

# 荧光原位杂交与染色体核型分析应用于自然流产病因学诊断的比较研究

常亮 张秋芳 李丹 赵楠 刘平 乔杰

(北京大学第三医院妇产科生殖医学中心, 教育部辅助生殖重点实验室,  
北京市生殖内分泌与辅助生殖重点实验室, 北京, 100191)

**【摘要】**目的: 分析并比较荧光原位杂交技术(*fluorescence in situ hybridization*, FISH)及普通染色体核型分析技术在自然流产中的诊断意义。方法: 以早孕自然流产的患者为研究对象, 共 201 例。将同一孕周的患者随机分为 A 组和 B 组, A 组( $n=100$ )进行绒毛培养加染色体核型分析, B 组( $n=101$ )进行 FISH 分析, 另在 A、B 组孕 6~11 周患者中每一孕周各随机选取 1 例, 每组 6 例, 共 12 例同时进行 2 种技术分析, 并比较结果。结果: 染色体核型分析成功率为 66%, 其中核型异常率为 30.3%; FISH 成功率为 100%, 其中核型异常率为 46.5%; 2 种检测技术检测出的异常核型率比较有统计学差异( $P=0.036$ )。结论: 2 种分析技术对异常核型的检出率有明显的差异, FISH 更容易成功, 更能反应胚胎的染色体数目; 染色体核型分析结合 FISH 技术能有效诊断自然流产的染色体异常。

**关键词:** 自然流产; 早期妊娠; 荧光原位杂交(FISH); 核型分析

中图分类号: R714.21

文献标识码: A

文章编号: 0253-357X(2013)02-0073-05

## Comparative Study of Fluorescence *in situ* Hybridization Analysis and Karyotype Analysis in Spontaneous Abortion Etiology Diagnosis

Liang CHANG, Qiu-fang ZHANG, Dan LI, Nan ZHAO, Ping LIU, Jie QIAO

(Center for Reproductive Medicine, Department of Obstetrics and Gynecology, Peking University Third Hospital,  
Key Laboratory of Assisted Reproduction, Ministry of Education, Beijing Key Laboratory  
of Reproductive Endocrinology and Assisted Reproduction, Beijing, 100191)

**【ABSTRACT】 Objective:** To compare the roles of fluorescence *in situ* hybridization (FISH) and karyotype analysis on chorionic villus in spontaneous abortion. **Methods:** A total of 201 cases were included in this study and were randomly divided into 2 groups by the same gestational age. The uncultured villi from 101 women (group B) were used for FISH, while the villi from 100 cases (group A) were cultured and used for karyotype analysis. A case was randomly selected from one gestational week (6–11 weeks) pregnant patients from each group, 6 cases from each group and a total of 12 cases were analyzed by FISH and karyotype at the same time. **Results:** The successful karyotype analysis rate was 66%, and the abnormality karyotype rate was 30.3%; FISH successful analysis rate was 100%, and the abnormality rate was 46.5%; there were significant differences between FISH and karyotype analysis ( $P=0.036$ ). **Conclusion:** There were obvious differences between the two techniques. FISH was more successfully analyzed, and was used to more precisely determine fetal chromosome number. It is an effective way to determine abnormal chromosome by integrating FISH and karyotype analysis in spontaneous abortion.

**Key words:** spontaneous abortion; early pregnancy; fluorescence *in situ* hybridization (FISH); karyotype analysis

# 抑癌基因 *PTEN* 和抗氧化蛋白 Peroxiredoxin II 在自然流产患者绒毛组织的表达及意义

杨玲竹 高萃 瞿小玲

(郑州大学第一附属医院妇产科, 郑州, 450052)

**【摘要】**目的: 分析并探讨绒毛组织中抑癌基因 *PTEN* 和抗氧化蛋白 Peroxiredoxin II (Prx2) 与自然流产的关系。方法: 应用 RT-PCR 法及免疫组织化学 SP 法检测 *PTEN* 和 Prx2 蛋白及 mRNA 在 30 例自然流产患者(实验组)绒毛组织中的表达, 并以同期非意愿妊娠要求人工流产的 30 例正常妊娠患者为对照组。结果: ①实验组绒毛组织中 *PTEN* 和 Prx2 蛋白阳性表达率(70.0%, 36.7%)明显低于对照组(93.3%, 93.4%), 差异有统计学意义( $P < 0.05$ )。②实验组绒毛组织中 *PTEN* 和 Prx2 mRNA 的表达( $0.059 \pm 0.010$ ,  $0.222 \pm 0.029$ )明显低于对照组( $0.929 \pm 0.100$ ,  $1.131 \pm 0.125$ ), 差异有统计学意义( $P < 0.05$ )。结论: *PTEN* 和 Prx2 在自然流产患者绒毛组织中表达明显下降, 说明可能与自然流产的发生有一定关系。

