

Pregnancy outcomes in donor oocyte conceptions

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Introduction

Infertility has been a challenging situation in life of couples who face it. It ruins their lives and a constant sense of incompleteness and wanting precludes to focus on the present life scenarios. In many a societies it has been viewed as a social stigma and social ostracism for the couple who suffer from it.

A particular section of patients are those who are not left with enough eggs at a very early age, that is those with ovarian failure, poor ovarian reserve. Also in other situations like advanced maternal age, multiple failed IVF attempts and woman with maternally inherited genetic abnormalities the solution lies naturally in finding healthy eggs from healthy females who can serve as egg Donors.^{1,2} Data suggests fertility depends on oocyte age and quality and less on uterine age.³

The new era has seen a considerable amount of Donor oocyte (ED) pregnancies. It dates back to 1984 when the first Egg Donor pregnancy was achieved. Eggs are sourced from suitable donors, provided by relatives or by commercial egg donors and fertilized by the sperm of the male partner of the infertile couple or donor sperm if required and resulting embryo is placed into the patient's uterus.

The percentage chances of conception are highly increased with such kind of treatment in indicated patients. Since 2003, the live birth rate from egg donation has been greater than 50%.⁴ But is this the end of the road? Do these patients conceived with Donor Eggs have a normal pregnancy course? What are the challenges they face?

Basic abnormalities in the vasculature of the placenta leading to hypo perfusion, as well as poor placentation have been linked to preeclampsia. Defective trophoblast invasion leading to shallow implantation is a key pathological feature in maternal hypertensive disorders.

Immune considerations in ED pregnancies

Donated oocytes and embryos initiate an immunologic response in the recipient.⁵ Compared with spontaneously conceived pregnancies there is a higher degree of antigenic dissimilarity in Donor egg pregnancies. Since ED pregnancies are characterized by more number of HLA mismatches it is to be expected that a possible relationship between aspects of immune regulation and the number of HLA mismatches will become more apparent in Donor egg pregnancies.⁶

ED pregnancies leads to hyper activation of Th1 and Th2 cells compared with spontaneously conceived pregnancies. This suggests that the allogeneic fetus induces an additional mechanism that contributes to a successful pregnancy. Use of low molecular weight heparin and immunoglobulins are suggested to minimize the risk of bad obstetric outcome.

Few of the conditions encountered in such pregnancies are considered below

Age: Age is a major factor affecting the prognosis of such pregnancies as generally these women are older than 37years. Social responsi-

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lities at this stage along with the pregnancy are a challenge. Medical complications also increase with age.⁷

Diabetes and pregnancy induced hypertension and diabetes: Medical complications of Pre-eclampsia and Diabetes in pregnancy and thrombophlebitis are more incident in higher age groups. Klatsky et al.⁵ identified increased risk of preeclampsia in oocyte recipients, 4.9% versus 16.9%.⁶ This adversely affects the fetus with complications like IUGR, Oligohydramnios and fetal hypoxia. Routine addition of low dose Aspirin 75mg preconceptionally has found to be of benefit in reducing the incidence and severity of impaired implantation. Arginine provides the substrate to nitric-oxide synthesis and prolongs the latency of development of pre-eclampsia.

Preterm labor: Increased risk of preterm labor. Oocyte recipients tended to deliver 2.4 weeks before the control population and with removal of multiple gestations from the data the recipients still delivered 1.28 weeks earlier.⁶ Additionally in patients with fertility issues, over a period of time, there is a higher incidence of lesions like fibroids, adenomyosis in uterus which have a negative impact on the conception rates. The endometrium grows poorly hence implantation rates are poor. Symptomatically fibroids in pregnancy occasionally undergo various types of degenerative changes which may present as lower abdominal pain on and off during pregnancy. Also fibroids may occasionally predispose to preterm labor. Consequently low birth weights and neonatal issues are encountered post delivery.

Bleeding: Bleeding during first and second trimesters is also due to improper placentation a distinctive feature of ED cycles. On the other hand excessive placental invasion may result in placenta previa or abnormal placentation and higher incidence of post partum hemorrhage.

Operative interventions: Risk of hypertension, proteinuria, premature rupture of membranes, second and third trimester hemorrhage, preterm delivery and low birth weights, higher incidence of Cesarean section of babies born in ED cycles.

Conclusion

ED pregnancies have indeed a rollercoaster ride till their culmination to a good pregnancy outcome. NICE guidelines advise that both potential egg donors and recipients should be offered independent counseling about the physical and psychological implications of treatment for themselves and their children.

For women with ED conceptions, good antenatal care with

provision of frequent ambulatory monitoring, additional supplements and family support is desirable for a smooth pregnancy outcome.

The development of Oocyte and Embryo donation has dramatically changed the way we counsel and treat infertile patients. Those with menopause reduced ovarian reserve or recurrent IVF failures have a viable option to fulfill their dreams of parenthood. Although it is a high risk pregnancy, a cumulative pregnancy rate of more than 90% is encouraging to the hopelessly infertile patient.⁹ the benefits of having a take-home baby are counterbalanced by a higher risk of maternal morbidity.

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Conflict of interest

Author declares that there is no conflict of interest.

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