Evaluation of the Efficacy of Speman in the Management of Male Subfertility

Krishna Mukherjee,  
Director, Kamla Nehru Memorial Hospital, Allahabad, India  
Amita Tripathi,  
Senior Research Associate, Motilal Nehru Medical College, Allahabad, India  
and  
Dr. Kala Suhas Kulkarni,  
Medical Advisor, R&D Center, The Himalaya Drug Company, Bangalore, India.

ABSTRACT  
A study was conducted in 50 male patients with idiopathic infertility, to evaluate the efficacy of Speman in the management of male subfertility. Physical and endocrinological examinations were carried out before initiating treatment with Speman. Semen analysis was done to determine the sperm density, motility and morphology. Speman was administered at a dose of 2 tablets, twice daily for 3 months. After three months of treatment with Speman the mean sperm density increased from 14.38 ± 0.42 million/ml to 62.86 ± 1.26 million/ml. The mean motility before treatment of Speman was 35.73%, which increased to 46.62% after treatment. There was an improvement from 49.13% to 62.71% in the sperm morphology. The mean testosterone level before Speman treatment was 4.27 ± 0.26 ng/ml and increased to 5.86 ± 0.34 ng/ml. No side effects were reported during the entire duration of the trial. Thus, Speman may be useful in influencing fertility in subfertile males.

INTRODUCTION  
In approximately 60% of all couples experiencing infertility, a male factor is involved. It is primarily a male factor in 40% of these couples, and in 20% of these couples it is a combination of both male and female factors. Both partners contributing to infertility is also revealed by a WHO study in which 26.5% of 8500 couples had both male and female factors operating to reduce the likelihood of conception. Approximately 15% of the couples attempting their first pregnancy meet with failure. Most authorities define these patients as primarily infertile, if they have been unable to conceive even after one year of unprotected intercourse. Conception normally is achieved within twelve months, in 80-85% of couples who use no contraceptive measures. Data available over the past 20 years reveal that in approximately 30% of cases pathology is found among the males alone, and in another 20% both the male and female are abnormal. Therefore, the male factor is partly responsible in about 50% of infertile couples.

Baker et al., divided male infertility into 3 categories: Treatable male infertility (12.1%) untreated male infertility (12.8%) and untreated subfertility (75%). When an infertile male presents for evaluation with no specific abnormality to account for his problem, it is an idiopathic infertility. Studies confirm that environmental factors such as pesticides, exogenous estrogens and heavy metals may have a negative impact. With various treatments
available for medical problems, it is predictable that the patient would expect a medical therapy to improve sperm production and quality.

A number of nutritional therapies have been shown to improve sperm count and sperm mobility including carnitine, arginine, zinc\textsuperscript{3,4}, selenium\textsuperscript{5} and vitamin B\textsubscript{12}. Numerous antioxidants have also proven beneficial in treating male infertility, such as vitamin C\textsuperscript{6,7}, vitamin E\textsuperscript{8}, glutathione and co-enzymes Q\textsubscript{10}. Gonadotropin and kallikerin, a glycoprotein are also used to treat male infertility. Specific botanical medicines have been documented in several studies to possess a positive effect on sperm production. A multifaceted therapeutic approach to improve male fertility involves identifying harmful environmental and occupational risk factors, while correcting underlying nutritional imbalances to encourage optimum sperm production and function\textsuperscript{9}.

The present study was carried out to evaluate the efficacy of Speman, a herbal formula comprising powders of \textit{Orchis mascula}, \textit{Asteracantha longifolia}, \textit{Lactuca scariola}, \textit{Mucuna pruriens}, Suvarnavanga, and extracts of \textit{Argyreia speciosa}, \textit{Tribulus terrestris}, \textit{Leptadenia reticulata} and \textit{Parmelia perlata}.