**关键词:** 自然流产; *PTEN*; Peroxiredoxin II (Prx 2); 抗氧化蛋白; 绒毛

中图分类号: R714.21

文献标识码: A

文章编号: 0253-357X(2013)02-0078-05

## Expression of PTEN and Peroxiredoxin II in Villi Tissue of the Spontaneous Abortion Patient and Its Significance

Ling-zhu YANG, Cui GAO, Xiao-ling QU

(Department of Obstetrics and Gynecology, the First Affiliated Hospital of Zhengzhou University, Zhengzhou, 450052)

**【ABSTRACT】 Objective:** To explore the relation of phosphate and tension homology deleted on chromosome ten (PTEN) and peroxiredoxin II (Prx2) to spontaneous abortion. **Methods:** The expression of PTEN and Prx2 in villi tissue of spontaneous abortion (experimental group,  $n=30$ ) and unwanted pregnancy (control group,  $n=30$ ) was detected using immunohistochemistry and RT-PCR. **Results:** 1) The positive expression of PTEN and Prx2 protein in experimental group (70.0%, 36.7%) was significantly lower than that of the control (93.3%, 93.4%) ( $P<0.05$ ). 2) The expression of *PTEN* and *Prx2* mRNA in experimental group ( $0.059 \pm 0.010$ ,  $0.222 \pm 0.029$ ) was also significantly lower than that of the control ( $0.929 \pm 0.100$ ,  $1.131 \pm 0.125$ ) ( $P<0.05$ ). **Conclusion:** Abnormal expression of PTEN and Prx2 in the villi tissue may have a certain role in the pathophysiology of spontaneous abortion.

**Key words:** spontaneous abortion; phosphate and tension homology deleted on chromosome ten (PTEN); peroxiredoxin II (Prx2); antioxidant; villus

# 超促排卵对不孕女性子宫内膜蠕动波的影响

朱琳 李艳萍 徐爱装

(中南大学湘雅医院妇产科生殖医学中心, 长沙, 410008)

**【摘要】**目的: 研究不孕女性自然周期与控制性超促排卵(COH)周期子宫内膜蠕动波的特点。方法: 64名排卵正常的不孕女性分别于自然周期LH峰日、排卵日、排卵后2d和COH周期hCG注射后1d、采卵日、采卵后2d阴道超声监测子宫内膜蠕动波, 且同时测定血清雌、孕激素水平。结果: COH周期子宫内膜蠕动波频率是自然周期的1.31倍; COH周期与自然周期各个观测日的子宫内膜蠕动波类型分布不同; 子宫内膜蠕动波频率与生理水平血清雌二醇(E<sub>2</sub>)呈正相关, 与孕酮(P)呈负相关, 与超生理剂量的雌、孕激素无相关性。结论: COH治疗显著地改变了子宫内膜蠕动波的自然运动模式, 在胚胎移植前仍表现为较强烈的子宫内膜运动。

**关键词:** 控制性超促排卵(COH); 子宫蠕动波; 子宫内膜; 蠕动波频率; IVF/ICSI

中图分类号: R71

文献标识码: A

文章编号: 0253-357X(2013)02-0083-06

## **Influence of Controlled Ovarian Hyperstimulation on Uterine Peristalsis in Infertile Women**

Lin ZHU, Yan-ping LI, Ai-zhuang XU

*(Department of Reproductive Medicine, Xiangya Hospital, Central-south University, Changsha, 410008)*

**【ABSTRACT】 Objective:** To explore the characteristics of uterine peristalsis in natural and controlled ovarian hyperstimulation (COH) cycles. **Methods:** Sixty-four infertile women with regular and ovulatory menstrual cycles underwent follicular tracking in natural cycle and the subsequent COH cycle after ovarian stimulation (GnRH-agonist down-regulation). Three time points were studied in both cycles including LH surge day/1 d after hCG injection, ovulation/oocyte retrieval and 2 d after ovulation/retrieval. **Results:** Uterine peristaltic wave frequency was 1.31 times higher in the COH cycle than in the natural cycle ( $P<0.01$ ). At all three time points in the COH cycle, waves moving from the cervix to fundus dominated, comprising 80%–90% of the wave types were observed, while ‘no activity’ was more frequently observed in the natural cycle. The wave frequency was positively correlated with the level of serum estradiol ( $E_2$ ) ( $r=0.30$ ,  $P<0.01$ ) and negatively correlated with the progesterone (P) level ( $r=-0.48$ ,  $P<0.01$ ) for the physiological range of steroid levels. No correlation was found between the wave frequency and supraphysiological concentrations of  $E_2$  or P. **Conclusion:** COH significantly changed uterine peristaltic pattern. The endometrial movements did not weaken to the natural level before embryo transfer, even with high level of progesterone.

