

• 实验研究 •

妊娠中晚期大鼠耐热性碱性磷酸酶及胎盘超微结构在不同二氧化碳气腹作用时间下的变化

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【摘要】目的: 探讨不同二氧化碳(CO₂)气腹作用时间对妊娠中、晚期大鼠血浆耐热性碱性磷酸酶(HSAP)含量及胎盘超微结构的影响。方法: 建立妊娠中期大鼠的CO₂气腹模型, 以气腹作用时间随机分为气腹0 h组(对照)、1 h组和2 h组, 然后每组再随机分为2个亚组, 即中孕组和晚孕组。用酶联免疫吸附测定法检测大鼠血浆HSAP含量, 并用透射电子显微镜观察大鼠胎盘超微结构。结果: 气腹1 h组孕中、晚期血浆HSAP值与同期对照组比较, 差异无统计学意义($P>0.05$); 气腹2 h组孕晚期血浆HSAP值低于同期对照组, 差异有统计学意义($P<0.05$)。对照组及气腹1 h组孕中、晚期大鼠胎盘超微结构均为正常表现, 气腹2 h组孕中期大鼠胎盘内质网扩张, 线粒体肿胀、嵴断裂、空泡化, 核内染色质异常分布; 孕晚期大鼠胎盘游离缘表面微绒毛受损、排列紊乱, 局部性脱失, 胞质内细胞器减少, 线粒体固缩变小。结论: 气腹2 h组可导致妊娠中、晚期大鼠血浆HSAP下降及胎盘超微结构有缺氧表现, 可能影响胎盘功能。

关键词: CO₂气腹; 妊娠中晚期; 耐热性碱性磷酸酶(HSAP); 胎盘超微结构

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Effect of Carbon Dioxide Pneumoperitoneum on Level of Heat-stable Alkaline Phosphatase and Placental Ultrastructure in Medium and Late Pregnant Rats

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【ABSTRACT】 Objective: To study the influence of carbon dioxide (CO₂) pneumoperitoneum on the level of serum heat-stable alkaline phosphatase (HSAP) and the placental ultrastructure in medium and late pregnant rats. **Methods:** The medium pregnant rat models were set up for CO₂ pneumoperitoneum experiment. All the rats were randomly divided into control group, 1 h group and 2 h group according to the action time of CO₂ pneumoperitoneum, and then each group was divided into 2 subgroups randomly, including medium pregnancy group and late pregnancy group. The levels of serum HSAP were examined with enzyme-linked immunosorbent assay (ELISA), and the placenta ultrastructure was observed under transmission electron microscope. **Results:** The level of serum HSAP in late pregnant rats in 2 h group was lower than that in the control ($P < 0.05$), but there was no significant difference between 1 h group and the control ($P > 0.05$). The placental ultrastructure in both medium and late pregnant rats behaved normally in both 1 h group and the control, while those in 2 h group performed hypoxia in both medium and late pregnant rats. **Conclusion:** Two-hour exposure of CO₂ pneumoperitoneum decreased the level of serum HSAP and made the placenta hypoxia in both medium and late pregnant rats, thereby may lead to function restriction of placenta.

Key words: carbon dioxide pneumoperitoneum; medium and late pregnancy; heat-stable alkaline phosphatase (HSAP); placental ultrastructure

长三角地区重度少弱精子症与卵泡刺激素受体基因单核苷酸多态性相关性研究

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【摘要】目的: 研究卵泡刺激素受体(FSHR)基因 Thr307Ala(rs6165)和 Asn680Ser(rs6166)单核苷酸多态性(SNP)基因型分布情况及其与中国长三角地区重度少弱精子症的关联性。方法: 外周血提纯DNA, PCR扩增后直接测序分析200名已育男性(已生育组)和150名重度少弱精子症不育男性(不育组)FSHR基因Thr307Ala和Asn680Ser位点的SNP, 并用 χ^2 检验进行相关性分析。结果: FSHR基因Thr307Ala和Asn680Ser多态性位点的基因型分布在已生育组和不育组间无统计学差异($P > 0.05$)。Thr-Asn/Ala-Asn和Thr-Ser/Thr-Ser双倍型在已育男性与重度少弱精子症患者间分布差异有统计学意义($P < 0.05$), 组间FSHR的单倍型Thr-Asn和Ala-Asn之间亦有统计学差异($P < 0.05$)。结论: FSHR基因Thr307Ala和Asn680Ser的2个多态性位点特定的单倍型和双倍型与男性不育有一定的相关性。

