FEDERATION OF OBSTETRIC AND GYNAECOLOGICAL SOCIETIES OF INDIA

TOG Times of Gynaecology™

2022 | Issue 65

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President's Message

From the desk of Dr. S. Shantha Kumari – President, FOGSI 2021

As we get into the swing of work for another year, we must think in unison as "FOGSI for All". There are many Gynecologists in India who do not belong to FOGSI, including many members of other associations too. We are currently reaching out to those non-members through direct mail and solicitations and hope to demonstrate to them the value of supporting FOGSI's growth. We believe our vision for the future.. "FOGSI For All", presented here and which will be showcased in other venues, will draw more Obstetricians into the circle of those working both in and for the cause of Women.

FOGSI owes its existence to defending the rights of our doctors and also the women whom we treat. I propose we continue in that vein and expand our role in defending the rights of these Doctors and Women. We will focus on Dheera and the fight against Violence on Women and Doctors.

In looking ahead to my year as President of FOGSI, besides being humbled by the opportunity to serve my colleagues, I want to build on the expertise and unique gifts individual presidents have given to our academy.

In recent years, we have been guided by leaders in the field of Crticial Care Research, Infertility, Surgeons and Professors with unique perspectives from the trenches of general medical practice, and leaders in clinical trials, ethics, and public affairs. TOG, continues to be a valuable and expanding resource for our members and a critical tool in attracting leaders and clinicians from outside our academy, closer to the field of gynecology and our "big tent."

I wish you all a good Scientific feast through this platform and many others that will be introduced soon. Happy reading and do contribute your papers here as well.

"Live as if you were to die tomorrow. Learn as if you were to live forever."
— Mahatma Gandhi

Best wishes!

Dr. S. Shantha Kumari

MD, DNB, FICOG, FRCPI (Ireland),
President FOGSI 2021
Professor Obgyn, Chairperson ICOG 2018
Vice President FOGSI 2013
ICOG Governing Council Member
IAGE Managing Committee Member

Editorial Message

Dear FOGSIans,

To take over the steering wheel from an experienced skipper is a challenge for the new one. What course should be taken in order to go towards old and new destinations? The journal stands on an old foundation of publishing a broad range of articles covering fundamental aspects of obstetrics and gynecology as well as subspeciality topics. We plan to extend on this and introduce new items to enhance readability of the journal. The issues will start by an Editors' Message highlighting contributions and news of specific interest. More wide-ranging medical news will be added in due course, both from interiors of India and globe.

This will broaden the journals' medical outlook and often take it beyond the traditional scope of obstetrics and gynecology to women's health in a general sense. The editorial team will strengthen its working ties for this purpose. Input from the readers and from leading centers and institutions in our countries will be necessary, as will the role of our international contributors.

In todays googled-world of databases and alert-e.mails, reading becomes universal and less dependent on specific journals many a times. Still it is good to have at least one journal to grasp on a quiet evening or good afternoon at home or during work, feel the pages glide through your hands as you absorb crisp content across therapy areas that you want to be acquainted with, for your own sake and that of your patients. That is the joy of reading a customized article which I know a lot of us really want to exchange for the computer screen.

Dr Nandita Palshetkar
Dr. Krishnakumari
Dr. T Vindhya
Dr. Jayam Kannan
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Dr. Kiranmayee
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Oral dydrogesterone: A superior choice for managing threatened miscarriage vs. oral progesterone

Drug in Focus

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Corpus luteum insufficiency: A leading cause of threatened miscarriage

Threatened miscarriage is common during early pregnancy, accounting for 30%–40% of morbidity. Nearly 25% of women experience vaginal bleeding during early pregnancy, of which 50% may develop actual miscarriage timely treatment is not provided.[1,2] One of the main culprits of threatened miscarriage is insufficient production of progestogens due to endocrine dysfunction of the corpus luteum.[1] Other risk factors contributing to the threatened miscarriage include maternal age, previous history of two or more miscarriages, maternal obesity, maternal infection, and endocrine abnormalities.[3]

Normal corpus luteum function is essential for the successful zygote implantation, maintenance of gestation, as well as for normal development of an embryo. When the corpus luteum function is impaired, the insufficient secretion of progestogens and progesterone can cause threatened miscarriage due to ineffective inhibition of the frequent uterus contractions and immune rejection of embryonic antigens. Therefore, supplementation of progestogens is the most effective treatment strategy for preventing threatened miscarriage due to corpus luteum insufficiency.[1]