**Key words:** controlled ovarian hyperstimulation (COH); uterine peristalsis; endometrium; wave frequency; IVF/ICSI

# 脱氢表雄酮(DHEA)预处理在 体外受精-胚胎移植周期中的应用

安锦霞 王琰 倪亚莉 柴三明

(甘肃省妇幼保健院生殖医学中心, 兰州, 730050)

**【摘要】**目的: 探讨脱氢表雄酮(DHEA)预处理在卵巢储备低下妇女的体外受精/卵胞质内单精子注射-胚胎移植(IVF/ICSI-ET)周期治疗中的作用。方法: 对173例卵巢储备功能低下进行IVF/ICSI-ET的患者进行随机对照研究。DHEA预处理组( $n=81$ )患者口服DHEA, 连用3个月, 对照组为未服用DHEA预处理者( $n=92$ )。观察患者的一般情况、超促排卵情况及胚胎发育和妊娠结局。结果: 患者一般情况、hCG注射日子宫内膜厚度及 $E_2$ 水平、Gn使用量和Gn使用天数组间均无统计学差异( $P>0.05$ )。DHEA组IVF受精率、优质胚胎率及临床妊娠率均高于对照组( $P<0.05$ )。但在胚胎种植率、早期流产率、周期取消率组间差异无统计学意义( $P>0.05$ )。结论: DHEA预处理可以改善卵巢储备功能低下妇女的IVF结局。

**关键词:** 脱氢表雄酮(DHEA); 卵巢储备低下; 体外受精-胚胎移植(IVF-ET); 超促排卵; 临床妊娠率

中图分类号: R711.6

文献标识码: A

文章编号: 0253-357X(2013)02-0089-04

## Application of Dehydroepiandrosterone (DHEA) Supplementation in *In Vitro* Fertilization and Embryo Transfer Cycles

Jin-xia AN, Yan WANG, Ya-li NI, San-ming CHAI

(Center of Reproductive Medicine Gansu Provincial Maternity and Child-Care Hospital, Lanzhou, 730050)

**【ABSTRACT】 Objective:** To investigate the role of dehydroepiandrosterone (DHEA) in women with diminished ovarian reserve (DOR) in IVF/ICSI-ET. **Methods:** A randomized controlled study was performed on 173 IVF/ICSI cycles of DOR, including 81 cases in DHEA pre-treatment group and 92 cases in control group. General condition of the patients, clinical characteristics embryos development and pregnancy outcomes were compared between the two groups. **Results:** General condition of the patients, clinical characteristics, endometrial thickness, E<sub>2</sub> level on hCG injection day, days of gonadotropin administration, dosage of gonadotropin administration of two groups were not statistically different ( $P>0.05$ ). Fertilization rate, good-quality embryo rate, clinical pregnancy rate were significantly higher in DHEA group than those in control group ( $P<0.05$ ). However, there was no significant difference in embryo implantation rate, early abortion rate, cycle cancellation rate in the two groups ( $P>0.05$ ). **Conclusion:** DHEA supplementation can improve the outcome of IVF in patients with DOR.

**Key words:** dehydroepiandrosterone (DHEA); diminished ovarian reserve (DOR); *in vitro* fertilization and embryo transfer (IVF-ET); superovulation; clinical pregnancy rate

# 畸形精子症患者精子染色体非整倍体的研究

朱元<sup>1</sup> 伍琼芳<sup>2</sup> 辛才林<sup>2</sup> 赵琰<sup>2</sup>

林戈<sup>1</sup> 谭跃球<sup>1</sup> 程德华<sup>1</sup> 卢光琇<sup>1</sup>

(1. 中南大学生殖与干细胞工程研究所, 长沙, 410078)

(2. 江西省妇幼保健院生殖中心, 南昌, 330006)