**MATERIALS AND METHODS**

Fifty male patients with idiopathic infertility attending the Out Patient Department of Kamla Nehru Memorial Hospital and Swaroop Rani Hospital, Allahabad were included in the study. A medical history including duration of infertility, previous history of conception, pregnancy, sexual history with respect to erection and ejaculatory functions were ascertained. Surgical intervention was also evaluated. Family history of other members with fertility problems, diabetes and hypertension was studied. General physical examination was conducted to examine testicular size and reflexes. The spermatic cord was examined with special attention to the presence of varicocele. Prior to treatment, semen analysis was carried out after 2–3 days of ejaculatory abstinence. The patients were considered as oligospermic when the total sperm count was <20 million/ml. The patients were administered 2 tablets of Speman (uncoated) twice daily for 3 months. The evaluation was mainly concentrated on sperm density, motility and morphology. Serum testosterone was also performed before initiating the treatment and after completion of 3 months treatment.

**Statistical analysis:**

The values are expressed as mean ± SEM. The data was analysed using paired Student’s ‘t’-test and the minimum level of significance was fixed at $p<0.05$. 
RESULTS
The mean age of the patients was 32.5 ± 1.04. The age ranged from 23 to 39 years. Average years of infertility were 8.06 ± 1.02. One patient had a history of essential hypertension, 4 had diabetes, 7 had premature ejaculation, 1 patient had hernia repair, 2 had hydrocele and 1 patient was suffering from varicocele. After three months of Speman treatment the mean sperm density increased from 14.38 ± 0.42 million/ml to 62.86 ± 1.26 million/ml. The mean motility before treatment of Speman was 35.73%, which increased to 46.62%. Following 3 months of Speman treatment there was an improvement from 49.13% to 62.71% in sperm morphology (Table 1). The mean testosterone level before Speman treatment was 4.27 ± 0.26 ng/ml, which increased significantly to 5.86 ± 0.34 ng/ml after 3 months.

DISCUSSION
Speman is a polyherbal formulation consisting of *Orchis mascula*, *Asteracantha longifolia*, *Lactuca scariola*, *Mucuna pruriens*, *Suvarnavanga*, *Argyreia speciosa*, *Tribulus terrestris*, *Leptadenia reticulata* and *Parmelia perlata*. Most of these herbs are used in traditional medicine as aphrodisiacs. The results confirm that Speman improves the sperm count, physiological motility and morphology of sperm. Clinical trials conducted in patients with infertility have shown that Speman facilitates assisted conception\(^{10}\).

*Argyreia speciosa* is an aphrodisiac, diuretic, and is used to control gonorrheal infection, which affects fertility.

*Mucuna pruriens* (due to the presence of L-DOPA) is a neurotransmitter precursor and is used as an aphrodisiac and a prophylactic agent in patients with oligospermia to increase the sperm count and ovulation in women. It prevents male and female sterility and acts as a nervine tonic.

Experimental models have shown Speman to improve mounting index and total sexual behavior, which raises the testosterone levels. These herbal combinations act to bring about a rise in the hormone levels.

The anterior pituitary gland revealed abundance in the number of LH and FSH producing cells, which would not be the case if the drugs were acting on the testosterone producing leydig cells alone. In addition, the improvement in sperm count indicates the increased activity of FSH producing cells. An intimate structural and functional relationship exists between the two compartments of the testis, i.e. the seminiferous tubule and the interstitial tubules. LH effects spermatogenesis indirectly and stimulates androgen production. FSH targets Sertoli cells. Therefore, testosterone and FSH are directed at the seminiferous tubule epithelium. Androgen-binding protein cell product carries testosterone intracellularly and

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<th>Table 1: Sperm density, motility and morphology before and after treatment with Speman for a period of 3 months</th>
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<td>Semen characteristics</td>
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<td>Density (million/ml)</td>
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*\(p<0.05\) as compared to pretreatment values.
may serve as a testosterone within the seminiferous tubules in addition to transporting testosterone from the epididymal tubule. The physical proximity of the Leydig cells to the sertoli cells and the elaboration by the Sertoli cells of androgen-binding protein, cause testosterone to be maintained in the microenvironment to initiate spermatogenesis

CONCLUSION
The study has shown that Speman is an effective medication, which increases sperm density, motility and morphology and is also useful to balance testosterone levels in subfertile males.

REFERENCES