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Chemotherapy and radiation therapy affect normal cells as well as cancer cells, and in young women, reproductive function can be lost due to adverse effects such as ovarian dysfunction. Oligomenorrhea, amenorrhea, and anovulation occur in chemotherapy-treated women due to ovarian dysfunction. In adult female cancer patients, protecting ovarian function from the effects of anticancer agents by administering gonadotropin-releasing hormone (GnRH) analogs or oral contraceptives, transposition of ovaries outside the irradiation field, and cryopreserving unfertilized and fertilized ova can improve quality of life and preserve fertility after treatment. However, ovarian stimulation takes time and cannot delay chemotherapy in most cancer patients. For such cases and prepubertal girls, cryopreservation of ovarian tissue is an option for fertility preservation.

Because mammalian ovaries contain numerous oocytes at various growth stage, cryopreservation methods vary according to the stage of the follicle. Ovarian follicles at very early stages, such as primordial or primary follicles, are usually cryopreserved with ovarian tissue because they require surrounding somatic cells for subsequent development. In contrast, fully grown oocytes in Graafian follicles can be cryopreserved without other cells at metaphase II. For cryopreservation of ovarian tissue, we have shown that ultra-rapid cooling and warming can preserve the viability of human ovarian tissue. In this talk, we will present the development of ultra-rapid cooling and warming of ovarian tissue and strategies for preserving germ cells at various developmental stages.

CV

Dr Hashimoto obtained his PhD in Reproductive Physiology at Kyoto University in 2001.

He developed assisted reproduction technology in cattle at Snow Brand Milk Products and in human at IVF Namba Clinic. Currently, he is the professor of Osaka Metropolitan University Graduate School of Medicine. He received the JSAR innovative technology Award in 2008, the Japan Society of Mammalian Ova Research outstanding presentation Award in 2009, 2014 and 2020, the memorial award of World Congress on In Vitro Fertilization in 2015, and the ASRM Star Award in 2016-2019. He was the secretary generals for the annual meeting of the Japan Society of Fertilization and Implantation in 2004, biannual meetings of the Asia Pacific Initiative on Reproduction in 2011 and World Congress on In Vitro Fertilization in 2023.