**【摘要】**目的: 研究畸形精子症患者精子染色体的非整倍体率。方法: 应用18号、X和Y染色体着丝粒探针, 采用荧光原位杂交(FISH)技术比较畸形精子症患者(畸精组,  $n=18$ )和生育力正常且精子正常形态率、浓度、活力等均正常男性(对照组,  $n=5$ )精子中18号、X和Y染色体的非整倍体率。结果: 畸精组共计数精子58 178条, 对照组共计数精子16 369条。畸精组和对照组杂交效率分别为97.5%和98.3%; 染色体非整倍体类型主要有二体(XX18、YY18、XY18、Y1818和X1818)和二倍体(1818XX、1818YY、1818XY)。畸精组和对照组的18号染色体二体率分别为 $0.29 \pm 0.16\%$ 和 $0.03 \pm 0.02\%$ , 性染色体二体率分别为 $0.65 \pm 0.24\%$ 和 $0.05 \pm 0.02\%$ , 二倍体率分别为 $0.14 \pm 0.12\%$ 和 $0.04 \pm 0.03\%$ 。18号、X和Y染色体非整倍体率组间均有统计学差异( $P < 0.05$ )。结论: 与生育力和精液各参数均正常男性相比, 畸形精子症患者18号、X和Y染色体非整倍体率明显升高。

**关键词:** 畸形精子症; 荧光原位杂交 (FISH); 精子染色体; 非整倍体

中图分类号: Q343.2+44; R711.6 文献标识码: A 文章编号: 0253-357X(2013)02-0093-06

## Study of the Sperm Chromosomal Aneuploidies of Teratozoospermic Men

Yuan ZHU<sup>1</sup>, Qiong-fang WU<sup>2</sup>, Cai-lin XIN<sup>2</sup>, Yan ZHAO<sup>2</sup>, Ge LIN<sup>1</sup>,  
Yue-qiu TAN<sup>1</sup>, De-hua CHENG<sup>1</sup>, Guang-xiu LU<sup>1</sup>

(1. Institute of Reproduction and Stem Cell Engineering, Xiang-Ya School of Medicine, Central South University, Changsha, 410078)

(2. The Reproductive Centre of the Women and Children Hospital of Jiangxi Province, Nanchang, 330006)

**【ABSTRACT】 Objective:** To explore the sperm chromosomal aneuploidies with teratozoospermic men. **Methods:** Sperm obtained from isolated teratozoospermic men ( $n=18$ ) and control men with normal fertility ( $n=5$ ) were analyzed using fluorescent *in situ* hybridization (FISH) to detect aneuploidy of chromosomes 18, X and Y. **Results:** Totally 58 178 spermatozoa were counted from the teratozoospermia group and 16 369 spermatozoa were counted from the control, with the hybridization rates of 97.5% and 98.3%, respectively. The major types of chromosomal aneuploidies were disomy (YY18, XX18, XY18, Y1818 and X1818) and diploidy (1818XX, 1818YY, 1818XY). In the teratozoospermic group and the control, the disomy rates of 18 chromosome were  $0.29 \pm 0.16\%$  and  $0.03 \pm 0.02\%$ , the disomy rates of sex chromosome were  $0.65 \pm 0.24\%$  and  $0.05 \pm 0.02\%$ , the diploidy rates were  $0.14 \pm 0.12\%$  and  $0.04 \pm 0.03\%$ , respectively. All the differences between the 2 groups were significant ( $P<0.05$ ). **Conclusion:** Sperm of isolated teratozoospermic men have higher rates of 18, X and Y chromosomal aneuploidies than those of the fertile controls.

**Key words:** isolated teratozoospermia; spermatozoa chromosome; aneuploidy

# 上海市某社区中老年男性勃起功能障碍 与性激素的关系研究

陈建平<sup>1</sup> 刘小芹<sup>1</sup> 袁伟<sup>1</sup> 王辉清<sup>2</sup> 李铮<sup>3</sup>

孙颖浩<sup>2</sup> 苗茂华<sup>1</sup> 王波<sup>1</sup>

(1. 上海市计划生育科学研究所 生殖流行病学与社会医学研究室, 上海, 200032)

(2. 第二军医大学附属长海医院, 上海, 200433)

(3. 上海交通大学附属仁济医院, 上海, 200001)

