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Editorial

Motherhood at Age Over 40: Personal Experience

Jan Tesarik*

Director, MARGen Clinic, Molecular Assisted Reproduction and Genetics, Granada, Spain

***Corresponding Author:** Dr. Jan Tesarik, Director, MARGen Clinic, Molecular Assisted Reproduction and Genetics, Granada, Spain.

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At the maternal age of 40 or more, having a baby with the woman's own oocytes is a difficult task, both via natural and assisted conception. In fact, the recourse to oocytes from young donors can result in a viable pregnancy in almost 80% of attempts when there is no severe degradation of sperm quality [1]. However, there are many women who prefer to accept much lower chances with the use of their own oocytes [2], even though this is not an easy task. According to a recent publication [3], at least 4 attempts were needed in women 44 - 45 years old to achieve a cumulative pregnancy rate of 20%. This appears highly unfavourable as compared to the excellent prognosis of oocyte donation attempts [1]. Even so, many couples prefer this solution to oocyte donation [2].

Taking into account this situation, efforts were made to improve the chance of pregnancy in older women with the use of their own oocytes. The story began in the late 1990s and early 2000s. The first randomized controlled trial evaluating the possibilities of improving live birth rate in women over 40 years of age was published in 2005 [4]. It was shown that the addition of growth hormone during ovarian stimulation increased significantly the delivery and live birth rates after ICSI in women aged > 40 years [4]. Further studies confirmed this finding and explained some of the mechanisms involved in this action [5]. Moreover, we showed that growth hormone also improves the uterine receptivity in women with repeated implantation failure, independently of age [6].

Ovarian aging results from an interplay of different factors. As in different other tissues of the human body, oxidative stress is almost always involved in the aging process. However, oxidative stress may be caused by a variety of underlying factors. Insufficient secretion of growth hormone can be one of them. Because of the highly pulsatile secretion of growth hormone, the measure of insulin-like growth factor 1, a substance responding to growth hormone stimulation, but with less pulsatility, can be a useful guide to decide if external growth hormone supplementation can be of any help [6].

In addition to growth hormone, other supportive treatments can be used. One possibility is the repetition of human chorionic gonadotropin (HCG) injection before oocyte recovery. It is known that, in addition to triggering the final oocyte maturation, HCG also serves to loosen the attachment of oocyte cumulus complexes to the wall of the ovarian follicles [7]. We have shown that the use of two HCG injections, the first one to synchronize the final maturation events in the oocyte with the expected time of oocyte aspiration and the second one, administered on the following day, to allow the aspiration of oocytes from small follicles, if present improves outcomes in this category of patients [7].

Women of 40 years of age or more also frequently have a deficient function of the corpus luteum. The corpus luteum is a structure, derived from the ovulated follicle, that remains in the ovary after natural ovulation or after the aspiration of the oocyte from the preovulatory follicle. Some women have a pre-disposition to the corpus luteum insufficiency, and this condition can be responsible for their fertility problems even at a young age [8]. The corpus luteum is the main source of progesterone, a hormone necessary for the maintenance of the uterus in a receptive state. Therefore, frequent (3 - 4 days) blood tests are recommended during the first weeks after conception to assure that the blood progesterone levels are adequate and, if not, to design a corresponding substitutive treatment. [8].

In the future, the problem of oocyte aging will probably be resolved, in the context of assisted reproduction treatments, by the creation of oocytes from the patient's own somatic cells, but this technique is still in a phase of development and evaluation [9].

In conclusion, in women over 40 years of age, in addition to the highly efficient technique using oocyte donation, substantial improvement has also been achieved in traditional *in-vitro* fertilization attempts with the patients' own oocytes, even though the take-home baby rate is still far from that achievable with the use of donated oocytes. However, the improvement of the chances with their own oocytes encourage many women over 40 years of age to try their last chances because, given that uterine receptivity for embryos does not show a similar age-related decline as the oocyte quality, oocyte donation always remains a viable option in cases where the attempts with the patient's own oocytes have failed. Independently of the technique used, patient-tailored diagnostic and therapeutic approaches, including the condition of the male partner, are needed at the level of counselling, diagnosis and treatment so as to give the couple the optimal chance of achieving the birth of a healthy child [10].

Bibliography

1. Tesarik J. "Customised oocyte donation enhancement and new findings regarding the role of growth hormone". *European Medical Journal* 3 (2018): 87-94.
2. Tesarik J and Mendoza-Tesarik R. "Molecular clues to understanding causes of human-assisted reproduction treatment failures and possible treatment options". *International Journal of Molecular Sciences* 8.23 (2022): 10357.
3. Mizrachi Y., *et al*. "Cumulative pregnancy and live birth rates through assisted reproduction in women 44-45 years of age: is there any hope?" *Journal of Assisted Reproduction and Genetics* 35 (2018): 441-447.
4. Tesarik J., *et al*. "Improvement of delivery and live birth rates after ICSI in women aged > 40 years by ovarian co-stimulation with growth hormone". *Human Reproduction* 20 (2005): 2536-2541.
5. Tesarik J., *et al*. "Editorial: Growth hormone in fertility and infertility: Physiology, pathology, diagnosis and treatment". *Frontiers in Endocrinology* 12 (2021): 6217122.
6. Tesarik J., *et al*. "New criteria for the use of growth hormone in the treatment of female infertility: Minireview and a case series". *EC Gynaecology* 9.3 (2020): 01-04.
7. Tesarik J., *et al*. "Double HCG trigger improves recovery of oocytes in women with a paucifollicular response to ovarian stimulation: A pilot study". *Gynecology and Obstetrics* 157 (2021): 149-153.
8. Tesarik J., *et al*. "The neglected luteal phase after natural conception: Rescue by early progesterone supplementation". *Current Opinion in Gynecology and Obstetrics* 2 (2019): 216-220.
9. Tesarik J., *et al*. "Human artificial oocytes from patients' somatic cells: Past, present and future". *Reproduction and Fertility* 5 (2021): H1-H8.
10. Tesarik J and Mendoza-Tesarik R. "Patient-tailored reproductive health care". *Frontiers in Reproductive Health* 4 (2022): 917159.

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