VALIDATION OF DECELLULARIZATION OF FROZEN—THAWED MOUSE OVARIAN TISSUE

Yu Wakimoto, Akiko Hasegawa**,** Teruhito Kojima, Yuekun Chen, Nana Ogino, Hidetake Kamei, Atsushi Fukui, Hiroaki Shibahara.

Department of Obstetrics and Gynecology, Hyogo Medical University Hospital, Nishinomiya, Hyogo, Japan, Department of Obstetrics and Gynecology, Hyogo Medical University Hospital, Nishinomiya, Hyogo, Japan, Department of Obstetrics and Gynecology, Hyogo Medical University Hospital, Nishinomiya, Hyogo, Japan, Department of Obstetrics and Gynecology, Hyogo Medical University Hospital, Nishinomiya, Hyogo, Japan, Department of Obstetrics and Gynecology, Hyogo Medical University Hospital, Nishinomiya, Hyogo, Japan, Department of Obstetrics and Gynecology, Hyogo Medical University Hospital, Nishinomiya, Hyogo, Japan, Department of Obstetrics and Gynecology, Hyogo Medical University Hospital, Nishinomiya, Hyogo, Japan.

Abstract Body

Aim: Ovarian tissue cryopreservation prior to cancer treatment to preserve fertility and transplantation after cancer remission has been performed. However, the case of metastatic cancer cells in the ovary is associated with a risk of cancer recurrence from minimal residual disease (MRD) present in the ovary after transplantation. In order to create safe ovaries for transplantation we have planned to reconstruct ovarian tissue completely eliminating MRD contamination by decellularization followed by isolating and implanting follicles. Here, we report the validation of decellularization of frozen-thawed mouse ovarian tissue.

METHODS: Ovaries are removed from ICR mice through an abdominal incision under isoflurane anesthesia. Once ovaries were frozen using Cryotissue® KIT (Kitazato Corporation, Japan), ovary was immersed in PBS containing 0.1% sodium dodecyl sulphate (SDS) for 24 hours after thawing. And then they were treated with DNase for 30 minutes and then they were washed by PBS for 24 hours. HE and Masson trichrome staining were performed and we compared decellularized ovarian tissue with untreated ovarian tissue as control.

RESULTS: Intact cells and nuclei were removed in the decellularized ovarian tissue. Nuclei and cytoplasm were present in the untreated ovarian tissue, but not in the decellularized tissue which retained the extracellular matrix (ECM).

CONCLUSION: In the present study, frozen-thawed ICR mouse ovaries were successfully decellularized, suggesting that decellularized ovarian tissue could be a scaffold for ovarian structure.