**【摘要】**目的: 探索中老年男性勃起功能障碍(erec-tile dysfunction, ED)与多种性激素之间的关系。方法: 对上海市某社区 928 名 40~70 岁中老年男性进行问卷调查, 采用“勃起功能国际问卷-5(IIEF-5)”量表进行评估, 并抽取空腹静脉血, 采用免疫学方法测定血清总睾酮(TT)、游离睾酮(FT)、催乳素(PRL)、黄体生成素(LH)、卵泡刺激素(FSH)、雌二醇(E<sub>2</sub>)及性激素结合球蛋白(SHBG)水平。按照各激素的四分位数点将对象分为 4 组(P0~P24 组、P25~P49 组、P50~P74 组和 P75~P100 组), 比较不同水平激素 ED 的患病风险。结果: 40~50 岁、51~60 岁、61~70 岁组的 ED 患病率分别为 52.34%、73.14%、90.18%。调整潜在混杂因素后, FT 水平的 P0~P24 组、P25~P49 组、P50~P74 组 ED 的患病危险性, 比 P75~P100 组高, aOR 分别为 1.54、1.42、1.52, 但其 95% 可信区间(95%CI)下限略小于 1。PRL 和 FSH 水平低的对象, 患病风险较低; PRL 水平在 P0~P24 组、P25~P49 组、P50~P74 组的 aOR 分别为 0.61、0.79、0.58, 除 P25~P49 组外, 关联均有统计学意义; FSH 水平在 P0~P24 组、P25~P49 组、P50~P74 组的 aOR 分别为 0.55、0.48、0.60, 除 P50~P74 组 95%CI 上限稍大于 1 外, 关联均有统计学意义。而 ED 与 TT、SHBG、LH、E<sub>2</sub> 等的关联没有统计学意义。以上各激素与重度 ED 的关联均无统计学意义。结论: 调整年龄及其他混杂因素后, ED 与血清 PRL、FSH 水平存在统计学关联, 与 FT 水平的关联较弱, 与 TT、LH、SHBG、E<sub>2</sub> 水平的关联没有统计学意义。就现有研究结果, 尚不能认为激素水平的变化对中老年人 ED 的发生起主要作用。

**关键词:** 中老年男性; 勃起功能障碍(ED); 性激素

中图分类号: R698<sup>+</sup>.1

文献标识码: A

文章编号: 0253-357X(2013)02-0099-06

## Relationship between Erectile Dysfunction and Sex Hormones in Middle-aged and Older Men in A Community in Shanghai

Jian-ping CHEN<sup>1</sup>, Xiao-qin LIU<sup>1</sup>, Wei YUAN<sup>1</sup>, Hui-qing WANG<sup>2</sup>,  
Zheng LI<sup>3</sup>, Ying-hao SUN<sup>2</sup>, Mao-hua MIAO<sup>1</sup>, Bo WANG<sup>1</sup>

(1. Shanghai Institute of Planned Parenthood Research, Shanghai, 200032)

(2. Changhai Hospital, Second Medicinal Military University of PLA, Shanghai, 200433)

(3. Renji Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, 200001)

**【ABSTRACT】 Objective:** To investigate the relationship between erectile dysfunction (ED) and sex hormones in middle-aged and older men. **Methods:** A cross-sectional study was conducted among men aged 40–70 years old in a community in Shanghai. Participants' sexual function was assessed by international index of erectile function 5 (IIEF-5), and their blood samples were collected. Total levels of testosterone (TT), free testosterone (FT), prolactin (PRL), luteinizing hormone (LH), follicle stimulating hormone (FSH), estradiol (E<sub>2</sub>) and sex hormone-binding globulin (SHBG) were measured by immunological methods. **Results:** The prevalence rate of ED was high in middle-aged and older men, which were 52.34%, 73.14%, 90.18% for those aged 40–50 years, 51–60 years and 61–70 years. After potential confounders were adjusted, men in the first three quartiles of FT level had higher risk of ED than those in the last quartile, the adjusted odds ratios (aOR) were 1.54, 1.42 and 1.52, respectively, but the lower end of their 95% confidence intervals were slightly less than 1. Men with lower PRL or FSH had lower risk of ED: aORs for men in the first three quartiles of PRL level were 0.61, 0.79 and 0.58, respectively, but the aOR for those in the second quartile was not significant; aORs for men in the first three quartiles of FSH level were 0.55, 0.48, 0.60, respectively. But no statistically significant association was found among TT, SHBG, LH, E<sub>2</sub> and ED. **Conclusion:** Lower level of FT and higher level of PRL, FSH were statistically associated with higher risk of ED, but no association between ED and hormones including TT, SHBG, LH, E<sub>2</sub> was observed.