Role of dydrogesterone in threatened miscarriage

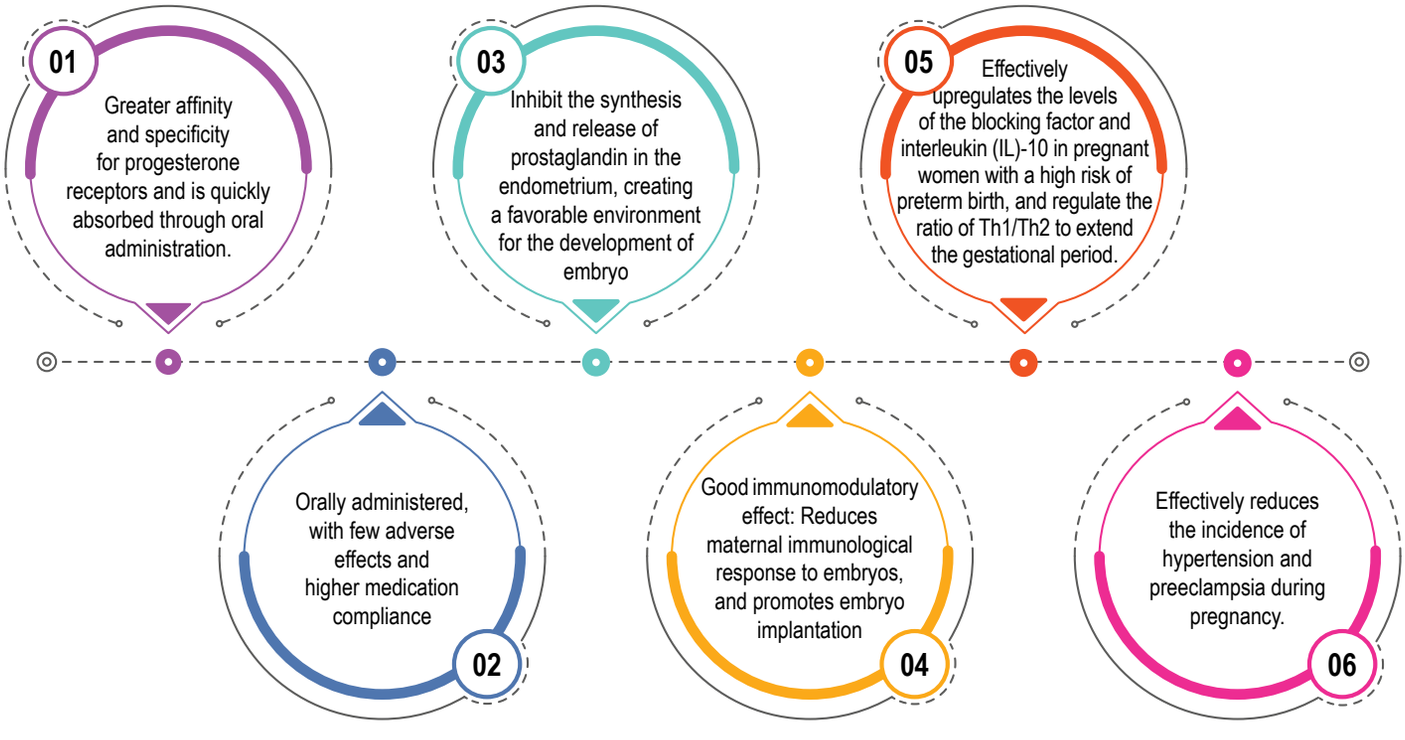
Progesterone and dydrogesterone are the most commonly used drugs in clinical practice for managing threatened miscarriages due to corpus luteum insufficiency.[1] During early pregnancy, insufficient

progesterone production may contribute to miscarriage. Hence, progesterone supplementation is used in threatened miscarriage for preventing spontaneous pregnancy loss.[3] However, progesterone has a very short half-life, slower onset of action, and poor efficacy in some patients. In addition, long-term use of progesterone has been linked to side effects such as muscle twitching and gastrointestinal discomfort, restricting its use in clinical settings.[1]

Advantages of dydrogesterone in threatened miscarriage

Dydrogesterone is a progesterone analog, with similar structure, function, and biological features to progesterone. It is widely used in recent years for managing threatened miscarriages and assisted reproductive technology due to its promising outcomes. Dydrogesterone elevates estradiol, human chorionic gonadotropin (HCG), and progesterone levels in patients with threatened miscarriage. In women at high risk of preterm birth, dydrogesterone increases the levels of the blocking factor and interleukin (IL)-10 factor and regulates Th1/Th2 ratio to lengthen the gestational period.[1]

Dydrogesterone vs. progesterone[1]



Superiority of oral dydrogesterone over oral progesterone in managing threatened miscarriage

Recently, a study was conducted to determine the efficacy and safety of oral dydrogesterone (n = 665) vs. oral progesterone (n = 620) in patients with threatened miscarriage due to corpus luteum insufficiency. Dydrogesterone group was treated with first oral dose 40 mg, and the subsequent oral dose of 10 mg/time, 3 times/day, for 2 weeks, and progesterone group were administered oral dosage form 0.1 g/time, 2 times/day, for 2 weeks.