关键词: 男性不育; 卵泡刺激素受体(FSHR); 重度少弱精子症; 多态性

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Relationship of Single Nucleotide Polymorphism of Follicle-stimulating Hormone Receptor Gene and Severe Oligoasthenozoospermia in Yangtze River Delta of China

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【ABSTRACT】 Objective: To study the frequency of two common variants of the follicle-stimulating hormone receptor (*FSHR*) gene in infertile men in Yangtze River Delta region of China and their potential relevance with the severe oligoasthenozoospermia. **Methods:** Peripheral blood was taken from 150 patients with severe oligoasthenozoospermia (infertile group) and 200 healthy fertile men (the control). Two polymorphisms (Thr307Ala and Asn680Ser) of the *FSHR* gene were evaluated by direct DNA sequencing method in the case-control sample. **Results:** The frequency of *FSHR* Thr307Ala and Asn680Ser variants was not significantly different between the infertile group and the control. However, the two marker Thr-Asn, Ala-Asn haplotypes and Thr-Asn/Ala-Asn, Thr-Ser/Thr-Ser diplotypes covering components of Thr307Ala and Asn680Ser were observed to be significantly associated with severe oligoasthenozoospermia. **Conclusion:** *FSHR* might play a role in genetic susceptibility to the severe oligoasthenozoospermia. However, confirmatory studies in independent samples are needed.

Key words: male infertility; follicle-stimulating hormone receptor (*FSHR*); severe oligoasthenozoospermia; polymorphism

两种冷冻方法对人类卵巢组织卵泡形态和组织增殖活性的影响

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【摘要】目的: 探讨玻璃化冷冻和慢速冷冻何者更适于冻存人卵巢组织。方法: 将10例因卵巢良性囊肿剔除术获取的人卵巢皮质组织切成薄片后随机分配到新鲜卵巢组(A组)、玻璃化冷冻组(B组)和慢速冷冻组(C组), 通过光学显微镜和透射电子显微镜观察比较卵泡形态变化, 免疫组织化学检测组织细胞增殖细胞核抗原(PCNA)表达变化。结果: A、B、C组中形态正常的原始卵泡比例分别占71.4%、70.1%、52.3%; 形态正常的初级卵泡比例分别占76.0%、43.5%、31.8%; C组中形态正常的原始卵泡比例和初级卵泡比例均明显低于A、B组($P < 0.05$); B组形态正常的原始卵泡比例和初级卵泡比例与A组相比无统计学差异($P > 0.05$)。A、B组中形态正常的原始卵泡超微结构无明显改变, 但B组中初级卵泡和C组中原始卵泡和初级卵泡的超微结构存在一定程度的改变。PCNA阳性表达主要见于卵母细胞、颗粒细胞和卵巢组织间质细胞, 3组中均有PCNA表达, 且表达无统计学差异。结论: 玻璃化冷冻较慢速冷冻对人卵巢组织影响小, 是一种较适宜的人卵巢组织冷冻保存方法。

关键词: 卵巢组织; 慢速冷冻; 玻璃化冷冻; 卵泡; 超微结构; 增殖细胞核抗原(PCNA)

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Morphology and Cell Proliferation Evaluation of Follicles from Cryopreserved Human Ovarian Tissue by Vitrification and Slow-cooling

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【ABSTRACT】 Objective: To explore vitrification and slow-cooling which is more favorable for cryopreserving human ovarian tissues. **Methods:** Ovarian biopsy specimens were taken from 10 patients and cut into ovarian pieces which were randomly distributed into fresh group (group A), conventional-straw vitrified group (group B) and slow-cooled group (group C). Follicles morphology was observed by light microscope and electron microscope. Ovarian pieces were embedded in paraffin block for immunohistochemical staining to detect proliferating cell nuclear antigen (PCNA). **Results:** The proportions of primordial and primary follicles from group A, group B and group C were 71.4% and 76.0%, 70.1%; 43.5%, 52.3% and 31.8%, respectively. The proportions of primordial and primary follicles from group C were lower than those from group A and group B. But there was no significant difference between group A and group B. The ultrastructural studies showed that primordial follicles were considered normal at histological analysis, there was no significant difference between group A and group B. While there were a few abnormalities of primary follicles in group B and a few abnormalities of primordial and primary follicles in group C. In granulosa cells and oocyte of primordial and primary follicles as well as stromal cells were positive for PCNA staining both in group A and group B, but there was no significant difference among the 3 groups. **Conclusion:** Vitrification is a more favorable method compared with slow-cooling in human ovarian cryopreservation.

