

## Infertility and gynaecological oncology

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### Abstract

Infertility and gynaecological cancer are two major problems in the field of women's health, where both have serious implications on a woman's physical, social and emotional wellbeing. There are well established links between many aspects of infertility and different types of gynaecological malignancies, including etiology, pathogenesis and disease management. In this special issue there are valuable articles that highlight different aspects of the relationship between infertility and gynaecological oncology. The issue covers conditions that represent risk factors for both infertility and gynaecological neoplasia. There is emphasis on the role of the fallopian tube being a critical organ for both conditions. There is a review on the advances in cancer diagnosis and treatment with consideration of the preservation of patient fertility. The various technologies for fertility preservation are reviewed and their strengths and weaknesses discussed. One of the important fertility preservation techniques is cryopreservation of embryo oocytes or ovarian tissue. This special issue emphasises that fertility preservation is now an important consideration in oncology clinics, and the options available to patients are routinely offered. Future developments will offer women in this difficult situation more options for fertility preservation, with an individualised approach for each patient. Equally, for infertile patients it is important to assess the risk of malignancy so as to

provide optimal and timely intervention.

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**Key words:** Infertility; Gynaecological tract; Cancer; Malignant; Tumour

**Core tip:** Infertility and gynaecological cancer are two major problems in the field of women's health, where both have serious implications on a woman's physical, social and emotional wellbeing. In this special issue there are valuable articles that highlight different aspects of the relationship between infertility and gynaecological oncology. This special issue emphasises that fertility preservation is now an important consideration in oncology clinics, and the options available to patients are routinely offered.

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### INFERTILITY AND GYNAECOLOGICAL ONCOLOGY

Infertility and gynaecological cancer are two major problems in the field of women's health, where both have serious implications on a woman's physical, social and emotional wellbeing. There are well established links between many aspects of infertility and different types of gynaecological malignancies, including etiology, pathogenesis and disease management. In this special issue there are valuable articles that highlight different aspects of the relationship between infertility and gynaecological oncology.

Some of the conditions contributing to female factor infertility are known risk factors of gynaecological neoplasia, and infertility may itself be a risk factor for the development of several types of gynaecological neoplasms.

Factors playing a role in both infertility and gynaecological tumours include hormonal factors and endometriosis<sup>[1]</sup>. Also factors that prolong exposure to ovulation as infertility increase the risk of ovarian cancer, due to the damaging effects of the liberated reactive oxygen species on the regional epithelium<sup>[2]</sup>. The review by El Sabaa<sup>[3]</sup> addresses the different conditions that play a role in both infertility and gynaecological oncology.

Magdy and El-Bahrawy<sup>[4]</sup> specifically review the role of the fallopian tube in infertility and gynaecological oncology. Tubal factor infertility is a leading cause of female factor infertility<sup>[1]</sup>. Tubal dysfunction may due to tubal occlusion, peritubal adhesion and fimbrial damage, all of which can lead to reproductive failure. Recently several studies suggested a role for the fallopian tube in the development of ovarian carcinoma<sup>[5]</sup>.

With advances in cancer diagnosis and treatment, there is notable improvement in patient survival. The ability to have children is significant for the well-being in cancer survivors. The management of gynaecological malignancies involves surgery, pelvic radiotherapy and chemotherapy, for which infertility and subfertility are common sequelae. Hence fertility preservation is a particularly challenging area in this setting. Recently fertility sparing management of gynaecological cancers has been developed.

As the trend to delay childbearing continues a greater number of women are being diagnosed with endometrial cancer at a stage in life when they wish to conceive. In his review Farthing<sup>[6]</sup> presents the studies addressing the success and limitations of conservative medical treatment with progestagens in such situation as an alternative to hysterectomy and removal of both ovaries in suitable cases.

Due to improved cure rates from radical chemo-radiotherapy many young women treated for cervical cancer will wish to attempt to preserve their fertility<sup>[7]</sup>. Evidence of the impact of pelvic radiotherapy on the female reproductive organs, the currently available fertility sparing options, and possible future strategies are reviewed by Welsh and Taylor<sup>[8]</sup>.

Different fertility preservation techniques may be performed prior to both surgery and chemotherapy, to enable subsequent pregnancy in the patient or a surrogate mother. One of these techniques is cryopreservation of embryo oocytes or ovarian tissue<sup>[9]</sup>. Similarly, evolving chemotherapy regimens with replacement of alkylating agents will reduce the incidence of infertility. In their review Sacco *et al*<sup>[10]</sup> discuss different scenarios of how infertility presents a clinical problem in gynaeco-

logical malignancies as a complication to the use of chemotherapy. The various technologies for fertility preservation are reviewed and their strengths and weaknesses discussed. Wahba and Al-Inany<sup>[11]</sup> in their article provide the details of the options for ovarian stimulation for fertility preservation in women with gynecological cancer. Their review also addresses the issue of increased levels of estradiol during ovulation induction in women with estrogen sensitive cancers, such as breast and endometrial cancer.

This special issue emphasises that fertility preservation is now an important consideration in oncology clinics, and the options available to patients are routinely offered. Future developments will offer women in this difficult situation more options for fertility preservation, with an individualised approach for each patient. Equally, for infertile patients it is important to assess the risk of malignancy so as to provide optimal and timely intervention.

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