ABSTRACT
A study was conducted in 32 couples in the age group of 21-43 years, who had primary infertility ranging from 1-12 years. The female partner was given Evecare syrup at a dose of 2 teaspoonfuls for 6 months. The male partner was given Speman tablet at a dose of 2 tablets, twice daily for the same period. The females were advised urine test to detect human chorionic gonadotropin (HCG), if they had a missed period for a duration of more than 15 days. After 3 months of treatment, 6 females tested positive, 4 tested positive after 4 months and 4 tested positive after 6 months of treatment. The pregnancies were later confirmed with pelvic ultrasonography, which showed live fetus without any abnormalities. Among the males, there was a marked improvement in the sperm count especially in those males who had abnormal or low sperm count. A complete analysis was done at the end of 6 months and the final report showed that the fertility rate after Evecare and Speman therapy was 43.75%. This combined therapy could bring out a good outcome in infertile couples if they used Evecare and Speman for at least 6 months.

INTRODUCTION
The World Health Organization (WHO) reveals that between 2–10% of couples worldwide are unable to conceive primarily, about 60–80 million couples in the world are infertile, and it is estimated that 10% of normally fertile couples fail to conceive within their first year of attempt and 5% after two years\(^1\). Further 10–25% couples experience secondary infertility\(^2\).

About 15% couples of childbearing age seek medical help for infertility, usually after about two years of failing to conceive. Among these couples, causative factors are found in about 30-40% of females and in 10–30% of males. In 15-30% of cases, both partners have detectable abnormalities.

The most common cause of female infertility has been ovulatory disorders, which are characterized by anovulation or by infrequent and/or irregular ovulation. Oligomenorrhea or complete amenorrhea usually indicates ovulatory disorders. Moreover, immunological factors also play a role in infertility. The antibodies against sperm can be found in cervical mucus. Up to 50% of infertile couples have male factor involvement\(^3\). The causes of male infertility can be divided into three main categories: sperm production disorders affecting the quality of sperm, anatomical obstructions and other factors like immunological disorders. Approximately \(\frac{1}{3}\) of all cases of male infertility can be attributed to immune or endocrine problems, as well as to a failure of the testes to respond to the hormonal stimulation triggering sperm production.
Herbal therapies have been used since ancient times to treat male and female infertility. Thus, this study was planned to evaluate the efficacy of herbal preparations Evecare (for women) and Speman (for men) in infertile couples to facilitate conception.

Evecare, a polyherbal uterine tonic, helps to correct hormonal imbalance in women with infertility. Studies on Speman have shown that it increases sperm production and improves the quality of the sperm. Therefore, the combination treatment would help to produce a proper physiological state for conception in partners with history of infertility even after unprotected sexual intercourse for more than one year.

**MATERIAL AND METHODS**

This was a multicentric study with the main co-ordinating center being Kempe Gowda Institute of Medical Science, Bangalore, India. The couples who had not conceived for more than one year after stopping contraception, and females, who had failed assisted conception were included in this study. Females who had tubal obstruction with anatomical defects in the reproductive system and a history of significant pelvic inflammation were excluded from the study. As a routine examination, tests for VDRL, HBsAg and HIV were also conducted after obtaining an informed consent. If tested positive for the above tests, they were excluded from the trial.

Thirty two couples, who were married for 1-12 years participated in the study. The minimum age of the male partner was 26 years and maximum was 50 years. The female partners ranged between 21–40 years.

**Examination of the female partner**

Examination of the female partner included vaginal and cervical smears. Pelvic examination was done to check for evidence of fibroids or an ovarian cyst, and tenderness to rule out endometriosis. Other endocrine investigations were carried out to confirm the absence of polycystic ovarian syndrome and hyperprolactinemia.

**Examination of the male partner:**

Systemic and genital examinations were done to rule out testicular pathology with abnormal sexual functions. Varicocele was also ruled out since previous studies have shown that it is present in about 25% of men seeking assessment for infertility. Routine semen analysis was done to assess semen volume, sperm concentration, motility and morphology. The normal values for semen measurements published by WHO is ≥ 20 million sperm/ml and 60% progressive motility.

