

PRESERVATION OF FEMALE FERTILITY IN PREPUBERAL PATIENTS

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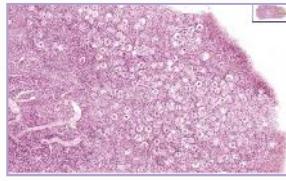
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INTRODUCTION

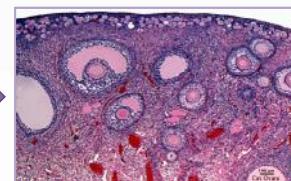
Nowadays, 1 of 6 couples is affected by infertility. This is why preservation of female fertility has taken such a great importance, especially in patients exposed to conditions that enhance the loss of it. The most common cause of loss of fertility in females is the primary ovarian insufficiency (POI). The development of assisted reproduction techniques aimed to preserve female fertility has become an essential step in Assisted Reproduction.

The techniques utilized with better results for the preservation of female fertility are cryopreservation of oocytes and cryopreservation of embryos. Despite the progress in the scope of fertility preservation in recent years the fertility preservation in prepuberal female patients remains a challenge in this area.

RESULTS



Histological biopsy of a prepuberal ovarian tissue. We can see primordial follicles in the cortical region.

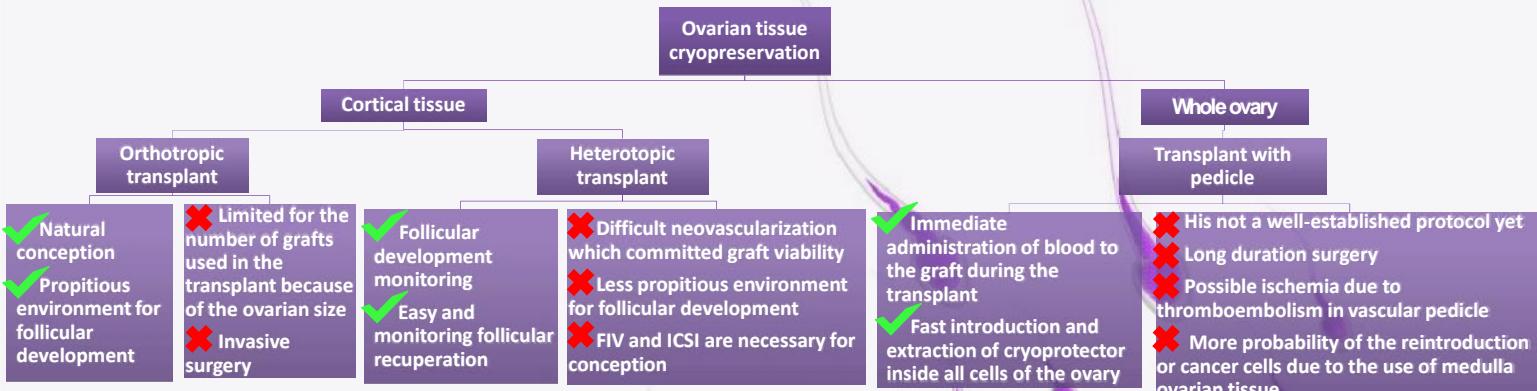


Histological biopsy of an adult ovarian tissue. We can see primary follicles, antral follicles and Graaf follicles.

At the present, despite of the large number of techniques available for fertility preservation, only ovarian tissue cryopreservation can be applied to prepuberal patients because techniques requiring ovarian stimulation are not suitable because of the absence of maturation of the hypothalamic-hypophyseal-ovarian axis.

That is why it is impossible to apply efficient techniques of oocyte cryopreservation or embryo cryopreservation in adult woman. The main fact is that they require the production of mature oocytes.

The Ovarian Tissue Cryopreservation is the only fertility preservation technique in prepuberal patients.



CLASSIC GALACTOSEMIA (1:16.000/60.000)



Absence of gonadotropin response for follicular maturation

POI

✗ Reduction in the patient's follicles number, making spontaneous conception less probable

CHILDHOOD CANCER

Chemotherapy → Irreversible gonadal damage, especially in the granulose cells, which can not produce estrogens

Radiotherapy → Depending on the age of exposition, the duration, and the zone to be radiated

POI

✗ Possibility of reintroduction of cell cancer in the transplant. It is necessary to develop cell tumor detection techniques in the ovarian tissue before the transplant. But only in cancer types with high probability of metastasis in the ovary

CONCLUSIONS

- ✓ In childhood patients the current technique is ovarian tissue cryopreservation due to the other techniques used in adults with better results, like oocyte and embryo cryopreservation, can not be used in this patients.
- ✓ Other new techniques, like ovary transposition, *in vitro* oocyte maturation, follicular cultures or co – treatment with GnRH analogs, will be good options in a prepuberal female patient that wants to preserve her fertility, but these are still in developmental phases and present high risk for the patients.
- ✓ In galactosemia cases we have to consider the possibility of primary insufficiency ovarian reversion and spontaneous conception, whereas, in childhood cancer cases we have to consider the possibility of the reintroduction of cancer cells within the transplant. For this reason, it is recommended to perform cancer cell detection techniques in cancer types which have high risk of causing ovarian metastasis.
- ✓ Oocyte and embryo donations and adoption are options that should be considered.

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