ROLE OF MESTEROLONE IN THE TREATMENT OF OLIGOZOOSPERMIA

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SUMMARY

Mesterolone, an orally effective weak androgen, was tried in 28 cases of oligozoospermia in a dosage of 100 mgs. per day. Mesterolone appears to be of value in the treatment of oligozoospermia where statistically significant changes in sperm conc./ml. and total sperm conc./ejaculate were observed after 16/52 weeks and 24/52 weeks of therapy.

6 couples of 28 became pregnant, a pregnancy rate of 21%.

Introduction

Male infertility may result from a variety of causes which are associated with quantitative or qualitative changes in the semen, which is the sine quo non of male infertility. Some of these causes are untreatable and have therefore an unsatisfactory prognosis. On the other hand, in certain cases of oligozoospermia, there is a hope of improvement.

Oligozoospermia implies a quantitative decrease in the number of spermatozoa resulting either from inadequate maturation or diminished activity of the seminiferous tubules, in others, it could be due to surgically correctable conditions like varicocele, lymphangiocele or hydrocele.

Idiopathic oligospermia is testimony to our ignorance as to the cause of subfertility, and treatment for the same has been more often empirical since the aetiological basis of subfertility in most of these cases is unknown.

Numerous pharmacological agents have been used in male subfertility, some of which include Testosterone 'Rebound', Clomiphene, Gonadotropins, Bromocriptine, Thyroxine and Corticosteroids.

Mesterolone is a C-17-nonalkylating steroid hormone, an orally effective weak androgen.

Material and Methods

The patients selected were from those attending the Fertility Clinic at the Nowrosjee Wadia Maternity Hospital, Bombay.

The criteria for selection was oligozoospermia, the patient being otherwise normal. Physical examination was unremarkable with normal virilization and normal testicular size.

Pretreatment serum FSH, LH and plasma testosterone were normal. The subjects had been without treatment for atleast 3 months, prior to inclusion in the present study.

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28 men fulfilled the criteria for induction into the study.

Their ages ranged from 23 years to 42 years (Mean age—30 years).

Prior to commencement of therapy, two seminal analysis at intervals of three weeks were obtained in each patient within an hour of the sample being collected, after abstinence for two days. The seminal analyses were performed by two seminologists throughout the study, to reduce observer error.

Treatment and Evaluation Schedule

The patients were advised to take Mesterolone 50 mg twice daily.

The efficacy of the drug was evaluated by a seminal analysis after 16 weeks of therapy.

Also, an analysis was repeated in 15 cases who completed 24 weeks of therapy; the remainder were dropped from the analysis because they had completed the stipulated weeks of therapy at the time this study was concluded, or because their spouses had conceived before 24 weeks of treatment was completed.

Liver function tests (S.G.P.T., S.G.O.T., Thymol turbidity and Serum bilirubin) were requested in all the patients receiving the drug at completion of 16 weeks of therapy to evaluate the safety of the drug.

Results

In assessing the effects of the drug, the folowing parameters of semen were considered:

1. Volume of semen (ml). 2. Sperm concentration/ml. 3. Total sperm count. 4. Motility (per cent). 5. Sperm morphology (Abnormal forms per cent).

Analysis of the mean semen volume in ...ent and post-treatment levels

TABLE I

Outcome of the Study in a Broad Perspective

Semen analysis	Mean level before treatment	Mean level after treatment			
		16/52 weeks	Statistical significance	24/52 weeks	significance Statistical
(1) Volume (ml)	2.2 ml	2.5 ml	Not significant	2.6 ml	Not significant
(2) Sperm conc/ml	7.6 mil/ml	20.6 mil/ml	p <0.05	28.4 mil/ml	p <0.05
(3) Total sperm count/ejaculate	16.6 mil/ejaculate	52.4 mil/ejaculate	p <0.05	77.3 mil/ejaculate	p <0.05
(4) Motility (per cent after 1 hour)	33%	40%	Not significant	40%	Not significant
(5) Abnormal forms	19%	16%	Not significant	12%	Not significant

showed an increase in mean volume which was not statistically significant.

Considering sperm concentration/ml, at the completion of 16/52 weeks of therapy, of the 28 patients, 16 (57%) patients reacted to treatment with an increase in sperm concentration per ml. Of the 15 patients, who completed 24/52 weeks of treatment, 8 (53%) showed an improvement in sperm concentration/ml.

As seen in Table I an increase was observed from 7.6 million/ml in pretreatment values to 20.6 million/ml and 28.4 million/ml after completion of 16 weeks and 24 weeks of therapy respectively.

This increase in sperm conc/ml was statistically significant ($p < 0.05$) at both 16/62 weeks and 24/52 weeks of therapy.

As regards the total count per ejaculate; 17 (60%) of patients showed a positive response at the completion of 16/52 weeks of treatment. Also of those who completed 24/52 weeks of treatment, 8 (53%) patients showed a response to Mesterolone treatment.

The analysis of the mean total sperm count/ejaculate shows a positive swing from the pretreatment value of 16.6 million/ejaculate to 52.4 million/ejaculate at 16/52 weeks of therapy and to 77.3 million/ejaculate at the completion of 24/52 weeks of therapy.

This increase is statistically significant ($p < 0.05$) at completion of both 16/52 weeks and 24/52 weeks of Mesterolone treatment.

No statistically significant change in motility of the sperm was noticed in pretreatment and post-treatment specimens of seman as seen from Table I.

Considering sperm morphology, the mean abnormal form count decreased from 19% in the pretreatment values to 12% after 24 weeks of Mesterolone therapy; which however was not statistically significant.

The ultimate proof of success in any therapy for infertility is the pregnancy rate.

Of the 28 cases, 6 cases reported conception in their spouses during or soon after completion of 24/52 weeks of therapy. A pregnancy rate of 21%.

Liver function tests, did not reveal any adverse change in any patient even after 16 weeks of therapy. This is in contrast to other orally active alkylated steroids like Methyl testosterone and fluoxymesterone which may cause cholestasis and an increase in transaminases.

Figuerao reported that Mesterolone, by virtue of the absent alkyl group in the C-17 position, does not influence liver function.

Discussion

The results of the present study show that Mesterolone in a dose of 100 mg per day can bring about significant improvement in the sperm concentration in patients with oligozoospermia.

These findings corroborate with those of Schellen and Beck. However, in their study, the effect of Mesterolone was determined mainly on patients whose oligospermia was associated with a high, normal or elevated urinary gonadotrophins.

Wang *et al* in a smaller study of 12 men with idiopathic oligozoospermia could not demonstrate any beneficial effect of the same drug.

No change was observed as regards sperm volume and morphology.

Sperm motility showed no significant improvement; this is in contrast to studies by both Sommerville and He

and Curruthers who claim an improvement in the same by 18-30%. However, the mean Motile Sperm Count/ml (M.S.C./ml) showed an improvement from 2.50 mill. M.S.C./ml to 8.24 mill. M.S.C./ml after 16/52 weeks of treatment and to 11.36 mill. M.S.C./ml after 24/52 weeks of therapy which is statistically significant ($p < 0.05$).

Six men were successful in impregnating their spouses: five within completing of 24/52 weeks of treatment and one soon after. Also interesting to note is the fact that 32% of patients with olgozoospermia were restored to normominimal values of sperm concentration after 16/52 weeks of therapy and 40% of patients after 24/52 weeks of treatment with Mesterolone.

Liver function tests did not show any adverse change; a finding which correlates with studies of Figureao and Longson.

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