The challenge of fertility preservation in cancer patients II: a themed issue of *Future Oncology*

“...this issue of *Future Oncology* highlights the importance of growth of the oncofertility field and the development of its future.”

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We are delighted to announce the release of our themed issue of *Future Oncology*, which follows our previous Special Focus Issue [1] highlighting developments in the field of oncofertility, and will further address key points raised in male and female fertility preservation.

Cancer supportive care is fast becoming a central aspect of cancer therapy, with the number of patients surviving the disease increasing. Fertility post-treatment is now a critical issue facing patients, with life-saving, albeit damaging, cancer treatments such as chemotherapy and radiotherapy potentially leading to infertility.

In an attempt to preserve patients' reproductive function and in the long-term support of their psychological well-being, the oncofertility field is currently developing new techniques while reassessing previous technologies.

This issue includes reviews discussing the current state of the field in terms of ovarian health and fertility as well as providing future perspectives into potential treatments. The issue also presents novel research evaluating current techniques used to ensure optimum fertility preservation in the patients undergoing cancer treatment.

Although current techniques of cryopreservation and transplantation of ovarian tissue are available and adopted in the field, there still lies the risk of malignant tissue being cryopreserved and transferred to recipients. Amorim and Shikanov discuss progress made in creating transplantable artificial ovaries, which mimic the natural organ, and the potential for their future development [2].

Chemotherapy, which carries underlying consequences to ovarian health, is a routine form of treatment for cancer

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patients. In a review by Bedoschi *et al.*, current knowledge of the clinical impact of chemotherapy agents on fertility and the underlying mechanisms of ovarian damage are discussed [3]. By elucidating such mechanisms, there lies the potential of developing targeted treatments to preserve female fertility.

Together with developments in assisted reproductive technologies, there are several fertility preservation treatments available for patients wishing to have children. With the advancements in both male and female fertility preservation in the oncology field, Osuga *et al.* provide a perspective on the current oncofertility treatments available and their overall efficacy. They also propose novel techniques for fertility preservation that may be used in the future, and appraise the need for a worldwide oncofertility consortia [4].

In vitro maturation and controlled-ovarian hyperstimulation are vital processes, which mature oocytes prior to vitrification. Sifer *et al.* aimed to determine if metaphase 1 and 2 stage oocytes, from the aforementioned maturation processes, could be frozen simultaneously without any adverse effect on the vitrification process [5].

Early-stage cervical cancer of the uterus is a disease that historically uses radical hysterectomy as a standard treatment. As a condition where a large proportion of sufferers are of child-bearing age, therapies are presently being re-evaluated in an attempt to preserve fertility. In a review from Sato *et al.*, currently accepted and newly proposed surgical approaches for treating cervical cancer of the uterus, which still hope to maintain patient fertility, are discussed [6].

In summary, this issue of *Future Oncology* highlights the importance of growth of the oncofertility field and the development of its future. We hope that the contents of the issue contribute to this integral field in supportive oncology.

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