were made using Prism software. Student's t-test with Welch's correction was used for comparison of clinical data between VER, ER and SR patients. One-way ANOVA, followed by the Tukey Test, was used to analyze PCR results.

RESULTS: All three groups produced similar oocyte and embryo numbers, though good quality embryos were significantly more prevalent in the ER group ($P<0.05$). Concomitantly, clinical pregnancy rates basically tripled in the ER group from 5.9% (VER) and 6.7% (SR), respectively, to 16.7% in the ER group ($P<0.05$). Though FSH receptor (FSHR) and P450 aromatase (Cyp19a1) were not significantly affected by follicle sizes, progesterone receptor (PGR) and LH receptor (LHCGR) demonstrated significantly higher expression in ST than VET and ET ($P<0.05$), confirming that earlier retrieval avoids premature luteinization. Though VER patients' GCs in vitro demonstrated least evidence of premature luteinization, embryo quality and clinical pregnancy rates in this group were equally poor to the SR group, both being significantly lower than the ER group.

CONCLUSIONS: Even at oldest female ages ER, defined as 16-18mm follicle size at hCG trigger, results in best clinical pregnancy rates. At >18mm, premature luteinization apparently negatively affects oocyte quality and pregnancy chances, while <16mm (VER), egg quality likely suffers from insufficient cytoplasmic maturation, a characteristic of small follicles.

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GENE EXPRESSION LEVELS OF MMP 2, MMP 9, TIMP 1 AND ADAMTS 1 IN PLACENTAS OF IVF/ICSI PREGNANCIES. O. Gun-Eryilmaz,[a] B. Urman,[b] Y. Yukselten,[c] A. Boza,[d] A. Sunguroglu.[e] [a]Zekai Tahir Burak Ankara, Ankara, Turkey; [b]Department of OBGYN Koc University School of Medic, Istanbul, Turkey; [c]Ankara University, School of Medicine, Ankara, Turkey; [d]American Hospital, Istanbul, Turkey; [e]Medical Biology, Ankara University Faculty of Medicine, Ankara, Turkey.

OBJECTIVE: Pregnancies conceived through assisted reproductive Technologies are different in terms of course, complications, gestational age at delivery, infant weight certain epigenetic conditions. In IVF/ICSI pregnancies, placental adaptation that favors fetal development may be disrupted due to the unnatural pathways induced by in vitro interventions. This may be reason why the incidence of placental complications such as abnormally adhesive placenta and preclampsia/placental ablation are increased in these patients. Matrix metalloproteinases (MMPs) are proteolytic enzymes that break up extracellular matrix (ECM) to remodele the tissues via angiogenic and apoptotic pathways (1). So called the tissue inhibitors of metalloproteinases (TIMPs) inhibit MMP actions and both of them are in balance during healthy tissue functions. Disturbed balance between MMP and TIMPs in favor of increased degradative activity during implantation, placentation and remodeling of the growing placenta may cause gestational problems which are more common in the pregnancies concieved via IVF/ICSI. The ADAMTS (A Disintegrin and Metalloproteinase with Thrombospondin motifs) enzymes are similar extracellular enzymes like MMPs (2). They cleave or modify the ECM, similar to their relatives. Increased expression is associated with uncontrolled tissue proliferation and behaviours of metastatic invasion in cancer and inflammatory diseases. ADAMTS 1, being the first identified member of this family, has an additional anti-angiogenic effect (3). The aim of this study was to measure gene expression levels of MMP2, MMP9, TIMP 1 and ADAMTS 1 in placentas of IVF/ICSI conceptions and compare them to the gene expression levels of placentas obtained from control patients who had conceived spontaenously.

DESIGN: Prospective cross-sectional study.

MATERIALS AND METHODS: A total of eighteen tissue samples of placenta from IVF/ICSI (n=9) and spontaneous (n=9) pregnancies were obtained. We measured the gene expression levels of ADAMTS1, MMP2, MMP9 and TIMP1 by real-time polymerase chain reaction. Expression levels were analyzed using the delta threshold cycle method.

RESULTS: The levels of ADAMTS1, MMP2, MMP9 were increased in placentas obtained from IVF/ICSI pregnancies compared to controls ($p<o.o5$ for all). TIMP1 values were not different.

CONCLUSIONS: Gene expression of MMP2, MMP9 and ADAMTS 1 were increased in the placentas of the pregnancies concieved via IVF/ICSI compared to those conceived spontanously. Disturbed placental architecture as a result of the increased destructive actions of MMP and ADAMTS may be one of the reasons why IVF/ICSI pregnancies are more prone to gestational complications.

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EMBRYO BIOLOGY

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A NEW APPROACH TO EVALUATE THE INFLUENCE OF ADVANCING MATERNAL AGE UPON MEIOTIC SPINDLE MORPHOLOGY AND DEVELOPMENTAL COMPETENCE IN HUMAN OOCYTES. R. Matsunaga,[a] S. Watanabe,[a] M. Miura,[a] Y. Kobayashi,[a] N. Yamanaka,[a] M. Kamihata,[a] A. Kuwahata,[a] M. Ochi,[a] T. Horiuchi.[b] [a]Ochi Yume Clinic Nagoya, Nagoya, Japan; [b]Department of Life Science, Prefectural University of Hiroshima, Shobara, Japan.

OBJECTIVE: The developmental competence of oocytes/embryos decreases with advancing maternal age, and meiotic errors gradually increase from when a woman reaches her late 30s. The evaluation of meiotic spndle morphology using a Polscope is an effective method for investigating the effect of maternal age. However, very little is known about the relationship between meiotic spindle morphology in oocytes and their developmental competence as maternal age advances.

DESIGN: Retrospective study.

MATERIALS AND METHODS: We analyzed 1496 mature oocytes from 461 patients undergoing letrozole stimulation cycles between September 2013 and January 2016. Oocyte spindle morphology was analyzed prior to intracytoplasmic sperm injection (ICSI) using a Polscope. We divided oocytes into two groups according to patient age: under 39 years (young, n=408) and over 39 years (old, n=945). We compared spindle abnormality and type (non visible, translucent, rotated, irregular shape) between young and old groups. We also analyzed whether abnormal spindles affect fertilization rate, embryo developmental competence, and embryo morphokinetics (time to pronuclear fading and the two cell stage from ICSI [tPNf and t2, respectively] and abnormal cleavage rate of the first cleavage) in each group. Embryo morphokinetics were analyzed using a time-lapse incubator (EmbryoScope).

RESULTS: There was no significant difference in the total rate of abnormal spindles between the young and old groups (8.8% *vs.* 8.4%). However, the number of oocytes whose spindles were not vertical to the plane of the oocyte's equator was increased in older oocytes (young vs. old: 2.5% *vs.* 5.0%). In the older group, abnormal fertilization rates (maltipronuclear and monopronuclear) of oocytes with a non-visible spindle (38.5%) were significantly higher than oocytes with a normal spindle (5.9%). Embryo morphokinetics were not significantly different when compared between oocytes with normal or abnormal spindles. Oocytes with abnormal spindles were more prone to developmental arrest before the 8-cell stage than oocyte with a normal spindle. In the older group, blastocyst formation rates of oocytes with abnormal spindle (22.6%) were significantly lower than oocytes with normal spindles (55.6%).

CONCLUSIONS: Abnormal spindle location and morphology were more prevalent in oocytes of advancing maternal age. We suggest that the increased incidence of abnormal spindle is associated with a reduction in embryo developmental competence.

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