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# COMPLEX DIAGNOSIS OF MALE INFERTILITY

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## BACKGROUND

Exclusively male infertility factor accounts for 30% of cases, but in total with a combination of female and male factors — 50%. Modern andrologists use diagnostics of blood hormones that regulate spermatogenesis as marker of male reproductive potential. The most severe form of male infertility is azoospermia, which is observed in 10–15%, and the only diagnostic method is a testicular biopsy. Due to the polyetiological nature of male infertility types, it's now necessary to search for general markers, the measurement of which would allow to determine the management strategy of patients with impaired fertility and to assess the prospects of ART programs in such patients.

*Purpose of the Study:*

To estimate the specificity of spermatogenesis markers in infertile men.

## MATERIALS AND METHODS

All patients (n=74) were examined for spermograms, sex hormone levels, FSH, LH, inhibin B, testosterone), and scrotal ultrasound. Examinations were conducted to exclude obstructive azoospermia in the observed men. All patients underwent physical examinations, observation of androgen-dependent areas, palpation and assessment of testicular volume, karyotyping.

Testicular biopsy samples were stained by hematoxylin and eosin, and was performed immunohistochemical study to determine inhibin B. Exclusion criteria: obstructive infertility, inflammatory diseases of reproductive organs, testicular tumors, varicocele, hydrocele. Statistical processing of the material was carried out using EXCEL spreadsheets and the STATISTICA 8.0 program. The differences were considered significant at $p<0.05$.

## RESULTS

According to the spermogram data all patients were divided into three groups: with azoospermia (I) ( n=11;15%), severe oligozoospermia (II)(n=16; 20%), oligozoospermia(III)(n=47;65%). LH and testosterone indicators didn't show significant difference among patients ($p>0.05$). FSH level in group I was 213 miu/ml, II — 16+2 miu/ml, III — 5+2 miu/ml, in control group — 6+1,8. Inhibin B level in group I was 48+7 nmol/l, II — 67+11nmol/l, III — 120+14 nmol/l, control group — 134+12nmol/l. The difference between the groups was statistically significant ($p<0.001$). Inhibin B specificity in terms of spermatogenesis preservation was 82%, FSH — 78%. Since serum inhibin B was the most effective, we've evaluated it's level in the testicular tissue. During our study it has been established that tissue inhibin B shows 88% specificity.

## DISCUSSION

According to the latest data, sperm disorders occur in every second case in the structure of infertility of couples. Therefore, it's important to recognize predictors of sperm disorders. Most foreign and Russian data consider FSH and LH to be predictors of spermatogenesis disorders. Our study showed that LH and serum testosterone are unreliable factors in the complex diagnosis of sperm pathology. On the other hand, our data demonstrate the high efficiency of FSH and inhibits B in terms of spermatogenesis preservation in patients with severe ejaculate pathology.

## CONCLUSIONS

Taking into account the high specificity of serum and tissue inhibin B in terms of spermatogenesis preservation, this indicator can be used as a predictor of man's reproductive potential. Since the difference in specificity between tissue and serum inhibin B is not much, an assessment of the serum inhibin B level can be used as a screening of the male reproductive potential during the first stages of diagnosis.

*Keywords:*

male infertility, inhibin B, follicle stimulating hormone (FSH), testicular biopsy.