During treatment, the incidence of adverse effects, time for clinical symptom relief, rate of miscarriage prevention, delivery outcome, and changes of serum sex hormone levels (before and 4 weeks after treatment) were recorded and compared between groups. Using the XGBoost algorithm, factors impacting the efficacy and safety of each treatment were also analyzed.[1]

Results were:

- On day 4 of dydrogesterone or progesterone treatment, the clinical symptoms of both groups were significantly improved.

- No significant difference between groups in terms of time for clinical symptom relief (p>0.05) and rate of miscarriage prevention (p=0.566).
- Lower preterm birth rate and postpartum hemorrhage rate were observed in dydrogesterone group vs. progesterone group, with no significant difference in terms of other delivery outcomes, Table 1 and Figure 1.
- After 4 weeks of treatment, the levels of serum sex hormones including HCG, estradiol, and progesterone were significantly increased in the dydrogesterone group as compared to progesterone group (p<0.05, Figure 2).
- A lower incidence of adverse effects was correlated with dydrogesterone treatment vs. progesterone treatment (p<0.001, Table 2).
- XGBoost algorithm analysis demonstrated a lower incidence of preterm birth rate, postpartum hemorrhage rate, and adverse effects in the dydrogesterone group, ranking 3rd, 2nd, and 1st, respectively, in the weight-dependent variables as compared to progesterone.

In conclusion, dydrogesterone demonstrates higher safety as compared to progesterone in the management of patients with threatened miscarriage due to corpus luteum insufficiency. Incidence of preterm birth, postpartum hemorrhage, and adverse effects was significantly reduced in patients treated with dydrogesterone vs. progesterone therapy.

FIGURE 1 Treatment-associated rate of complications

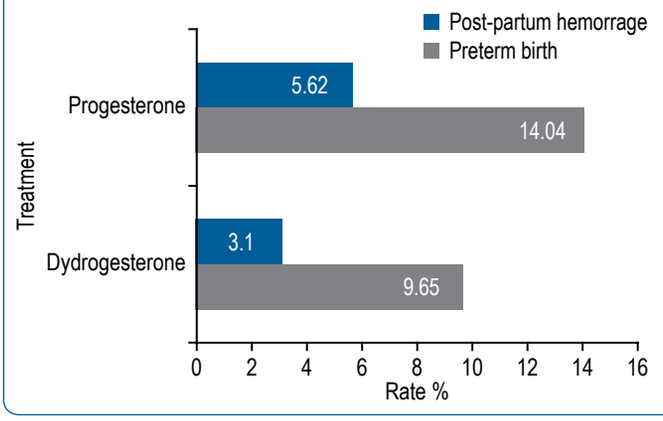
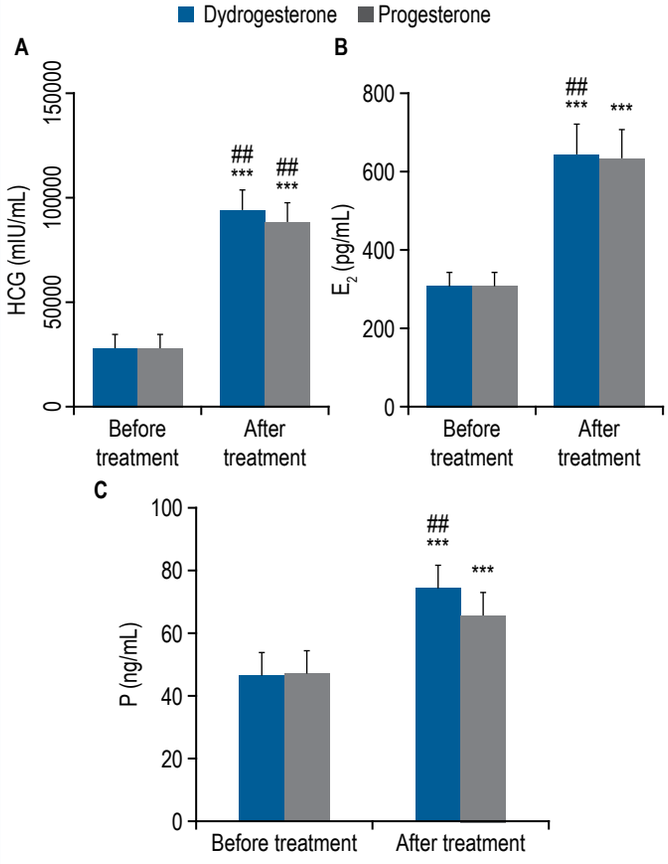


FIGURE 2 Serum sex hormone levels before and 4 weeks after dydrogesterone and progesterone treatment