Key words: ovarian tissue; slow-cooling; vitrification; follicle; ultrastructure; proliferating cell nuclear antigen (PCNA)

let-7g 对子宫内膜癌 RL-95-2 细胞中 RB1 表达的调控

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【摘要】目的: 探讨子宫内膜癌 RL-95-2 细胞中 let-7g 对其靶基因视网膜母细胞瘤相关蛋白 1 (retinoblastoma-associated protein 1, RB1)表达的调控作用。方法: 运用生物信息学方法对 let-7g 进行靶基因预测并分析其靶基因 RB1; let-7g 模拟物(let-7g mimic)、模拟物对照组(mimic control)、let-7g 抑制物(let-7g inhibitor)、抑制物对照组(inhibitor control)分别转染至 RL-95-2 细胞, 采用 CCK-8 法检测其对细胞增殖的影响; 实时荧光定量 PCR(real-time quantitative polymerase chain reaction, RT-qPCR) 检测转染后 RB1 mRNA 的表达差异; Western blotting 检测 RB1 蛋白的表达。结果: RB1 3' 非编码区(3'UTR)含有一个 let-7g 结合位点, 而且该结合位点在多个物种中高度保守; 与未转染组相比, 转染 let-7g mimic 可促进细胞增殖, 且使 RB1 蛋白的表达显著降低, 而转染 let-7g 抑制物则抑制细胞增殖, 使 RB1 蛋白的表达显著增高, 其余各组无明显变化; 而各转染组 RB1 mRNA 表达无明显差异。结论: 子宫内膜癌 RL-95-2 细胞中 let-7g 可以结合到 RB1 的 3'UTR, 负性调控 RB1 的表达, 从而促进细胞生长。

关键词: let-7g; 子宫内膜癌; 视网膜母细胞瘤相关蛋白 1(RB1)

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MicroRNA let-7g Regulates the Expression of RB1 in RL-95-2 Endometrial Carcinoma Cells

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【ABSTRACT】 Objective: To explore the regulatory effect of let-7g on expression of its target gene retinoblastoma-associated protein (RB1) in RL-95-2 endometrial carcinoma cells. **Methods:** Computational approaches were used for let-7g target prediction. Among all the predicted candidate targets, RB1 was chosen for further investigation. After let-7g mimic, mimic control, inhibitor, inhibitor control were transfected into RL-95-2 cells, respectively; cell proliferation was determined by CCK-8 assay; the expressions of RB1 mRNA and protein were determined by RT-qPCR and Western blotting, respectively. **Results:** By bioinformatics analysis, RB1 3'UTR contained a let-7g binding sites which is highly conserved in several species. Transfection with the let-7g mimic can promote cell proliferation, and decrease the RB1 protein level significantly, the opposite results were also observed in cells transfected with let-7g inhibitor, but not in cells transfected with mimics control or inhibitor control, when compared with RL-95-2 cells, however, there was no significant difference on RB1 mRNA level. **Conclusion:** let-7g can negatively regulate the expression of RB1 by binding to RB1 3'UTR in RL-95-2 endometrial carcinoma cells, thus promoting cell growth.

Key words: let-7g; endometrial carcinoma; retinoblastoma-associated protein 1 (RB1)

• 临床研究 •

囊胚和卵裂期胚胎的早期胚胎流产率比较

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【摘要】目的: 探讨辅助生殖技术中囊胚培养是否能够筛选出更加具有发育潜能的胚胎, 降低胚胎的早期流产率。方法: 回顾性分析因单纯输卵管因素或/及男性因素接受囊胚期与第3日卵裂期胚胎移植获得妊娠后患者的流产率。总周期数1 673个, 其中新鲜胚胎移植周期(fresh embryo transfer)932个(囊胚移植139个周期, 卵裂期胚胎移植793个周期), 冻融胚胎移植周期(frozen-thawed embryo transfer)741个(囊胚移植211个周期, 卵裂期胚胎移植530个周期)。结果: Logistic回归分析表明无论新鲜胚胎移植组还是冻融胚胎移植组, 囊胚期胚胎受孕后的早期胚胎流产率均低于第3日的卵裂期胚胎, 并且囊胚移植和卵裂期胚胎移植的流产率均与妇女年龄呈正相关。结论: 无论新鲜胚胎移植组还是冻融胚胎移植组, 囊胚移植均比第3日卵裂期胚胎移植流产风险降低。年龄仍是影响移植后妊娠早期流产的重要因素。

关键词: 囊胚; 卵裂期胚胎; 流产率; 年龄

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Comparison of the First Trimester Miscarriage Rate between Cleavage Stage Embryo and Blastocyst

