

Curriculum Vitae

Zahra Rashidi

First name: Zahra

Surname: Rashidi

Gender: Female

Nationality: Iranian

Date of birth: 1981

Place of birth: Kermanshah, Iran

Marital status: Single

Address: Dept. of Biology, Razi University, Kermanshah, Iran

Fax: +98 8314274545

E-mail: Rahidi.zahra@gmail.com

EDUCATIONAL RECORDS.

1. B.Sc: 2005, Biology, Razi Univ. Iran
2. M.Sc: 2009, Developmental Biology Sciences, Razi Univ. Iran.

RESEARCH INTERESTS:

Differentiation of Embryonic and Adult Stem Cells

Immunohistochemistry and Immunocytochemistry

PCR and molecular process

In Vitro maturation of oocyte

In Vitro Ovarian Follicle Development

Culture of cumulus and granulosa cell (Primary culture)

Vitrification of Ovarian tissue and Ovarian Follicle

Semen analysis, IUI, IVF in infertility center

Thesis:

The thesis to fulfill the M.Sc. degree presented to Razi University entitled: " Effects of hydrostatic pressure on preovulatory follicle produced of mouse in vitro."

Laboratory skills:

- 1: Light microscopy techniques
- 2: Immunohistochemistry techniques (Light microscopy)
- 3: Cell culture, Stem cell culture, primary culture
- 4: Tissue Engineering
- 4: In vitro maturation of oocyte techniques (in mouse and human)
- 5: In vitro fertilization techniques (in mouse and human)

- 6: oocyte, follicle and ovarian vitrification
- 7: Oocyte and follicle assessment (differential staining)
- 8: Tissue processing with paraffin section and cryosection.
9. Sperm processing and sperm freezing

Publications:

a) Full Articles

b) Full Article Under Preparation

1. **Rashidi Zahra**, Azadbakht Mehri, Amini Ali. 2011. Hydrostatic pressure affects the in vitro maturation of oocyte derived from in vitro grown follicles by inducing cell death in cumulus cells. **Rashidi Z**, Azadbakht M, Amini A , 2011 **Submitted** in J Assist Reprod Genet
2. **Rashidi Zahra**, Azadbakht Mehri, Khazaei Mozafar, Amini A, 2011. Hydrostatic pressure improved in vitro maturation of oocytes derived from vitrified-warmed ovarian tissue. **Accepted** in Iranian journal of Reproductive Medicine
3. Momeni Maryam, **Rashidi Zahra**, Azadbakht Mehri. 2011 Effect of hydrostatic pressure on in vitro maturation of oocytes. Jurnal of Iranian Anatomical Science. 34:1-12.

c) Abstracts Presented in Congresses

- 1- **Rashidi Z**, Azadbakht M, Amini A: Effect of hydrostatic pressure on cell death in oocyte and cumulus complex (COCs) of preovulatory follicle produced in vitro. 1th Conference on biology & Biotechnology Islamic Aad University- Sanandaj Branch, 2009
- 2- **Rashidi Z**, Azadbakht M, Amini A: Effect of hydrostatic pressure on cumulus and oocyte complex (COCs) derived from in vitro cultured preantral follicle. 15th Conference In Vitro Fertilization, sveis, 2009
- 3- **Rashidi Z**, Azadbakht M, Amini A: Effect of hydrostatic pressure on in vitro maturation of oocytes derived from in vitro cultured preantral follicle. 15th Conference In Vitro Fertilization, sveis, 2009
- 4- **Rashidi Zahra**, Azadbakht Mehri, Amini A: In vitro maturation of oocytes derived from preovulatory follicles produced in vitro after exposure to hydrostatic pressure. 10th international conferences royan, Iran, 2009.
- 5- **Rashidi Zahra**, Azadbakht Mehri, Amini A: Investigation of cell death in cumulus and oocyte complex (COCs) of preovulatory follicle produced in vitro after exposure to hydrostatic pressure. 10th international conferences royan, Iran, 2009.
6. **Rashidi Zahra**, Azadbakht Mehri, Khazaei Mozafar, Amini A. 2010. Hydrostatic pressure improved in vitro maturation of oocytes derived from preovulatory follicles of vitrified-warmed ovarian tissue. Sixteen International Congress of ISRM, shiraz, Iran.
7. Khazaei Mozafar, **Rashidi Zahra**, Azadbakht Mehri. 2010. Hydrostatic pressure with induced cell death in cumulus cells improved maturation of oocytes from preovulatory follicles derived vitrified-warmed ovarian tissue. 11th international conferences royan, Iran, 2010.

