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# The challenges of fertility preservation in cancer patients: an interview with Michael Grynberg

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**“In addition, we now have more available data on the safety of fertility preservation procedures and the outcome of eggs and ovarian tissues that were frozen in cancer patients.”**

Michaël Grynberg is an Obstetrician Gynecologist specialized in reproductive medicine. After 1 year as a visiting fellow in the Department of Reproductive Medicine at Cornell University, he returned to work in France as an Attending Physician in the Division of Reproductive Medicine at the University Hospital Antoine Bécère, Clamart, France. In 2011, he completed his PhD on the topic of the regulation of follicular growth and anti-Müllerian hormone production. Since 2014, he has been Professor of Reproductive Medicine and the Head of the Department of Reproductive Medicine and Fertility Preservation at the University Hospital Jean Verdier, Bondy, France. Since 2017, he has become the Head of the Department of Reproductive Medicine and Fertility Preservation at the University Hospital Antoine Bécère, Clamart, France. In addition, he is an active member of the basic research unit INSERM U 1133, University Paris Diderot-CNRS UMR 8251. His research interests initially include the assessment of ovarian follicular status and the regulation of anti-Müllerian hormone, a key peptide in the ovarian function. Over the past 5 years, he has expanded his field of research with oncofertility. Indeed, female fertility preservation has recently emerged in the field of reproductive medicine. He is a pioneer on this topic in France and has recently become the President of the French Society of Oncofertility. He, along with his colleagues, has published over 100 peer-reviewed articles in international journals and books.

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## Could you begin by briefly describing your career to date & what led you to where you are today?

I am an Obstetrician Gynaecologist and did all my training in France. After 1 year as a visiting fellow in the Center for Reproductive Medicine and Infertility in New York City, I did my fellowship at the University Hospital Antoine Bécère, which is the most famous center for reproductive medicine in France. Before being a fellow, I did a PhD on the topic of ovarian reserve and fertility preservation in cancer patients. I became a Professor in 2014 as well as the Head of the Department of Reproductive Medicine and Fertility Preservation in a University Hospital in Bondy, close to Paris. I have recently moved back to Antoine Bécère University Hospital to replace my mentor, Professor René Frydman, as the Head of the Department. I am also the President of the French Society for Oncofertility (SFOF) and Director of the fertility section of the French College of Obstetrician Gynaecologists.

## What does your current role as the Head of the Department of Reproductive Medicine at the Antoine Bécère University Hospital entail?

I manage a team of 20 people mainly involved in reproductive medicine. We help infertile people, including cancer survivors, to become pregnant. In addition, the center has been a pioneer in the development of female fertility

preservation. Currently, we manage 1300 infertile couples per year as well as a mean of 600 cancer patients seeking fertility preservation or infertility treatments. Apart from my clinical practice, including medical and surgical management of male and female infertility, I am also strongly involved in clinical research and training of medical students.

**In 2016, you were the guest editor of a *Future Oncology* special focus issue surrounding oncofertility. To briefly update our readers what would you say are the main advances in 2017 surrounding fertility preservation in cancer patients?**

I would say that the awareness of oncologists regarding the importance of referring young cancer patients to fertility specialists has constituted an important advance. In addition, we now have more available data on the safety of fertility preservation procedures and the outcome of eggs and ovarian tissues that were frozen in cancer patients. This means that our techniques should not be considered experimental anymore [1,2].

**How do you think challenges surrounding cancer patient fertility preservation can be overcome?**

Information on oncofertility counseling before cancer treatments should be continued to make sure that every single young patient might have access to these techniques, if needed.

Limiting the gonadotoxicity of anti-cancer treatments also constitutes an important issue.

Another challenge will remain the use of eggs and ovarian tissues recovered from prepubertal patients. Indeed, there is a remarkable lack of data regarding the use of all these cryopreserved gametes, for which the actual competence will not be known before several decades. Avoiding the risk of reintroducing malignant cells possibly present within the frozen ovarian or testicular tissue at the time of grafting will be one of our most important challenges during the next years.

**Following on from overcoming these challenges, how do you expect to see the field of oncofertility develop over the next 10 years?**

Lots of research is currently conducted to identify tools aiming to detect the presence of possible tumoral cells within the gonadal tissue before freezing or grafting. On the other hand, different strategies are explored for avoiding the transplantation. Hence, the isolation of small follicles from the fresh ovarian tissue and their further culture in specific matrix (artificial ovary) represent an interesting option. Moreover, another research is mostly focused on completing *in vitro* follicular growth or *in vitro* spermatogenesis [3].

**Please could you tell our readers about any of your current or future research in the field of oncofertility?**

My main topic of work is fertility in cancer patients. We are working on a technique called *in vitro* maturation. This technique involves the maturation in the lab of immature eggs recovered from the ovary without stimulation. That is a way to avoid hormonal treatments in women suffering estrogen-sensitive diseases, such as in breast and endometrial cancers. We have also been working on the mechanism that may influence the follicular loss during chemotherapy and the way to counteract these side effects.

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