A: HCG level; B: estradiol level; C: progesterone level. Compared with before treatment, ***p<0.001; compared with the progesterone group, #p<0.05, ##p<0.01, ###p<0.001. E2: estradiol; HCG: human chorionic gonadotropin, p: progesterone

Table 1. Comparison of delivery outcomes between dydrogesterone and progesterone group

Category	Dydrogesterone group (n, %)	Progesterone group (n, %)	χ2	P
Preterm birth	**56 (9.66)**	**75 (14.04)**	**5.163**	**0.023**
Postpartum hemorrhage	**18 (3.10)**	**30 (5.62)**	**4.264**	**0.039**
Placenta previa	9 (1.55)	13 (2.43)	1.119	0.290
Placental adhesion	6 (1.03)	10 (1.87)	1.380	0.240
Premature rupture of fetal membranes	28 (4.83)	35 (6.55)	1.554	0.213

N: number, %: percentage, X^2: Chi-square

Table 2. Comparison of incidence of adverse effects between dydrogesterone and progesterone group

Category	Dydrogesterone group (n = 665)	Progesterone group (n = 620)	X^2	P
Nausea	36 (5.41)	56 (9.03)	6.321	0.012
Headache	55 (8.27)	74 (11.94)	4.772	0.290
Breast tenderness	10 (1.50)	8 (1.29)	0.106	0.745
Breast induration	**15 (2.26)**	**64 (10.32)**	**36.188**	**<0.001**
Total incidence (%)	**116 (17.44)**	**202 (32.58)**	**39.477**	**<0.001**

X^2: Chi-square

Summary

- Insufficient progestogen secretion due to endocrine dysfunction of the corpus luteum causes frequent uterine contractions and immune rejection of embryonic antigens, leading to threatened miscarriage.
- Progestogens supplementation (mainly progesterone and dydrogesterone) is recommended for managing threatened miscarriages caused by corpus luteum insufficiency.
- Long-term use of progesterone has been linked to side effects such as muscle twitching and gastrointestinal discomfort, hence restricting its use in clinical settings.
- Dydrogesterone is a progesterone analog, widely used for managing threatened miscarriage and in assisted reproductive technology due to its promising results.
- Oral Dydrogesterone leads to a higher increase in serum sex hormones levels (estradiol, HCG, and progesterone hormones) in patients with threatened miscarriage vs. Oral progesterone.
- In women at high risk of preterm birth, dydrogesterone increases the levels of the blocking factor and IL-10 factor and regulates the Th1/Th2 ratio to lengthen the gestational period.
- Dydrogesterone successfully improves the chances of pregnancy beyond 20 weeks' gestation in threatened miscarriage patients without a history of recurrent miscarriage.
- Oral dydrogesterone is highly safe and efficacious in threatened miscarriage due to corpus luteum insufficiency, with a lower incidence of preterm birth, postpartum hemorrhage, and adverse effects vs. oral progesterone.

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Importance of probiotics, prebiotics, and synbiotics in cesarean section delivered neonates: An outlook

Scientific Review

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Role of gut microbiota in the immune system

The gut microbiota (GM) is involved in the development and maturation of gastrointestinal mucosal immune system (GALT) as well as in the defense against intestinal pathogens. The newborn presents an immature immune system at birth that requires immunogenic stimuli from the developing GM for proper maturation. It appears that the development of the GM begins in the womb. Species from *Staphylococcus*, *Lactobacillus*, and *Bifidobacterium* have been detected in the meconium, placenta, and amniotic fluid of newborns of healthy pregnant women.[1]

Effect of different modes of delivery on the GM development in newborns

Studies have found differences in the degree of gut microbiota development between neonates delivered through cesarean section (C-section) and through vaginal delivery, with the former having a less developed microbiota.[1] Vaginally delivered neonates are exposed to the maternal vagina, and *Prevotella spp*. and *Lactobacillus* dominate the fecal microbiota of these neonates. Neonates born by C-section do not have direct contact with the maternal vaginal microbial population and thus are more likely to have microbiome dominated by microbes derived from the maternal skin, the hospital environment, or hospital staff.[2]

When compared to vaginally delivered newborns, the gut microbiota of C-section newborns contains low numbers of species of the genera *Bifidobacterium, Streptococcus*, and *Lactobacillus* and higher number of potentially pathogenic bacteria, like *Clostridium perfringens* or *Escherichia coli*.[1] Studies have shown that the C-section mode of delivery may be associated with an increased risk of metabolic disorders, like

respiratory illness, and immune disorders like allergies and autoimmune diseases.[3]