Referees:

Dr. Azadbakht M

Dept. of Biology, Razi University, Kermanshah, Iran

Dr. Amini A

Dept. of Biology, Razi University, Kermanshah, Iran

Dr. Khazaei M

Fertility and Infertility Research Center, Kermanshah University of Medical Sciences. Iran

Dr Amiri E

Fertility and Infertility Research Center, Hamedan University of Medical Sciences. Iran

Dr Bakhtiari M

Fertility and Infertility Research Center, Kermanshah University of Medical Sciences. Iran

Hydrostatic pressure improved in vitro maturation of oocytes derived from preovulatory follicles of vitrified-warmed ovarian tissue

Zahra Rashidi ¹(M.Sc.), Mehri Azadbakht² (Ph.D), Mozafar Khazaei ^{*1} (Ph.D)

1. Fertility and Infertility Research Center, Kermanshah University of Medical Sciences

2. Department of Biology, Faculty of Science, Razi University, Kermanshah, Iran,

Corresponding address: Postal Code: 6714967346, Mozafar Khazaei.

E-mail: mkhazaei1345@yahoo.com

Abstract:

Cryopreservation of ovaries is an important technique in assisted reproduction technology. Physical forces like hydrostatic pressure have a pivotal role in reproduction systems. Some changes in intrafollicular pressure during ovulatory process occur, so this study designed to examine the effects of hydrostatic pressure on oocyte maturation and cell death in cumulus cells from vitrified-warmed ovaries. Ovaries obtained from matured NMRI mice and were vitrified in 15% ethylene glycol and 15% DMSO in MEM- α with FBS in 0.5 ml plastic straws. Preovulatory follicles isolated from vitrified-warmed and non-vitrified ovarian tissues. They were randomly assigned to four treatment groups of Non-vitrified and without Pressure exposure Group (Control), Non-vitrified with Pressure exposure Group (Treatment I), Vitrified-warmed and without Pressure exposure Group (Treatment II), Vitrified-warmed with Pressure exposure Group (Treatment III). At the start of maturation period, follicles were transferred to maturation medium, then follicles from treatment I and III were subjected to 20 mmHg hydrostatic pressures for 30 minutes and after that follicles from all group were cultured for 24h and assessed for in vitro maturation of oocyte. Viability of cumulus cells and oocytes was assessed with nuclear differential staining. The apoptosis in cumulus cells and oocytes was determined with TUNEL assay. The results showed that, in hydrostatic pressure treated follicles groups percentage of metaphase (MII) oocyte increased significantly than other two groups ($P<0.05$). Viability of the cumulus cells were reduced in hydrostatic pressure treated follicles compared to control ($P<0.05$). Whereas the incidence of apoptosis were increased pressure treated follicles groups significantly ($P<0.05$). Viability of oocytes was similar for all treatments. Hydrostatic pressure had the mild effect on cell death incidence in cumulus cells. It can be used to improved oocyte maturation in vitrified-warmed follicles.

Keywords: Vitrification, In vitro maturation, Hydrostatic pressure, Cell death, Mouse

Hydrostatic pressure affects the in vitro maturation of oocyte derived from in vitro grown follicles by inducing cell death in cumulus cells

Zahra Rashidi ^A, Mehri Azadbakht ^A, Ali Amini ^A and Isac Karimi ^B

^A Department of Biology, Faculty of Basic Sciences, Razi University, Kermanshah, Iran.