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【ABSTRACT】 Objective: To compare the first trimester miscarriage rates between the cleavage stage embryo transfer and blastocyst transfer. **Methods:** First trimester miscarriage rates of 1 673 *in vitro* fertilization and embryo transfer (IVF-ET) cycles for tubal factor or male factor were retrospectively analyzed. Among them, 932 cycles were the fresh embryo transfer and 741 cycles were frozen-thawed embryo transfer. **Results:** Logistic analysis showed that either fresh embryo transfer group or frozen embryo transfer group, the first trimester miscarriage rate in the blastocyst transfer was lower than that in the cleavage stage embryo transfer, and the miscarriage risk was increased with advanced patient's age. **Conclusion:** Blastocyst transfer showed a lower first trimester miscarriage rate compared with the cleavage stage embryo transfer, age is still closely related to the first trimester miscarriage.

Key words: blastocyst; cleavage stage embryo; miscarriage rate; age

男性乙型肝炎病毒感染与IVF/ICSI 妊娠结局的关系

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【摘要】目的: 探讨男性在乙型肝炎病毒感染期及恢复期接受IVF/ICSI对妊娠结局是否造成影响。方法: 回顾性分析首次接受IVF/ICSI治疗的496对不孕夫妇, 术前进行血清HBV及乙肝5项检测, 女方乙肝5项均为阴性或仅HbsAb阳性且HBV-DNA阴性。根据男方乙肝检查结果分成3组, A组(297对夫妇): 男方乙肝5项均为阴性或仅HbsAb阳性且HBV-DNA阴性; B组(81对夫妇): 男方乙肝大三阳且HBV-DNA阳性; C组(118对夫妇): 男方乙肝小三阳且HBV-DNA阴性。统计分析3组第1次新鲜周期治疗情况及妊娠结局, 并进一步比较3组中行ICSI周期的临床结局。结果: 在IVF/ICSI周期中A、B、C组女方的临床妊娠率(40.1% vs 47.9% vs 36.7%)、早期流产率(8.3% vs 8.6% vs 2.5%)无统计学差异; 早产率、抱婴回家率(34.2% vs 42.5% vs 33.9%)和婴儿出生情况各组间亦相似。在ICSI周期中, 3组的临床妊娠率、早期流产率、抱婴回家率及婴儿出生情况亦无统计学差异($P>0.05$)。结论: 男性在乙肝病毒感染期和恢复期无论采用IVF或ICSI方式授精, 对妊娠结局及婴儿出生情况均无不良影响。

关键词: 乙肝病毒; 体外受精(IVF); 卵胞质内单精子显微注射(ICSI); 妊娠率; 抱婴回家率

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Outcomes of IVF/ICSI in Male with Hepatitis B Infection

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【ABSTRACT】 Objective: To examine whether men with hepatitis B would impact the IVF/ICSI outcomes. **Methods:** A retrospective study concerned 496 infertility couples receiving the first time IVF/ICSI who were tested serum HBV-DNA and HBsAb, HBsAg, HBeAg, HBeAb, HBcAb. All wives were negative in both HBV-DNA and HBV markers or only HBsAg positive. All the couples were divided into 3 groups by males' results. Group A (297 couples): female and male were negative in both HBV-DNA and five markers of hepatitis B or only HBsAb positive; group B (81 couples): male HBV-DNA, HBsAg, HBcAb and HBeAg were all positive; group C (118 couples): male's HBV-DNA was negative and HBsAg, HBcAb and HBeAb were all positive. IVF/ICSI fresh cycle outcomes were analysed in each group. **Results:** In IVF/ICSI cycles, groups A, B, C had similar results in clinical pregnancy rate (40.1%, 47.9%, 36.7%, respectively, $P>0.05$), early miscarriage rate (8.3% vs 8.6% vs 2.5%, $P>0.05$) and baby taking home rate (34.2% vs 42.5% vs 33.9%, $P>0.05$). In ICSI cycles, clinical pregnancy rate, early miscarriage rate and baby taking home rate were similar ($P>0.05$). **Conclusion:** Men with hepatitis B, whether he is in infection period or recovery period will not affect the outcomes of IVF/ICSI.