Effect of different modes of feeding on the development of GM in newborns

Neonate feeding appears to play an essential role. Studies have demonstrated that women who deliver by C-section are less likely to breastfeed or will delay initiation of breastfeeding. This is important for colonization of GM since breast milk includes a plethora of beneficial bacteria that are required for the optimum immune development and the intestinal colonization in the newborn. The bacterial composition of breast milk is closely related to that of the GM of infants, demonstrating that bacteria are passed from mother to the baby during lactation process. Thus, the lactation process appears to be an essential factor in the development and correct establishment of the GM in infants born vaginally and by C-section.[1]

Effect of probiotic, prebiotic, and synbiotic on GM in newborns

Martín-Peláez S et al, conducted a systematic review to evaluate the effect of probiotic, prebiotic, or synbiotic consumption during pregnancy and/or lactation on GM colonization of C-section newborns. The study demonstrated that probiotic, prebiotic, and synbiotic interventions resulted in a beneficial gut microbiota in C-section newborns, closer to that of vaginally delivered newborns, especially regarding *Bifidobacterium* colonization (Table 1).[1]

Table 1. Studies on the effect of probiotics, prebiotics, and synbiotics on gut microbiota of newborns

Author/ Year	Design	Population	Intervention	Control	Intervention Duration	Outcome
Cooper, 2016	RCT-DB	n = 421 newborns n (IG) = 207 (44% CD) n (CG) = 214 (47% CD)	Infant formula plus 1 × 107 CFU/g of Bifidobacterium animalis subsp. lactis CNCM I-3446 and 5.8 g/100 g of a mixture of bovine milk-derived oligosaccharides (BMOS)	Infant formula	From birth to 2 months of age	Infant formula supplemented with the synbiotic induced a bifidogenic effect in both delivering modes, but more explicitly correcting the low bifidobacterial level found in CD infants. Lowered fecal pH and improved fecal microbiota independently of the delivery mode.
Frese, 2017	RCT	n = 66 newborns n (IG) = 34 (32% CD) n (CG) = 32 (28% CD)	Breastfeeding plus a daily capsule containing 1.8×10^{10} CFU of Bifidobacterium longum subsp. infantis EVC001	Breastfeeding	From day 7 to day 28 of life	Increase in Bifidobacteriaceae, in particular *B. infantis*, in IG, persisting more than 30 days after probiotic supplementation ceased.
Korpela, 2018	RCT-DB	n = 422 pairs pregnant female-newborns n (IG) = 199 (18% CD) n (CG) = 223 (20% CD)	Mothers: probiotic mixture Newborns: same probiotic mixture as mothers, mixed with 0.8 g of GOS	Microcrystalline cellulose	Mothers: last month of pregnancy Infants: from birth until 6 months of age	Daily *B. breve* and *L. rhamnosus* supplementation combined with breastfeeding is a safe and effective method to support the microbiota in CD and in antibiotic-treated infants
Hurkala, 2020	RCT	n = 148 C-section newborns n (IG) = 71 n (CG) = 77	Oral capsule containing 2×10^6 CFU/day Bifidobacterium breve PB04 and Lactobacillus rhamnosus KL53A	Mother's milk or formula	From delivery to 6 days of life	Supplementation of CD neonates with a mixture of *L. rhamnosus* and *B. breve* strains immediately after birth increases numbers of lactobacilli and bifidobacteria in their gut
Estorninos, 2021	RCT-DB	n = 226 newborns n (IG) = 114 (17% CD) n (CG) = 112 (18% CD) n (RG) = 70 breastfed (19% CD)	Infant formula containing 7.2 g/L bovine milk-derived oligosaccharides (MOS)	Infant formula	From 21–26 days of age until 6 months of life	Supplementation with MOS shifts the gut microbiota composition of CD infants towards that of vaginally delivered, breastfed infants

CT: Controlled trial; RCT: Randomized controlled trial; DB: Double-blind; n: Sample size, IG: Intervention group, CG: Control group, RG: Reference group; CD: Cesarean delivery; GOS: galacto-oligosaccharides

In terms of probiotic interventions, the effects on GM were more prominent when multi-strain combinations were used. Probiotic strains (all from the Bifidobacterium genus) were combined with galacto-oligosaccharides, fructo-oligosaccharides, or bovine milk-derived oligosaccharides in synbiotic formulas. This may be an optimal strategy for restoring GM in infants delivered by C-section. Interventions with *Bifidobacterium* strains alone could be inadequate to promote an effect on GM. This may be attributed to the difficulty of achieving permanent colonization of the infant gut due to competition with autochthonous microbiota. Thus, it has been proposed that the combination of *Bifidobacterium* with a prebiotic or with breastfeeding, which provides milk oligosaccharides, may be more effective regarding colonization.[1]

The studies also showed that earlier the initiation of intervention, the more successful effect was achieved, since the first three months of life are a critical window for GM recovery in C-section infants, especially regarding *Bifidobacterium* (Table 1).[1]

In conclusion, the consumption of probiotics, prebiotics, and synbiotics, especially during lactation, results in beneficial effects on the gut microbiota of newborns, particularly C-section newborns. These interventions are more effective when given begin soon after birth.

