

ISP-18-6 Mannose receptors (MR) on peritoneal dendritic cells (DC) is crucial for phagocytosis of endometrial cells (EM)

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[Objective] We have recently found that dendritic cells (DC) phagocytose dead endometrial cells (EM) and secrete inflammatory cytokines and thereby contribute to the pathogenesis of endometriosis. We also showed that mannose receptor (MR), one of pattern recognition receptors, was highly expressed in peritoneal DC in women with endometriosis. This study tested whether MR on DC is essential for phagocytosis of EM. [Methods] This study was approved by IRB. EM and monocytes were taken under informed consents. DC were developed by treating monocyte with GM-CSF and IL-4. EM were stained with fluorescence PKH67. DC and EM were cocultured, and phagocytosis of EM by DC was evaluated by detecting PKH67 in DC using flow cytometry. MR antagonist mannan was added to the culture. [Results] When DC were divided into two groups by their MR expression levels (MR high DC and MR low DC), the capacity of DC to phagocytose EM was significantly higher in MR high DC ($P < 0.05$). When MR on DC was antagonized by mannan, the % of DC phagocytosed EM was significantly reduced ($P < 0.05$). [Conclusion] Our result suggests that MR on DC is essential for phagocytosis of EM. Together with our previous studies, MR on peritoneal DC may contribute to the pathogenesis of endometriosis by helping phagocytose EM in retrograde menstruation and enhance inflammation, and may be a therapeutic target for endometriosis.

ISP-18-7 Exploration of the expression and function of the novel inhibitor of oocyte maturation, C-type natriuretic peptide (CNP) in ovarian granulosa cells

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[Objective] C-type natriuretic peptide (CNP) has been identified as the novel inhibitor of meiotic resumption of oocytes in follicular fluid. Recent studies have reported that CNP stimulates the development of preantral and early antral follicles to the preovulatory stage. We explored the changes of the expression levels of CNP in various stimulations and its effect on granulosa cell proliferation using human granulosa cell line, HGrC1. [Methods] Quantitative RT-PCR was performed to quantify natriuretic peptide precursor C (NPPC), the precursor of CNP, levels with IGF-1, insulin, testosterone, androstenedione, FSH, or AMH in HGrC1. We analyzed cell proliferation of HGrC1 with CNP using BrdU assay. We also investigated how siRNA of NPPC affects cell proliferation under various stimulation inducing CNP. [Results] Treatments with IGF-1, insulin, testosterone and androstenedione significantly increased NPPC expression in HGrC1. We confirmed the treatment with CNP promoted HGrC1 proliferation. Knock down of NPPC using siRNA partially inhibited the HGrC1 proliferation stimulated with insulin and testosterone. [Conclusion] Our study demonstrated that some molecules which promote follicle development increased the expression of CNP and cell proliferation of human granulosa cells. These results suggested that CNP might be involved in the folliculogenesis via promoting granulosa cell proliferation.

ISP-18-8 Effect of the Great East Japan Earthquake on the behavior of infertile patientsTohoku University¹, Fukushima Medical University², Suzuki Memorial Hospital³, KKR Tohoku Kosai Hospital⁴Yusuke Shibuya¹, Ryota Suganuma², Hiroko Sasaki³, Ikuo Tachibana³, Kazuhiko Hoshi³, Kunihiro Okamura⁴, Nobuo Yaegashi¹

[Objective] To assess changes in the behavior of infertile patients living in Iwate, Miyagi and Fukushima prefectures in response to the Great East Japan Earthquake on March 11, 2011. [Methods] We sent questionnaires to 13 infertility treatment facilities in Iwate, Miyagi and Fukushima to gather information on damage to the facilities, and monthly numbers of in vitro fertilization (IVF), intracytoplasmic sperm injection, frozen embryo transfer and artificial insemination (AIH) procedures performed from January 2010 to March 2013. Population migration information was acquired from the Statistics Bureau. [Results] The populations of all three prefectures decreased in 2011 (April 2011 to March 2012). Infertility treatment was decreased, especially in Fukushima, but AIH was increased by 20.8% in Miyagi. In 2012, the population only increased in Miyagi. IVF increased by 18.8% in Miyagi but decreased by 67.1% in Fukushima, while AIH increased by 24.2% in Iwate, compared with 2010. [Conclusion] Infertility treatment is decreasing in Fukushima, but increasing relative to population growth in Miyagi. The increase in AIH in 2011 suggests that new patients may have started treatment, with a step up in 2012 indicated by an increase in IVF. We suggest that the earthquake may have motivated infertile patients to act to have children.