**Key words:** middle-aged and older men; erectile dysfunction (ED); sex hormone

# 人工流产术后即时放置左炔诺孕酮 宫内缓释系统的系统评价

王彩燕<sup>1</sup> 黄紫蓉<sup>1</sup> 邹燕<sup>2</sup>

(1. 复旦大学附属妇产科医院计划生育科, 上海, 200011)

(2. 国家人口计生委科学技术研究所, 北京, 100081)

**【摘要】**目的: 系统评价人工流产术后即时放置左炔诺孕酮宫内缓释系统(LNG-IUS)的临床疗效和安全性。方法: 计算机检索 Medline、Embase、Cochrane 图书馆、中国期刊全文数据库、中国生物医学文献数据库、中文科技期刊数据库、万方数据资源系统。纳入比较人工流产术后即时放置 LNG-IUS 与人工流产术后即时放置含铜宫内节育器(CuIUD), 以及人工流产术后即时放置 LNG-IUS 与月经期放置 LNG-IUS 的研究。由 2 位评价者独立进行文献筛选及数据提取。采用 Cochrane 协作网提供的 RevMan5.0 进行 Meta 分析。结果: 共纳入文献 17 篇, 患者 5 512 例。人工流产术后即时放置 LNG-IUS 与人工流产术后即时放置 CuIUD 相比, LNG-IUS 组的带器妊娠率低, 闭经发生率高, 因症取出率低, 脱落和不规则出血的发生率组间无统计学差异。人工流产术后即时放置 LNG-IUS 与月经期放置 LNG-IUS 相比, 放置后 6 个月点滴出血发生率低( $RR=0.42$ ,  $95\%CI=0.22\sim 0.83$ ,  $P=0.01$ ); 放置后 12 个月点滴出血、妊娠、脱落、因症取出、闭经发生率组间均无统计学差异。结论: 人工流产术后即时放置 LNG-IUS 安全有效。

**关键词:** 人工流产; 左炔诺孕酮宫内缓释系统 (LNG-IUS); 系统评价

中图分类号: R169.41

文献标识码: A

文章编号: 0253-357X(2013)02-0105-09

## Immediate Post-abortion Insertion of the Levonorgestrel-releasing Intrauterine System: A Systematic Review

Cai-yan WANG<sup>1</sup>, Zi-rong HUANG<sup>1</sup>, Yan ZOU<sup>2</sup>

(1. Department of Family Planning, Obstetrics and Gynecology Hospital, Fudan University, Shanghai, 200011)

(2. National Research Institute for Family Planning, Beijing, 100081)

**【ABSTRACT】 Objective:** To evaluate the effectiveness and safety of immediate post-abortion insertion of the levonorgestrel-releasing intrauterine system (LNG-IUS). **Methods:** The Medline, Embase, Cochrane Library, CJFD, CBM, VIP and Wanfangdata were searched for researches to compare immediate post-abortion insertion of the levonorgestrel-releasing intrauterine device with copper IUD (Cu IUD) or post-menstrual insertion of the LNG-IUS. Two reviewers independently extracted data and assessed the quality of the evidence. Meta analysis was conducted using RevMan 5.0. **Results:** Totally, 17 articles and 5 512 women were included. Comparing with immediate post-abortion insertion of the copper IUD, less pregnancy, more amenorrhea occurred among women with immediate post-abortion insertion of the LNG-IUS. Both groups experienced similar rates of expulsions and removals for medical reasons and irregular bleedings. Comparing with post-menstrual insertion, women with post-abortion insertion of the LNG-IUS experienced less irregular bleedings in 6 months after insertion ( $RR=0.42$ ,  $95\%CI=0.22\sim0.83$ ,  $P=0.01$ ). In 12 months after insertion, both groups experienced similar rates of pregnancy, expulsion, removal for medical reasons, amenorrhea and irregular bleedings. **Conclusion:** Immediate post-abortion insertion of the levonorgestrel-releasing intrauterine system (LNG-IUS) is safe and effective.

**Key words:** abortion; induced; levonorgestrel-releasing intrauterine system (LNG-IUS); systematic review

# 子宫内膜容受性的无创性评价

张平贵 牛志宏 冯云

(上海交通大学医学院附属瑞金医院生殖医学中心, 上海, 200025)

**【摘要】** 子宫内膜容受性是胚胎着床、成功妊娠的必要条件。对子宫内膜容受性进行评估是辅助生育技术中重要的一环。其评价指标有很多, 目前应用较为广泛的包括内膜活检、超声检查、内分泌检查和内膜分泌物分析等。内膜活检法因其创伤性使临床应用受到限制; 超声虽能简便有效地预测内膜容受性, 但存在很大的争议; 激素及分子生物学指标从分子生物学方面阐明了影响内膜容受性的重要因素, 具有其独特的临床应用价值; 内膜分泌物分析在评价子宫内膜容受性方面, 具有无创性、信息量大等优势, 近年来正在成为生殖领域研究的热点。