Key words: hepatitis B; *in-vitro* fertilization (IVF); intracytoplasmic sperm injection (ICSI); pregnancy rate; baby taking home rate

2 414例胎儿羊水细胞的体外培养 及染色体核型分析

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【摘要】目的: 探讨羊水细胞染色体分析在产前诊断中的应用价值。方法: 无菌条件下, 经B超介导, 对2 414名孕16~25周的孕妇行羊膜腔穿刺术, 每例抽取羊水20 ml, 经体外培养后进行G显带, 显微镜下做核型分析, 并了解异常核型的相应高危因素分布情况。结果: 共收集到2 414例羊水标本, 2 407例培养成功, 成功率为99.7%。核型异常124例, 异常率为5.1%。其中, 染色体数目异常46例, 三体综合征38例, 占数目异常的82.6%(38/46); 结构异常56例, 随机的平衡易位、倒位及罗氏易位共47例, 占结构异常的83.9%(47/56); 22例嵌合体均进行了脐带血核型分析, 结果核型均正常。将孕妇按行穿刺的首要指征分为7组, 唐氏综合征筛查高危组和高龄组的受检人数分别占48.3%和36.6%, 显著多于其他组($P<0.05$); B超检查示胎儿异常组、颈后透明层(nuchal translucency, NT)增厚组及夫妇一方为染色体异常携带者组的核型异常检出率分别为25.5%、19.0%及17.2%, 与其它组比较差异显著($P<0.05$)。结论: 改进的羊水细胞体外培养方法对核型分析更具实用性。羊水染色体核型分析是安全、有效的诊断胎儿染色体病的方法, 在产前诊断中占有重要地位。

关键词: 羊水; 细胞培养; 核型分析; 产前诊断

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Investigation on Chromosomal Karyotypes of Amniotic Fluid Cells for 2 414 Cases

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【ABSTRACT】 Objective: To investigate the application of karyotypes of amniotic fluid cells in prenatal diagnosis. **Methods:** A total of 2 414 pregnant women received amniocentesis via B ultrasound in sterile condition. A volume of 20 ml amniotic fluid was extracted from each case. Then the amniotic fluid cells were *in vitro* cultured and their karyotypes were analysed by G band. **Results:** There were 124 cases with chromosomal abnormalities and it was 5.1% over all 2 414 cases. There were 46 cases with chromosomal numerical abnormality and 38 cases with trisomy syndrome, accounting for 82.6% of chromosomal numerical abnormality. There were 56 cases with chromosomal structural abnormality and 47 cases with balanced chromosome rearrangements including balanced translocation, Robertson's translocation and inversion, accounting for 83.9% of chromosomal structural abnormality. There were 22 cases with mosaicism and they had normal chromosome of umbilical cord blood follow-up. The constituent ratios of Down's high-risk group and advanced maternal age group were 48.3% and 36.6%, respectively, which were significantly higher than those of other groups ($P<0.05$). The abnormal ratios in fetus abnormal ultra-sonographic group, nuchal translucency (NT) enhancement group and parental balanced chromosome rearrangements group were 25.5%, 19.0% and 17.2%, respectively, which were significantly different from other groups ($P<0.05$). **Conclusion:** The improvement of amniocytes cultured *in vitro* was more practicability, and karyotypes of amniotic fluid cells were more important for prenatal diagnosis.

Key words: amniotic fluid; cell culture; karyotypes; prenatal diagnosis

• 综述 •

Wnt/ β -catenin信号通路在胚胎着床和发育中的作用

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【摘要】 Wnt/ β -catenin 信号通路作为经典的 Wnt 信号转导通路参与调控细胞增殖、凋亡和分化等多种生物学过程。在胚胎着床和发育过程中, Wnt/ β -catenin 信号通路失活或其受体、配体的异常表达均可引起胚胎着床失败、器官分化异常、发育畸形甚至死亡。

关键词: Wnt 信号通路; β -catenin; 胚胎; 发育; 着床

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Role of Wnt/ β -catenin Signaling Pathway in Embryo Implantation and Development

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【ABSTRACT】 Wnt/ β -catenin signaling pathway is one of the classical Wnt signaling pathways involved in a variety of biological processes, such as cell proliferation, apoptosis and differentiation. Under physiological conditions, this pathway plays a role on embryonic implantation and development by improving cell proliferation and differentiation. On the other hand, the inactivation of Wnt/ β -catenin signaling pathway or abnormal expressions of its receptors and ligands can cause implantation failure, organ maldifferentiation, embryonic malformation and even death.