The male partner was advised Speman tablets at a dose of 2 tablets, twice daily and the female partner was given Evecare syrup at a dose of 2-3 teaspoonsful, twice daily. The couples were advised to have normal sexual intercourse between menstrual cycles to influence conception. The pregnancy test was confirmed in females who missed the menstrual cycle. The confirmation of pregnancy was done by ultrasonography scan.
**RESULTS**

Most of the couples showed normal hemogram and other hematological parameters (Table 1). In 9 patients, Hb ranged between 9.2–10.8 g%, 1 patient had 6 gm% hemoglobin with packed cell volume of 20%. All these patients were administered iron supplements. Routine urine investigation tested normal among all patients and culture yielded no growth of micro-organisms. During the study period, it was seen that 40% of the female patients had irregular menstruation and ovulation. The hormonal values of the patients are shown in Table 2. There was increase in FSH (>15) in 1 patient, reduced LH (<2) in 4 patients, increased prolactin (>20) in 2 patients and reduced estrogen (<20) in 3 patients. However, after administering Evecare syrup for 3 months, the menstrual cycles were regularized with normal ovulation.

The patients were followed-up every month. Figures 1, 2, 3a-b, 4a-d, 5a-f show that Evecare therapy induces ovulation. Patients who had a missed period were subjected to pregnancy tests to confirm pregnancy. After 3 months of treatment, 6 female patients tested positive, after the fourth month, 4 patients tested positive and after 6 months of treatment 4 patients tested positive for pregnancy. Thus, after 6 months of treatment, a total of 14 patients tested positive for urine chorionic gonadotropin (HCG). Figures 6a-d in one patient with multiple fibroid tested positive after 3 months of Evecare therapy. Figure 7 shows a well-defined small gestational sac in the fundus region and measures MSD 6 mm corresponding to 4 weeks and 4 days duration. No fetus had any abnormality, which was confirmed by the follicular scan (Figures 8, 9, 10, 11).

Figures 12a-d and 13a-f shows that no adverse reactions were seen on the kidney, liver, pancreas and gall bladder after Evecare therapy. Thus, Evecare can be a safe and useful therapy in infertile women.

### Table 1: Hematological parameters in patients required for infertility studies (n=64)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin (mg%)</td>
<td>12-15.6</td>
<td>8.6-13.5</td>
</tr>
<tr>
<td>Packed cell volume (%)</td>
<td>35-48</td>
<td>24-40</td>
</tr>
<tr>
<td>Random blood sugar (mg%)</td>
<td>66-135</td>
<td>70-150</td>
</tr>
</tbody>
</table>

### Table 2: Hormonal assessment of the female patients (n=32)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Value range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follicular stimulating hormone (FSH) (mIU/ml)</td>
<td>1.1-12.8</td>
</tr>
<tr>
<td>Luteinizing hormone (LH) (mIU/ml)</td>
<td>1.0-11.9</td>
</tr>
<tr>
<td>Prolactin (ng/ml)</td>
<td>1.6-18</td>
</tr>
<tr>
<td>Progesterone (nmol/l)</td>
<td>0.9-28</td>
</tr>
<tr>
<td>Estradiol (µmol/l)</td>
<td>997-12</td>
</tr>
<tr>
<td>Insulin (µIU/ml)</td>
<td>6.1-41.55</td>
</tr>
</tbody>
</table>

**Note:**
- FSH: >20 mIU/ml in 4 patients
- LH: <2 mIU/ml in 4 patients
- Prolactin: >20 ng/ml in 2 patients
- Estradiol: <20 µnmol/ml in 3 patients
Ultrasound images of right and left ovaries and uterus in an infertile women after Evecare therapy

**Figure 1:** Left ovary measures 4.1 x 2.2 cms and right ovary measures 4.3 x 2.3 cms. Both ovaries are enlarged in size and shows multiple small follicles after Evecare therapy. Uterus normal.

Ultrasound images of right and left ovaries and uterus in an infertile women after Evecare therapy

**Figure 2:** Right ovary measuring 2.4 x 1.9 cms and left ovary 2.6 x 2 cms. Both ovaries show dominant follicles. The longitudinal sections and transverse section of the uterus are normal.

Ultrasound images of right and left ovaries and uterus in an infertile women after Evecare therapy

**Figure 3a:** The longitudinal sections and transverse section of the uterus are normal.

**Figure 3b:** Figures showing right ovary measuring 2.3 x 2 cms and left ovary 5.6 x 2.5 cms with multiple large follicles, which indicates that there has been hyperstimulation of the ovaries after Evecare therapy.
Pelvic ultrasound images of ovary and uterus of an infertile women after Evecare therapy

Figure 4a: Left ovary shows normal activity.

Figure 4b: Mildly enlarged right ovary and multiple small follicles.

Figure 4c: The longitudinal section of the uterus is normal.

Figure 4d: The transverse section of the uterus is normal

Pelvic ultrasound images of ovary and uterus of an infertile women after Evecare therapy

Figure 5a: Right ovary showing dominant follicle.

