameters: moderate increase in the mean values of testosterone that may be regarded a positive factor after surgical removal of the probable cause of infertility; moderate increase in the mean values of follicle-

stimulating hormone that may be interpreted as activation of gonadotropic stimulation of spermatogenesis. In the study no superthreshold values of these hormones were found.

Dynamics of parameters of spermogram of the examined patients is given in table 2.

Table 2

Dynamics of Parameters of Spermograms of Patients Included into Study

Clinical Interpretation of Spermogram Parameters			
Interpretation of spermogram parameter	Before surgery (n)	In a month after treatment (n)	In 3 months after treatment (n)
normozoospermia	17	19	21
I degree asthenozoospermia	6	4	3
III degree asthenozoospermia	1	1	1
I degree oligozoospermia	1	1	0
I degree oligoasthenozoospermia	1	1	1
II degree asthenoteratozoospermia	1	1	1

As it is seen from table 2, a positive effect in the form of normalization of the spermogram in the late postoperative period was found only in 4 patients (15%), and more coarse changes in the spermogram (2 and 3 degree spermopathy) remained unchanged.

In the postoperative period after varicocelelectomy the expected result (the onset of pregnancy) was achieved in 6 observations (22.2%).

Further on the patients received treatment according to the treatment regimen used in the study, 4 patients refused from intake of drugs. With the underlying treatment a positive effect of the conservative treatment was recorded in 5 of 17 observations (29.4%).

16 Patients in whom surgical intervention and conservative treatment of metabolic disorders of connective tissue dysplasia did not lead to pregnancy, were recommended to resort to assisted reproductive technologies. Treatment was considered ineffective.

Conclusion

1. Common diseases of the inguinal re-

gion associated with connective tissue dysplasia such as varicocele, inguinal hernia, spermatocele and others, are pathological condition that negatively influence fertility prognosis.

2. Surgical treatment of the given diseases helps eliminate spermopathies in 15% of observations with pregnancy coming in 22.2% of cases. That is, it is not a highly effective method of treatment of male infertility.

3. Conservative therapy of metabolic disorders associated with connective tissue dysplasia, may be considered an additional method of conservative treatment of patients with common diseases of the inguinal region. Dosing regimens, treatment regimens of mesenchymal dysplasia are not standard procedures and require further investigation and improvement.

4. In long-term ineffectiveness of conception by natural way in patients with pathology of the inguinal region it is necessary to consider assisted reproductive technologies as a means of a probable future conception.

Authors have no conflict of interest to declare.

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