Key words: Wnt signaling pathway; β -catenin; embryo; development; implantation

GnRH-a治疗腹腔镜术后子宫内膜异位症 合并不孕症的作用机制与疗效

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【摘要】 子宫内膜异位症(EMs)是育龄期女性的常见病, 其中高达40%的患者合并不孕症。促性腺激素释放激素激动剂(GnRH-a)联合腹腔镜手术已成为治疗EMs相关不孕症的重要治疗措施, 其通过改善盆腔微环境、提高子宫内膜容受性、提高卵泡及胚胎质量等多方面改善EMs患者的生育能力, 对提高腹腔镜术后EMs患者的自然妊娠与辅助妊娠结局具有一定的价值。

关键词: 促性腺激素释放激素激动剂(GnRH-a); 子宫内膜异位症(EMs); 不孕症; 腹腔镜

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Mechanism of Action of GnRH Agonist Treatment for Endometriosis-associated Infertility after Laparoscopic Surgery and Its Efficacy

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【ABSTRACT】 Endometriosis (EMs) is a common disease for women of reproductive age, up to 40% of patients got infertility. Gonadotropin-releasing hormone agonist (GnRH-a) combined with laparoscopic surgery has become an important therapeutic measure for EMs-associated infertility, by improving the abdominal and pelvic microenvironment, the receptivity of endometrium to embryo and increasing the quality of follicle as well as embryo to enhance the fertility of patients with EMs. The value of GnRH-a treatment in combination with laparoscopic surgery and assisted reproductive technique (ART) to improve the pregnancy outcome of EMs is significant to extent.

Key words: GnRH agonist (GnRH-a); endometriosis (EMs); infertility; laparoscope

促性腺激素释放激素在女性生殖系统的分布与作用

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【摘要】促性腺激素释放激素(gonadotropin releasing hormone, GnRH)是下丘脑分泌的十肽激素,对生殖调控具有重要意义。人体中存在2种亚型,即GnRH-I和GnRH-II,以及2种相应的受体GnRHR-I和GnRHR-II。GnRH除了通过垂体性腺轴控制女性的发育、生殖功能外,同时还以自分泌和旁分泌的方式作用于垂体外组织,如乳腺、胎盘、卵巢、子宫内膜等。GnRH或许可作为乳腺癌的一种有效治疗和预防恶化的方法。GnRH类似物已经用于治疗许多激素相关的疾病,尤其是与子宫相关的疾病,如子宫内膜增生、子宫内膜癌、子宫内膜异位症(EMs),可降低子宫颈癌的风险等。胎盘自身可生成GnRH或GnRH样多肽物质,离体的胎盘组织体外培养表明,GnRH可显著增加胎盘组织人绒毛膜促性腺激素(hCG)的释放。局部的GnRHs对维持卵巢功能具有重要的作用;卵巢GnRHs参与正常和异常生殖组织的内分泌调控。

关键词: 促性腺激素释放激素(GnRH); 促性腺激素释放激素受体(GnRHR); 女性生殖系统

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Distribution and Action of Gonadotropin-releasing Hormone in the Female Reproductive System

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【ABSTRACT】 Gonadotrophin-releasing hormone (GnRH), a neuropeptide with 10 amino-acid, plays a critical role in the regulation of reproduction. There are 2 genome types of GnRH in human, GnRH-I and GnRH-II, and 2 types of receptor, GnRHR-I and GnRHR-II. They regulate the reproduction and maturity through the hypothalamic-pituitary-gonadal axis, and also have the effect on some extrapituitary compartments by autocrine and/or paracrine, including the breast, placenta, ovary and endometrium. GnRH may be a valuable effective method of treatment and prevention of deterioration for breast cancer. GnRH analogues have been used to treat many hormones related diseases, especially uterine diseases, such as endometrial hyperplasia, endometrial cancer and endometriosis (EMs), as well as reduce the risk of cervical cancer. Placenta can generate GnRH or GnRH-like peptides. Studies of placental tissue *in vitro* indicate that GnRH can significantly increase the release of human chorionic gonadotropin (hCG) from placenta tissue. Local GnRHs not only plays an important role in maintaining ovarian function, but also is involved in normal and abnormal reproductive endocrine regulation in ovary.

Key words: GnRH; GnRHR; female reproductive system

• 临床报道 •

重组人促卵泡激素低剂量递增方案联合 宫腔内人工授精临床分析

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【摘要】目的: 探讨重组人促卵泡激素(rhFSH)低剂量递增方案联合宫腔内人工授精(IUI)临床效果及卵巢反应预测因子。方法: 选择多囊卵巢综合征、WHO II型排卵障碍及不明原因不孕患者60例, 采用rhFSH(果纳芬)低剂量递增方案促排卵联合IUI, 分析妊娠率、多胎妊娠率、卵巢过度刺激综合征(OHSS)发生率, 并对卵巢反应预测因子加以分析。结果: ①临床妊娠率28.21%, 双胎妊娠率9.09%, 流产率18.18%, 促排卵过程中发生OHSS(轻度)1例, 无三胎及以上妊娠。②促排卵成功患者与卵巢反应不良患者在体质量、体质量指数(BMI)、窦卵泡数(AFC)、rhFSH总剂量比较, 差异均有统计学意义($P < 0.05$)。结论: rhFSH低剂量递增方案可以使排卵障碍特别是对其他促排卵药物抵抗患者获得较好的妊娠结局, 促排卵结局可能受患者体质量、BMI、AFC等因素影响。

