Master Thesis Project

Laboratory of Reproductive Biology, Rigshospitalet
Faculty of Health and Medical Sciences

Improving survival of ovarian tissue grafts in connection with restoration of fertility in cancer patients

Background: Fertility preservation by ovarian tissue cryopreservation and subsequent ovarian tissue transplantation is often performed in young girls or women with a cancer, as the cancer treatment often renders the patients infertile. The most challenging aspect of ovarian tissue transplantation is the follicular survival rate and the functional longevity of the ovarian grafts. During the neovascularisation of the transplanted ovarian tissue, an initial ischaemia followed by a reperfusion period occurs, leading to an excessive production of reactive oxygen species (ROS). This causes endothelial injury, increases microvascular permeability and tissue swelling, which lead to a massive follicular loss in the transplanted ovarian tissue. Therefore, the application of antioxidants to reduce the production of free radicals can be considered as an important drug target to confront the consequences of ischaemia and reperfusion injury after ovarian tissue transplantation. Recently, studies in mice showed that treatment with N-acetylcysteine (NAC) significantly improved the structure and function of mice ovarian grafts as well as the follicular survival and development through preventing oxidative stress and apoptosis.

Aim of the study: To investigate the effects of antioxidants and NAC, as an antioxidant and anti-apoptosis agent, on reducing the ischaemia reperfusion injury after ovarian transplantation, as well as evaluating its effect on improving the ovarian graft survival rate and function, follicular development and preservation of the follicular pool in human.

Professor Claus Yding Andersen heads the Laboratory of Reproductive Biology at Rigshospitalet and you will be collaborating with post. doc Stine Gry Kristensen, who will also be your project supervisor.
If you are ready to start your Master project any time soon and is enthusiastic about reproductive biology give us a call or write an email!

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