Alpha Blocker Therapy for the Treatment of Idiopathic Oligozoospermia

Abstract
Objectives: To evaluate the efficacy of an alpha-blocker (prazosin) for the treatment of idiopathic oligozoospermia.

Methods: The study group included 18 infertile men aged 26 to 45 years (with mean age of 35 years) with sperm densities between 5 to 20 \times 10^5 sperm/ml, normal serum gonadotropins, testosterone, and prolactin level. Patients were prescribed prazosin – 2mg/d for six months. Semen samples were collected before and three months and six months after therapy. Semen parameters were evaluated before and after the treatment.

Results: The Pregnancy Rate (PR) was 27.7%. There were a significant increase in sperm concentration and total motile sperm count.

Conclusion: It appears that an alpha-blocker (prazosin) is a useful drug in the treatment of idiopathic oligozoospermic males.

Key words: Alpha-blocker, idiopathic oligozoospermia, infertility.

Introduction

Many drugs have been used for the treatment of male infertility, which theoretically could improve semen parameters by acting directly on spermatogenesis or epididymal maturation. However, there is no standard established method for the treatment of idiopathic male infertility.

Recent researches have demonstrated that oral administration of \( \alpha \)-blockers can increase the ejaculated spermatozoa output\(^{1,8} \) and this is clinically useful for idiopathic male infertility. The mechanism of this effect is due to the dilation of the epididymal tubules.\(^{2,3,5} \) On the basis of effectiveness of \( \alpha \)-blocker therapy for male infertility, we made a trial in patients with idiopathic male infertility. We have demonstrated some evidences of improvement in infertility after oral administration of \( \alpha \)-blockers.

Materials and Methods

Eighteen adult males, with ages 26 to 45 years (with mean age of 35 years) participated in this study. These patients had no evidence of major systemic illness. They had infertility for 2 to 7 years (mean, 3-5 years). The female partners were normal according to complete gynecological examinations. All men had at least three semen analyses in which the sperm density was between 5 to 20\( \times \)10^5 sperm/ml. Normal sperm morphology, and sperm motility was less than 20%, and they had normal serum levels of gonadotropins, testosterone and prolactin.

The patient received alpha-blocker (2 mg/d, Prazosin) for six months and
semen samples were taken before, three months later and six months after initiation of therapy. Semen parameters were evaluated before and after treatment. Electrolytes, liver, and kidney function tests, and a complete blood count, were evaluated before and after the treatment. Physical examination including measurement of blood pressure were performed on each patient before during the study and after the treatment, to document any side effects and possible changes in physical examination.

Results
Side effects reported by the patients were orthostatic dizziness in four patients that disappeared spontaneously and did not necessitate discontinuation of the treatment. There was no significant change in blood pressure before and after the treatment. The changes in semen parameters after treatment are shown in Table 1. The mean baseline for sperm concentration was 9.42×10⁹/ml (median, 7.0). There was a significant increase in sperm concentration. The mean baseline for total motile sperm count was 7.0×10⁹ (median, 5.1). There was a significant increase in total motile sperm count. Pregnancy occurred in 5(27.7%) of the partners of these males.

<table>
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<tr>
<th>Table 1: Changes In Semen Parameters After Administration Of α-blocker</th>
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<td>Sperm Concentration (× 10⁹/ml)</td>
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<td>Total Motile Sperm Count (× 10⁹)</td>
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Discussion
We made a trial to evaluate the benefits of an α-blocker as a potential therapeutic modality for idiopathic oligozoospermia in men. In this study, we used prazosin because of its availability in Iran. The oral administration of α-blocker to the patients with idiopathic oligozoospermia demonstrated a significant increase in the sperm concentration and total motile sperm count. This result is apparently paradoxical because contraction of the seminiferous tubules and epididymal tubules for propelling sperm toward the vas deferens are mediated by stimulation of the adrenergic sympathetic nerve.  

Nevertheless, recently a number of papers have suggested that an α-adrenoceptor antagonist can also have some effects on male fertility.  

The exact mechanism responsible for the increase in sperm output after administration of α-blockers and the importance of the autonomic nervous system on the reproductive tract and sperm fertility is not clearly known.  

Billups et al., investigated the involvement of the sympathetic nervous system in the transport and storage of spermatozoa in the rat reproductive tract by dilating the inferior mesenteric plexus surgically, which resulted in a sustained increase in the number of epididymal spermatozoa without apparent effects on testicular weight, sperm production, or testosterone. They interpret the increase in epididymal sperm numbers after ablation of the inferior mesenteric-plexus as the loss of tubular sympathetic tone that may, in part, increase the rate of sperm transport from caput to cauda epididymis and subsequently elicit the increased accumulation of the cauda-epididymal sperm numbers. Blockage of the α-adrenoceptor, which means chemical sympathectomy, seems to have an effect similar to ablation of the inferior mesenteric plexus. Therefore, the same mechanism as seen in the ablation of the inferior mesenteric plexus could be involved in the increase of sperm density after α-blocker therapy.

These previous investigations, combined with the results of our study, suggest strongly that the autonomic nervous system has a very important role in the sperm output after the ejaculation.

Conclusion
We have shown significant improvement in sperm concentration and total motile sperm count six months after oral administration of α-blocker to the patients with moderate oligozoospermia. Although the number of patients was not too large, the results of this study strongly suggest that α-blockers possess considerable qualifications to be the future regimen of medical treatment for idiopathic male infertility. Further studies to confirm our results is needed.

References