关键词: 重组人促卵泡激素(rhFSH); 低剂量递增方案; 宫腔内人工授精(IUI); 卵巢反应预测因子

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Pregnancy Outcomes of Intrauterine Insemination Treatment Combined with Recombinant Human FSH Low-dose Step-up Protocols

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【ABSTRACT】 Objective: To identify baseline predictors of ovarian responses and pregnancy outcomes in patients who received intrauterine insemination (IUI) combined with recombinant human FSH (rhFSH) low-dose step-up protocols. **Methods:** The clinical outcomes were analysed in IUI cycles with rhFSH low-dose step-up protocols to identify baseline predictors of ovarian responses. **Results:** 1) The pregnancy rates, twins rates and abortion rates were 28.21%, 9.09% and 18.18%, respectively. Only one OHSS case happened and there was no multiple pregnancy in all cases. 2) There was a statistically significant difference in weight, body mass index (BMI), antral follicle count (AFC) and gonadotrophin used amount between IUI and poor response groups. **Conclusion:** The pregnancy outcomes of IUI treatment with rhFSH low-dose step-up protocols is better for the anovulatory women who are resistant to other therapy and may be affected by prediction parameters, including weight, BMI, AFC, etc.

Key words: recombinant human FSH (rhFSH); low-dose step-up protocols; intrauterine insemination (IUI); prediction model

克罗米芬对卵巢储备功能减退患者 进行促排卵治疗的有效性研究

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【摘要】目的: 研究 IVF/ISCI 治疗中克罗米芬(CC)用于卵巢储备功能减退(DOR)患者促排卵治疗的效果。方法: 回顾性分析年龄<35岁但基础FSH ≥ 12 IU/L, 或者年龄 ≥ 35 岁患者的388个CC联合人绝经期促性腺素(hMG)的促排卵周期全胚行冻融胚胎移植(FET)的治疗结局, 所有患者既往有 ≥ 1 次促排卵治疗失败史。结果: 年龄<35岁组, 获卵数为 4.5 ± 3.1 个, 有效胚胎数为 2.2 ± 1.8 个, 优质胚胎数为 1.6 ± 1.5 个, 用药时间为 8.8 ± 2.0 d。在年龄 ≥ 35 岁的患者中, 获卵数为 4.5 ± 2.8 个, 有效胚胎数为 2.2 ± 1.8 个, 优质胚胎数为 1.9 ± 1.6 个, 用药时间为 8.8 ± 1.9 d。FET的临床妊娠率2个年龄组分别为37.8%和36.4%, 组间无统计学差异($P > 0.05$)。结论: 对于基础FSH水平高或者年龄 ≥ 35 岁的DOR患者, CC联合hMG是一种有效的促排卵方案。

关键词: 克罗米芬(CC); 人绝经期促性腺素(hMG); 体外受精 - 胚胎移植(IVF-ET); 冻融胚胎移植(FET); 卵巢储备功能减退(DOR)

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Effectiveness of Clomiphene Citrate on Diminished Ovarian Reserve Patients as An Ovarian Stimulation Protocol

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【ABSTRACT】 Objective: To study the effectiveness of clomiphene citrate (CC) as an ovarian stimulation protocol in diminished ovarian reserve (DOR) women undergoing IVF/ICSI. **Methods:** The outcomes of 388 cycles who received CC plus human menopausal gonadotrophin (hMG) were retrospectively analyzed. The inclusion criteria was age <35 years old but basal FSH (bFSH) ≥ 12 IU/L (group of age <35 years old), or age ≥ 35 years old (group of age ≥ 35 years old), all the patients had ≥ 1 time failed ovary stimulation treatments. **Results:** In the group of age <35 years old, the number of retrieved eggs, embryos and good-quality embryos were 4.5 ± 3.1 , 2.2 ± 1.8 , 1.6 ± 1.5 , respectively. The treated days was 8.8 ± 2.0 d, the clinical pregnancy rate of FET was 37.8%. In the group of age ≥ 35 years old, the number of retrieved eggs, embryos and good-quality embryos were 4.5 ± 2.8 , 2.2 ± 1.8 , 1.9 ± 1.6 , respectively. The duration of treatment was 8.8 ± 1.9 d, the clinical pregnancy rate of FET was 36.4%. **Conclusion:** The CC combined with hMG as an ovarian stimulation protocol has been proven to be effective in DOR patients undergoing IVF/ICSI.