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Vitamin B complex supplementation improves pregnancy success in women undergoing assisted reproductive technology

Infertility Corner

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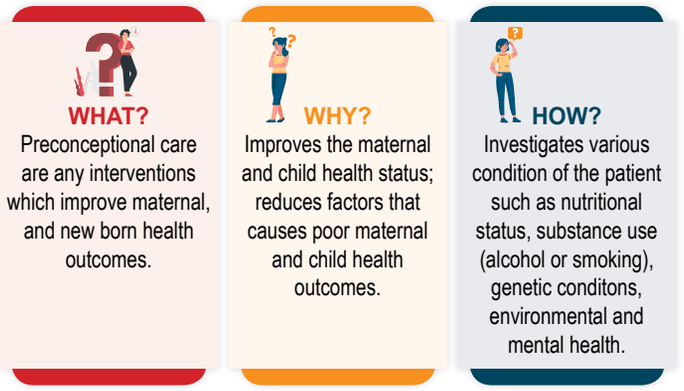
Infertility affects around 15% of the couples and is known to cause adverse physiological, psychological, and social effects among the couples. Assisted reproductive technologies (ART) is a widely used treatment to control and treat infertility. Around 150,000 ART cycles are conducted yearly, accounting for about 2% of live births. Despite significant advances in ART, live birth rates per initiated cycle have remained constant at approximately 30% since 2002. The reason for this unsuccessful procedure may have a multifactorial origin and entails identifying modifiable predictors for ART success. Evidence shows that micronutrients such as folate and B vitamins can benefit reproductive success after ART, and hence, dietary supplementation before ART can be favorable.[1,2]

Preconceptional care: A continuum of care to improve maternal and child health[3]



What is the role of dietary supplements in preconceptional care

- Micronutrients such as folate, vitamin B6, B12, D, and iron play a vital role in various fertility mechanisms, including embryogenesis, homocysteine metabolism, and oxidative stress.
- Evidence has shown that women with infertility have lower levels of micronutrients than the recommended levels; re-establishing the levels of micronutrients in infertile women would have a favorable effect on the mechanisms

involved in infertility. Furthermore, normalizing micronutrients in infertile women improves the oocyte and embryo quality, implantation, and live births.

- Thus, dietary supplements are vital for preconception care to reduce any risk of adverse pregnancy or fetal outcomes due to nutritional deficiencies and restore the micronutrients to recommended levels.[4,5]

How does folic acid influence reproductive success after ART?

Folate (vitamin B9) maintains oocyte quality, maturation, fertilization, implantation, DNA synthesis, epigenetic modification, and cell proliferation. Nearly 5% of infants are born with severe congenital anomalies such as malformations, deformations, or disruptions. Intake of folic acid supplements in the preconceptional period prevents neural tube defects (NTDs) and other folic acid-sensitive congenital anomalies such as heart defects, urinary tract anomalies, oral-facial clefts, and limb defects. Also, international guidelines recommend the intake of folic acid as a preconception supplement (400 µg/day). Thus, maintaining folate levels with supplements has a beneficial effect in women undergoing infertility treatment as it increases the quality of the microfollicular environment, oocyte, embryo, and implantation leading to live birth.[6,2]

5-methyltetrahydrofolate: An alternative to folic acid supplements

Folic acid-rich dietary supplements maintain folate levels in the body. However, folic acid remains inactive inside the human body, so the liver converts folic acid into the active molecule-5-methyltetrahydrofolate (5-MTHF). Folic acid will accumulate in blood under megaloblastic anemia or reduced hepatic transformation. Whereas, 5-MTHF - the active form of folic acid does not require activation by the liver; hence, 5-MTHF will be immediately available for mother and fetus, less reactive towards methotrexate, stable under visible light ultraviolet- A radiations, stability in serum folate levels.[7]

What is the role of the B vitamins on female fertility and its impact on ART outcomes?