^B Department of Basic Sciences, College of Veterinary Medicine, Razi University, Kermanshah, Iran

^A Corresponding author. Mehri Azadbakht Email: azadbakhtm_tmu@yahoo.com

Zahra Rashid, Email: rashidi.zahra@gmail.com

Mehri Azadbakht, Email: azadbakhtm_tmu@yahoo.com Fax: 98 831 4274545

Ali Amini, Email: aminial@yahoo.com

Isac Karimi, Email: isaac_karimi2000@yahoo.com

Abstract

This study to examine the effect of hydrostatic pressure on in vitro maturation of oocytes derived from in vitro grown follicles. Preantral follicles were isolated from 12-day-old female NMRI mice. Each follicle was cultured individually in α -MEM culture medium, under mineral oil for 12 days. On day 12, follicles were induced for in vitro maturation. Then follicles divided to control and experiment groups. In experiment group, follicles were transferred to pressure chamber and subjected to 20 mmHg pressure for 30 min. Follicles were cultured for 24-48 h and then viability and in vitro maturation of oocytes were assessed. The cell death incidence in cumulus cells was detected by the nuclear vital staining. The apoptosis in cumulus cells and oocytes was determined by the TUNEL assay.

The results showed that, the percentage of metaphase oocyte (MII) increased in hydrostatic pressure treated follicles compared to control ($P<0.05$). Viability of the cumulus cells reduced in hydrostatic pressure treated follicles compared to control ($P<0.05$). Exposure of follicles to pressure increased the apoptosis in cumulus cells compared to control ($P<0.05$).

The results of the present study demonstrate a direct role of cumulus cell apoptosis in mediating hydrostatic pressure on mouse oocytes and a relationship between hydrostatic pressure as a mechanical force to improve the in vitro maturation in mouse oocytes is suggested.

Keywords: In Vitro Maturation, Oocyte, Hydrostatic Pressure, Apoptosis, Mouse

Effect of hydrostatic pressure on in vitro maturation of oocytes

Maryam Momeni ^A Zahra Rashidi ^A , Mehri Azadbakht ^A

^A Department of Biology, Faculty of Basic Sciences, Razi University, Kermanshah, Iran.

^A Corresponding author. Mehri Azadbakht Email: azadbakhtm_tmu@yahoo.com

Objective: Effete of hydrostatic pressure on in vitro maturation of oocytes and cell death in cumulus and oocyte Complex (COCs) in vitro.

Materials & Methods: preovulatory follicles were isolated from 12-day-old female NMRI mice, each follicle cultured individually in microdrops 20 μ l of MEM- α culture medium supplemented with 5% FBS, 100-mIU/ml rFSH (Gonal-f), and 10ng/ml rEGF, under mineral oil for 12 days. On day 12, follicles with diameter \geq 500 μ m and good quality were induced using 7.5 IU/ml HCG for in vitro maturation. Then follicles divided in control and experiment groups. In experiment group follicles were subjected to 20 mmHg hydrostatic pressure for 30 min and then follicles from two groups were cultured for 24-48 h. Viability of cumulus cells and oocyte were assessed with nuclear differential staining (propidium iodide & bisbenzimide).

Results: our resulte indicate that, after percentage of metaphase (MII) oocyte increased in hydrostatic pressure treated follicles compared to control after 24-48h of HCG ($P<0.05$). Viability of the cumulus cells were reduced in hydrostatic pressure treated follicles compared to control ($P<0.05$). Percentage of condense and fragment nuclear cells were increased in hydrostatic pressure treated follicles compared to control ($P<0.05$). Hydrostatic pressure had not changed viability of oocyte after culture ($P<0.05$).

Conclusion: hydrostatic pressure had the mild effect on cell death incidence in cumulus cells without any effect on oocyte viability. Hydrostatic pressure may play a role in oocyte maturation and fertilization by improving in releasing and mediating signals to oocyte.

Keywords: In Vitro Maturation, Hydrostatic Pressure, Cell Death, Mouse