Key words: clomiphene citrate (CC); human menopausal gonadotrophin (hMG); IVF-ET; frozen-thawed embryo transfer (FET); diminished ovarian reserve (DOR)

FISH技术在检测自然流产绒毛组织 非整倍体异常中的应用研究

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【摘要】目的: 探讨运用荧光原位杂交(FISH)检测自然流产绒毛组织的临床价值, 评价它与传统经典的核型分析方法的关系。方法: 对157例孕早期自然流产的绒毛组织进行FISH检测, 均采用16、22、13、21、18、X、Y号染色体荧光探针检测, 判断染色体非整倍体异常情况。同时进行绒毛细胞培养染色体核型分析, 作为对照诊断标准。结果: 核型分析成功率为48.4%, FISH检测成功率为100%。核型分析成功的76例样本中, 64例结果与核型分析结果相一致, 以细胞遗传学作为诊断标准, 诊断的符合率为84.2%。结论: FISH技术与传统的绒毛细胞培养染色体核型分析相比, 过程迅速, 方法简单, 提高了诊断的成功率, 但无法完全取代传统的染色体核型分析, 应两者结合应用于临床。

关键词: 自然流产; 荧光原位杂交(FISH); 染色体核型分析; 染色体数目异常; 绒毛

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Detection of Numerical Chromosomal Anomalies in Spontaneous Abortion by Fluorescent *in situ* Hybridization

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【ABSTRACT】 Objective: To study the clinical value of fluorescent *in situ* hybridization (FISH) detection method for numerical chromosomal anomalies in spontaneous abortion and to evaluate its efficiency compared with the classic method of karyotyping. **Methods:** A total of 157 patients who suffered from spontaneous abortion were observed. All of these cases were detected chromosome 16, 22, 13, 21, 18, X and Y by FISH. The chorionic villi samples (CVS) were cultured for chromosome analysis at the same time. **Results:** Seventy-six samples were successfully karyotyped, while the success rate of FISH was 100%. For the two methods, 64 cases matched perfectly, and the corresponding rate of FISH to karyotyping was 84.2%. **Conclusion:** FISH provides a diagnosis for spontaneous abortion because of rapid, easy to carry out and higher successful rate. Although FISH can not substitute the traditional karyotyping, it can be a supplementary method to traditional karyotyping.

Key words: spontaneous abortion; fluorescent *in situ* hybridization (FISH); karyotyping; numerical chromosomal anomalies; chorionic villi sample (CVS)

• 个案报道 •

足月妊娠伴自发性卵巢过度刺激综合征1例

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【摘要】目的: 报道1例自然妊娠合并自发性卵巢过度刺激综合征(sOHSS)病例。方法: 回顾性分析我院1例自然妊娠合并sOHSS患者的临床资料, 并复习相关文献。结果: 该患者于孕39周行子宫下段剖宫产术, 同时行双侧卵巢楔形切除术+双侧卵巢打孔术。术中快速病理检查及术后常规病理检查结果示双侧卵巢黄素化囊肿。术后患者双侧卵巢迅速恢复正常。最终诊断为妊娠合并sOHSS。结论: 妇产科医生需对sOHSS有充分的认识, 需与卵巢肿瘤性疾病进行鉴别, 以免因误诊而采取不适当的治疗。

关键词: 自发性卵巢过度刺激综合征(sOHSS); 妊娠; 治疗

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A Case of Spontaneous Ovarian Hyperstimulation Syndrome Following A Full-term Pregnancy

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【ABSTRACT】 Objective: To report a rare case of spontaneous ovarian hyperstimulation syndrome (sOHSS) following natural pregnancy. **Method:** The clinical materials from one case with sOHSS following natural pregnancy was retrospectively analyzed, and associated literatures were reviewed. **Results:** The patient underwent low-segment cesarean section, bilateran ovarian resection and ovarian drilling at 39 weeks of gestation. And the pathological diagnosis was lutein cyst of ovary. Bilateral ovaries quickly returned to normal after operation. This case was finally diagnosed as pregnancy associated with sOHSS. **Conclusion:** Obstetricians and gynecologists should be familiar with the sOHSS, and have the ability to differentiate it from ovarian tumor.

Key words: spontaneous ovarian hyperstimulation syndrome (sOHSS); pregnancy; treatment