- The concentration of vitamin B12 in serum and follicular fluid improves the quality of the embryo, hence leads to increased live birth.[1]
- Vitamin B6 leads to a rise in the probability of conception by 40% and a 30% reduction in early pregnancy loss.[2]
- Thus, supplementing women undergoing infertility treatment (ART) with B vitamin improves fertility, reproductive performance, and live birth.[2]

Impact of hyperhomocysteinemia on fertility outcomes

An increase in homocysteine level in the blood (hyperhomocysteinemia) leads to preeclampsia, pregnancy loss, pregnancy-induced hypertension, and intrauterine growth restrictions. Hyperhomocysteinemia leads to oxidative stress, which together increases the risk of abortion or preterm birth.[8] Micronutrients such as folate (vitamin B9), vitamin B12, vitamin B6, and vitamin B2 are involved in homocysteine homeostasis. Deficiency of folate or vitamin leads to hyperhomocysteine level that causes adverse obstetric outcomes, spontaneous pregnancy loss, impaired oocyte maturation, and embryo development.[2]

Evidence showing importance of vitamin supplementation in aiding ART success[2]

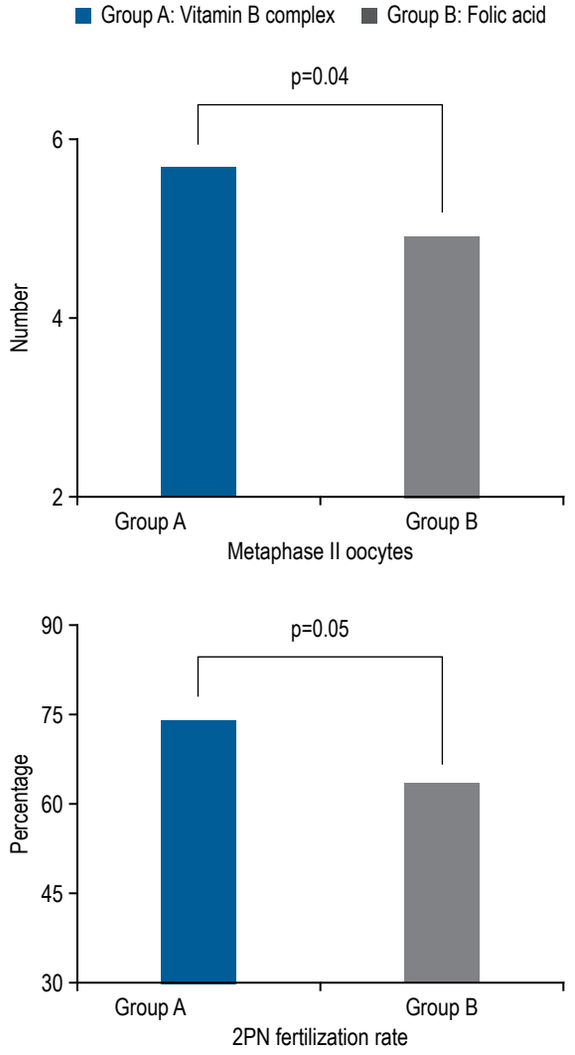
Researchers investigated the impact of the vitamin B complex (400 µg 5-methyltetrahydrofolate, 5 µg vitamin B12, 3 mg vitamin B6) supplement use vs. folic acid (400 µg) only on pregnancy outcomes

(clinical pregnancy, pregnancy loss, and live birth) in infertile women subjected to homologous ART. They included 269 infertile women in the mean age group of 36.9 (±3.7) years and were divided into two groups, one group (group A, n=111 women) were daily administered with vitamin B complex and another group (group B, n= 158 women) supplemented with only folic acid.

Researchers observed that[2]:

- Women on vitamin B complex had a higher mean number of metaphase II (MII) oocytes (5.7±3.2 vs. 4.9±4.1, p=0.04) as well as 2 pronuclei fertilization rate (FR; 74.1% vs. 63.5%, p= 0.05) compared with only folic acid group (Figure 1).[2]

FIGURE 1 Distribution of embryological outcomes in women undergoing ART[2]

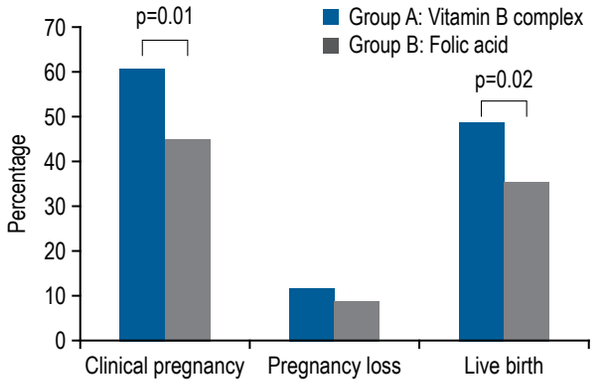


PN: pronuclei; ART: Assisted reproduction technology

PN: pronuclei

- Women in the vitamin B complex group experienced a higher percentage of pregnancy outcomes such as clinical pregnancy (60.4% vs. 44.9%, p=0.01) and live birth (48.6% vs. 35.4%, p=0.02) vs. only folic acid group (Figure 2).[2]

FIGURE 2 Distribution of pregnancy outcomes in women undergoing ART[2]