**关键词:** 内膜容受性; 胚胎种植; 无创性; 体外受精

中图分类号: R711.6

文献标识码: A

文章编号: 0253-357X(2013)02-0114-04

## Non-invasive Assessment of Endometrial Receptivity

Ping-gui ZHANG, Zhi-hong NIU, Yun FENG

(Reproductive Medical Center, Ruijin Hospital, Shanghai Jiaotong University School of Medicine, Shanghai, 200025)

**【ABSTRACT】** Endometrial receptivity plays a critical role in embryo implantation and achieving a successful early pregnancy, of which the successful evaluation is the key link of assisted reproductive technology (ART). There are many evaluation indexes for endometrial receptivity including various endometrial biopsy, ultrasonic parameters, endocrine examination, analysis of uterine secretions which are widely applied nowadays. Endometrial biopsy is invasive, which clinical application is limited. Ultrasound examination can make an easy and efficient forecast of endometrial receptivity, however, with the more controversy. Hormone traits and molecular biological parameters have unique clinical application values with their elucidation of the important factors affecting endometrial receptivity. Analysis of uterine secretions in the evaluation of endometrial receptivity, with the advantages of non-invasive, large-scale of information, becomes a hot spot in reproductive medicine research in recent years.

**Key words:** endometrial receptivity; embryo implantation; non-invasive; *in vitro* fertilization

# 芳香烃受体(AHR)在胎盘生成中的作用

陈晓 赵真 王凯 段涛

(同济大学附属第一妇婴保健院转化医学研究中心, 上海, 200040)

**【摘要】** 胎盘是连接母体与胎儿的重要器官, 在维持正常的妊娠过程中发挥着重要的作用。胎盘的结构和功能异常不仅易引发妊娠期高血压和糖尿病等妊娠并发症, 还易导致早产、胎儿宫内生长受限(intrauterine growth retardation, IUGR)、流产等不良妊娠结局。芳香烃受体(aryl hydrocarbon receptor, AHR)作为一种配体激活性转录蛋白, 参与了生殖调控、免疫功能调节、血管重塑等一系列重要的生理活动。AHR与滋养细胞的增殖和凋亡密切相关, 并且具有调节滋养细胞细胞周期的作用。AHR在胎盘血管的生成及血流量的调节中也发挥着重要的作用, 它通过调节促血管生成因子与血管生成抑制因子的平衡, 参与胎盘血管的正常发育生长; 同时AHR还很可能在胎盘的生长发育中介导了胎盘血管的生成以及滋养细胞的侵袭能力; AHR表达异常直接导致了相关妊娠期疾病的发生。

**关键词:** 胎盘; 滋养细胞; 血管发生; 芳香烃受体(AHR)

中图分类号: R714.8

文献标识码: A

文章编号: 0253-357X(2013)02-0118-05

## **Roles of Aryl Hydrocarbon Receptor in the Placenta Development**

Xiao CHEN, Zhen ZHAO, Kai WANG, Tao DUAN

*(Shanghai 1st Maternity and Infant Hospital of Tongji University, Shanghai, 200040)*

**【ABSTRACT】** Placenta is a transient organ that connects mother and fetus, which is significant in maintaining pregnancy, fetal growth and fetal survival. This review illustrates the roles of aryl hydrocarbon receptor (AHR) in the placenta development, which associates with some disorders of pregnancy, such as miscarriage, preeclampsia, fetal growth restriction, etc. Activation of the AHR is involved in the regulation of a couple of physiological processes, including immunoregulation, reproductivity, vascular remodeling, etc. AHR is closely associated with proliferation and apoptosis of trophoblast cells and also regulates its cell cycle. AHR plays an important role in angiogenesis and regulation of blood volume, and it involves in normal vascular development in placenta through regulating the balance of angiogenesis promoting factors and angiogenesis inhibiting factors. Meanwhile, AHR may mediate placental angiogenesis and invaded ability of trophoblast cells during placenta development. Abnormal expression of AHR will directly induce the occurrence of related pregnancy disease.

**Key words:** placenta; trophoblast cells; angiogenesis; aryl hydrocarbon receptor (AHR)

# 人工授精周期诱导排卵药物及方案的研究进展

刘金勇 王 嫒

(南京医科大学第一附属医院临床生殖中心, 南京, 210029)

**【摘要】** 诱导排卵联合宫腔内人工授精是广泛应用的一项辅助生育技术。诱导排卵目的是形成单一卵泡的发育成熟, 尽可能地减少发生多胎妊娠和卵巢过度刺激综合征的风险。抗雌激素类和芳香化酶抑制剂因口服方便而广泛应用, 单独使用妊娠率较低。促性腺激素类药物可以获得较高的临床妊娠率, 采用小剂量递增的温和方案不但能够保证较高的单卵泡发育还能够明显的减少并发症的发生。关于促性腺激素促排卵治疗中卵巢反应预测因子还有待于进一步研究。

