STUDY OF THE IMPACT OF MICRONUTRIENT FOUND IN SPERAMAX® DURING PREGNANCY PERIODS ON EMBRYONIC DEVELOPMENT AND NEWBORN

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INTRODUCTION
Micronutrients are minerals and vitamins important, in minute sums, for ordinary working, development, and improvement. Vitamins and minerals bolster each phase of maternal, placental, and fetal connection to empower a solid incubation. Females in low-pay nations frequently eat lowered levels of micronutrients because they are limited to specific types of food and have little access to natural products, vegetables, and invigorated foods [1]. Micronutrients are very significant to pregnancy and regularly given as supplements such as Vitamins E, folate, zinc, and selenium [2]. Poor maternal health status, alongside maternal body synthesis, digestion, and placental supplement supply are the primary factors that can adversely impact fetal improvement and have been entirely identified with unfriendly pregnancy result and articulation of fetal hereditary potential [3]. Folic corrosive is a Vitamin B that assists the body in making solid new cells. The human body is in need of folic corrosive, particularly those females who may get pregnant [4]. It is also a cancer prevention agent, critical for DNA combination and cell replication, and diminishes risks of ovulatory barrenness [5]. Speramax® is a new medicine containing a number of various vitamins and L-carnitine, and all involved in cell metabolism and used for men. The L-carnitine is involved in fatty acid oxidation; the vitamins act as antioxidants in the anabolism of body [6].

Vitamins and antioxidant
In the female reproductive system, high convergences of ROS in the female conceptive tract could likewise adversely affect the preparation of oocytes and cause hindrance of embryonic implantation [7,8]. They play a significant role in the pathogenesis of subfertility in both men and women [9-11]. There is now a great deal of scientific knowledge about the use of nutritional complements and their advantageous effects on both female and male fertilities [12]. Studies have shown that vitamins and minerals can increase your chances of success of staying pregnant. Studies on infertile women have shown that pre-conception folic acid supplementation increases folate levels and decreases homocysteine level in follicular fluid (FF) [13], and it enhances embryo quality and the chance of pregnancy [14]. In addition, folate is vital for quality and development, implantation, placentation, fetal development, and organ advancement [15]. Selenium (Se) is a component of enormous significance for human health. It is effectively exchanged over the placenta into embryo amid gestation; the overall maternal selenium content is emphatically connected with fetal and infant selenium state [16]. Se plays a key role in the effectiveness of the reproductive system and male and female fertilities. Based on this purpose, supplementation in the case of selenium is of maximum significance [17]. Studies on animals and humans show that the use of hormones more efficiently may help to prevent miscarriage or fetal death [18,19].

Vitamin E is a vital antioxidant for reproduction and fertility; this powerful antioxidant can play a critical role in oocyte maturation because the FF found in oocyte is rich with Vitamin E. The environment of FF is thought to play a role in oocyte maturation and eventual development of an embryo [20]. L-carnitine-interceded beta-oxidation of unsaturated fats has a well-built-up part in vitality supply of oocytes and embryos [21] and the amount in the body peaks in your twenties and then decreases and becomes short supply as you age. It plays a role in increasing chances of pregnancy [22]. L-carnitine might be positive in advancing improvement in neonates [23,24].

METHODS
Fertile female mice were classified into four main groups: Group 1 is spontaneously (SPO); Group 2 is administrated with Speramax® only; Group 3 is treated Speramax® with superovulation (SUO); and Group 4 is superovulated only without Speramax®.

Ovarian stimulation (SUO induction)
SUO was performed by intraperitoneal (IP) shot of 7-point five international unite (IU) of pregnant mare’s serum gonadotropin...
(Pregnyl, Serono company) and then followed 48 h later by IP injection of 7-point five I.U. of human chorionic gonadotropin (Pregnyl, Serono company).

Mating of the animals

After isolation of the sexually mature females which at the estrous stage by examining the vaginal smears under a light microscope, the isolated females were put in breeding cages, each two females with one mature male and left overnight.

Early in the next morning, copulation was confirmed by examining the females and noticing the incidence of the vaginal plug or the sperms in slides microscopically in the vaginal swabs.

In this work, the gestational day 0 was characterized as the day when spermatozona were seen in a spread of the vaginal substance or potentially a copulatory attachment and/or sperm under a light microscope.

Statistical analysis

All statistical analysis was achieved using version 16.0 Minitab statistical program. Chi-square test was also utilized. p<0.05 was considered statistically significant in this study [25].

RESULTS

Table 1 shows the number of newborn SPO and SUO mice treated with Speramax® after 1, 2, and 4 weeks.

DISCUSSION

This paper evaluates the supplementation of vitamins and minerals found in Speramax® on pregnancy. The study shows a significant increase in the number of neonatal with healthy feature. It does not record any state of congenital anomalies in groups treated with Speramax® supplements for 1 and 2 weeks in pregnant animals compared with an untreated group. The explanation for this feature is that the pregnant requires folic acid during and before pregnancy. The World Health Organization prescribes utilization of folic acid to prevent neural tube defect [31].

The importance of L-carnitine supplied to the maternal organism enhances intrauterine growth [49]. Carnitine can cross the placenta; therefore, a low carnitine level of the neonate can reflect both neonatal deficiency and maternal deficiency [50-52]. The significance of L-carnitine in enhancing oocyte quality and regenerative execution has been exhibited in creature and human investigations [53-58]. The umbilical string blood contains altogether larger amounts of free and aggregate L-carnitine than the relating maternal levels [59,60].

Vitamin E, the environment of the FF, is thought to play a pivotal role in oocyte maturation and before the eventual development of an embryo [61-63]. Furthermore, there are many antioxidants found in FF including Vitamin E, which promotes healthy oocyte maturation and oocyte viability; however, the results are conflicting [64-66]. Increased ROS levels have been related with poor oocyte quality, low fertilization rate, and impaired embryo development [67].

In a creature display, Train et al. [68] have demonstrated that oral organization of antioxidant (Vitamin E) decreased the negative impact of female maturing on the number and nature of oocytes.

CONCLUSION

This study concludes that Speramax® is not only used for male infertility but can also be used for female fertility potential because its contents are highly supplemental for oocyte maturation and embryonic development. Hence, good nutrition may, therefore, be especially important to this group of infants and must be administered alongside other nutritional supplements.

AUTHOR'S CONTRIBUTIONS

Speramax® is not only used for male infertility but can also be used for female fertility.

CONFLICTS OF INTEREST

The authors declared that they have no conflicts of interest.

REFERENCES


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<th>Period of treatment</th>
<th>Number of newborn</th>
<th>p value</th>
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<tr>
<td></td>
<td>SPO (control)</td>
<td>SPO with Speramax®</td>
</tr>
<tr>
<td>1 weeks</td>
<td>40</td>
<td>120</td>
</tr>
<tr>
<td>2 weeks</td>
<td>36</td>
<td>84</td>
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<td>4 weeks</td>
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Chi-square test at 0.05 of significant, number of mice for each group 10, SPO: Spontaneously, SUO: Superovulated.


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