Figure 5b: Right ovary showing dominant follicle from a different scanned angle.

Figure 5c: The left ovary showing dominant follicle.

Figure 5d: The left ovary showing dominant follicle from a different scanned angle.
Figure 5e: The right ovary showing dominant follicle.

Figure 5f: The right ovary showing dominant follicle from a different scanned angle.

Figure 6a: Uterus showing a fibroid measuring 2 x 1.7 cms.

Figure 6b: Uterus showing a fibroid measuring 8 x 8 cms.

Figure 6c: Uterus showing a fibroid measuring 1.5 x 1.5 cms.

Figure 6d: The scan shows that the uterus is very bulky.

Figure 7: (Pelvic ultrasonography): Gestational sac showing implantation of the embryo after fertilization using Evecare.
Figure 8: (Pelvic ultrasonography): A single live fetus of 23 weeks ± 7 days of gestational age with good fetal cardiac activity and good fetal movements with no congenital anomalies.

Figure 9: (Pelvic ultrasonography): A single live fetus of 12 weeks, 2 days of gestational age with good fetal cardiac activity and good fetal movements. Fetal intracranium, spine, stomach and bladder are normal at this stage. Crown rump length: 5.5 cms, which corresponds to 12 weeks 2 days duration.

Figure 10 (Pelvic ultrasonography): A single live fetus of 8 weeks 6 days ± 5 days duration with good fetal cardiac activity and good fetal movements. Crown rump length: 2.1 cms, which corresponds to 8 weeks 6 days ± 2 days duration.
Pelvic ultrasound images of an infertile women, which show normal pregnancy after Evecare therapy

Figure 11 (Pelvic ultrasonography): A single live intrauterine gestation of 20 weeks 6 days duration with good foetal cardiac activity and good foetal ovements with no congenital anomalies.

Pelvic ultrasound images of an infertile women, which show that Evecare therapy was safe with no side effects

Figure 12a: The right and left kidneys are normal in size, shape and architecture.

Figure 12b: The longitudinal and transverse sections of the uterus are normal.

Figure 12c: The right and left ovaries are normal.

Figure 12d: The liver, which is on the left hand side of the image shows normal architecture and the left side shows normal gall bladder.

Pelvic ultrasound images of an infertile women, which show that Evecare therapy was safe, with no side effects

Figure 13a: The right and left ovaries are normal.

Figure 13b: The urinary bladder shows normal architecture.
DISCUSSION

Hormonal balance between estrogen, progesterone, follicular stimulating hormone and leutinizing hormone is important to induce and promote infertility. The levels of hormone in patients recruited in the trial are shown in Table 2. In this trial, abnormal hormonal levels were found in 13 females. Following treatment with Evecare most of the females showed regularization of the menstrual cycle with normal hormone levels. All the patients were subjected for follicular scans for 3 consecutive cycles after starting treatment. Most patients showed ovulation induction between 12-16 days of the cycle.

Among the male partners, treatment with Speman showed increase in the sperm number and morphology. The combined administration of Speman in males and Evecare in females showed successful fertility, as seen in the follicular scans. Fourteen out of 32 females (43.75%) showed positive pregnancy after 6 months of treatment. Similar results were found in other clinical trials conducted with Evecare.

The possible mechanism of the ingredients of Evecare and Speman could be attributed to the combined action of all the ingredients present in these formulations. The important ingredients of Evecare such as *Saraca indica* has been shown to have a stimulatory effect on the ovarian tissue, which enhances ovulation. *Symplocos racemosa* has been used since ancient time to treat menstrual disorders. *Cyperus rotundus* possesses high levels of iron and is useful in treating general weakness and anemia. *Tinospora cordifolia* is well-known for its immunomodulatory effect and thus, helps in boosting the immune system, which indirectly increases the feeling of well-being in the patients. *Aloe vera* regulates female hormones and
improves fertility. The combined effect of all these herbs helps in ovulation, conception and proper implantation, which lead to subsequent normal pregnancy.

Speman is a polyherbal formulation, consisting of *Argyreia speciosa*, which is an aphrodisiac and is effective for 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. It prevents male and female sterility and acts as a nervine tonic. The combined effect of these two herbs in Speman results in improvement of sperm density and morphology to improve fertility and induce conception. Thus, Speman and Evecare result in improved fertility among infertile couples.

**CONCLUSION**

Speman and Evecare when administered together in infertile couples induced conception progressing to full-term pregnancy. No side effects were reported during the trial. Hence, Speman and Evecare may be considered as an alternative therapy in infertile couples, who have not responded to conventional ovulation inducing drugs.

**REFERENCES**