ART: Assisted reproduction technology

Summary

- Preconceptional care improves pregnancy outcomes and reduces risk factors that affect maternal or child health conditions; hence, it is a mandatory care plan.
- Dietary supplements restore the micronutrient levels and reduce any nutrition-related adverse effects on pregnancy or fetal outcomes.
- Maintaining folate and B vitamin levels leads to a better quality of oocyte, embryo, better fertilization, implantation, the evolution of pregnancy, and live birth.
- Folate and B vitamins are also involved in homocysteine homeostasis; hyperhomocysteinemia or folate deficiency leads to reduced oocyte development and early embryogenesis.
- Vitamin B complex (400 µg 5-methyltetrahydrofolate, 5 µg vitamin B12, 3 mg vitamin B6) supplement group demonstrated better embryological outcomes (higher number of MII oocytes, fertilization rate, cleavage rate) and experienced better pregnancy outcomes (clinical

pregnancy and live birth) compared with only folic acid administered group. Thus, maintaining B vitamin and folate levels leads to successful infertility treatment.

Conclusion

Vitamin B complex supplementation is more effective for women subjected to homologous ART as it leads to a higher percentage of clinical pregnancy and live birth (success of ART) than only folic acid supplement is use. Moreover, researchers established a significant association between B vitamins and pregnancy outcomes (clinical pregnancy and live birth) of ART.

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What's New in Gynaecology ?

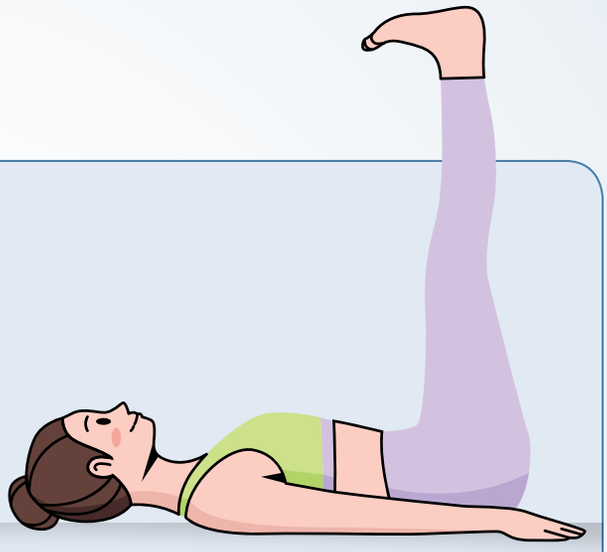
Is serum lipidomics profiling linked to spontaneous abortion after IVF-ET?

Luan CX, Xie WD, Liu D et al. Candidate circulating biomarkers of spontaneous miscarriage after IVF-ET identified via coupling machine learning and serum lipidomics profiling. Reprod Sci. 2022 Jan 24. doi: 10.1007/s43032-021-00830-w. Online ahead of print.

Spontaneous miscarriage is generally associated with multiple etiologies such as endocrinology disorder, immunologic derangement, and genetic aberrations, but the impact of circulating lipidome is yet unclear. Therefore, a study was conducted to examine lipidomics profiling on serum of women with spontaneous miscarriage after in vitro fertilization and embryo transfer (IVF-ET). Significant differences were observed in seven lipid species (3 types of sphingomyelins, 2 types of diglycerides, one phosphatidylcholine, and one lysophosphatidylethanolamine) between the abortion and term birth patients. It was observed that all the sphingomyelins presented with a fold change of > 1, while the phosphatidylcholine and lysophosphatidylethanolamine had a fold change of < 1. In the miscarriage group, the diglycerides containing two saturated fatty acyl chains was decreased, and that containing two unsaturated fatty acyl chains was increased compared to the control group. Therefore, lipid profiles are relevant to spontaneous abortion after IVF-ET.

LIVING ARTFULLY

YIN YOGA



WHAT IS IT?

- Yin yoga targets the deep connective tissues of the body – the ligaments, joints, bones, and deep fascia networks.
- It usually consists of a series of passive floor poses held for up to 5 minutes or more.
- These poses mainly work the lower part of the body – the hips, pelvis, inner thighs, lower spine.

WHO IS IT FOR?

- Those who are tired and craving energy or for those with over-stimulated and have too much energy.
- Helps in balancing all the on-the-go aspects of life.

YIN YOGA AND THE BODY

- Works on the yin tissues – known as the connective tissues
- Yin yoga poses stimulate and remove blockages in the myofascial meridians in the body, which in turn balances the body's internal organs and systems.
- Yin yoga requires the muscles to relax around the connective tissue in order to get a stretch

YIN YOGA AND THE MIND

- Yin Yoga gives the time and space to allow emotions, thoughts and feelings kept in the shadows, to surface.
- Allows to observe only the pure physical sensations of emotions, without getting caught up in the stories about those emotions.

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