**关键词:** 诱导排卵; 促性腺激素; 多胎妊娠; 卵巢过度刺激综合征(OHSS); 低剂量递增方案

中图分类号: R711

文献标识码: A

文章编号: 0253-357X(2013)02-0123-05

## **Program of Ovulation Induction Drugs and Protocols for Intrauterine Insemination (IUI)**

Jin-yong LIU, Wei WANG

*(Center of Clinical Reproductive Medicine, First Affiliated Hospital of Nanjing Medical University, Nanjing, 210029)*

**【ABSTRACT】** Intrauterine insemination combined with ovarian stimulation has been demonstrated to be a widely used form of treatment for subfertile couples. The purpose of ovulation induction is the formation of mono-follicular maturation, as much as possible to reduce the risk of occurrence of multiple pregnancies and ovarian hyperstimulation syndrome. Anti-oestrogens and aromatase inhibitors have been widely applied although the pregnancy rate is lower when used alone. Gonadotrophin is better for anovulatory women to get mono-follicular development and higher clinical pregnancy rate, low-dose protocols can reduce the complication rate. Predictors of ovarian response need further studies.

**Key words:** ovarian stimulation; gonadotrophin; multiple pregnancy; OHSS; low-dose step-up protocol

# 卵巢肿瘤经保守性手术后进行IVF/ICSI治疗的安全性及有效性探讨——附23例病例分析与总结

施敏凤<sup>1</sup> 魏思达<sup>2</sup> 赵伟娥<sup>2</sup> 何勉<sup>2</sup> 欧建平<sup>2</sup>

(1. 上海市长海医院生殖中心, 上海, 200438)

(2. 中山大学附属第一医院妇产科生殖医学中心, 广州, 510080)

**【摘要】**目的: 探讨不孕症合并卵巢肿瘤手术史患者的IVF/ICSI-ET治疗的妊娠结局及安全性。方法: 回顾性分析23例卵巢肿瘤保守性手术后行IVF/ICSI-ET治疗患者的临床结局及随访资料。结果: 23例患者共35个新鲜移植周期, 8个冷冻胚胎移植周期; 平均基础FSH和E<sub>2</sub>分别为6.26 ± 1.87 IU/L, 41.9 ± 24.7 pg/ml; 平均Gn启动剂量165 ± 59 IU, 平均Gn使用总量1 516 ± 866 IU, 平均Gn使用天数8 ± 3 d; hCG注射日E<sub>2</sub>峰值平均水平1 202 ± 976 pg/ml; 平均获卵数6.0 ± 5.3个, 平均成熟卵子数5.2 ± 4.8个, 受精率83.5%, 平均可移植胚胎数3.1 ± 2.7个, 平均优质胚胎数2.8 ± 2.8个, 平均胚胎移植数1.8 ± 0.7个; 新鲜周期着床率29.0%, 临床妊娠率28.6%; 冻融胚胎周期着床率25.0%, 临床妊娠率25.0%; 平均随访时间(即首次IVF启动时间至末次随访日)为23个月, 经IVF治疗后仅有1例复发, 没有与卵巢肿瘤相关的死亡。结论: 卵巢良性及交界性肿瘤经保守性手术治疗后合并不孕的患者, IVF-ET治疗有效且安全。

**关键词:** 卵巢肿瘤; 保守手术; 体外受精-胚胎移植(IVF-ET)

中图分类号: R711.75

文献标识码: A

文章编号: 0253-357X(2013)02-0128-05

## Evaluation of the Safety and Efficacy of IVF Treatment after Conservative Management of Ovarian Tumors: A 23 Cases Analysis and Review

Min-feng SHI<sup>1</sup>, Si-da WEI<sup>2</sup>, Wei-e ZHAO<sup>2</sup>, Mian HE<sup>2</sup>, Jian-ping OU<sup>2</sup>

(1. Center for Reproductive Medicine, Changhai Hospital, Shanghai, 200438)

(2. Center for Reproductive Medicine, Department of Obstetric and Gynecology, the First Affiliated Hospital of Sun Yat-sen University, Guangzhou, 510080)

**【ABSTRACT】 Objective:** To evaluate fertility outcome and safety after the IVF treatment in patients who were treated conservatively for ovarian tumor. **Methods:** The clinical and follow-up outcomes of 23 infertile women who had been treated by IVF-ET after conservative surgery for ovarian tumor were retrospectively analyzed. **Results:** There were 35 fresh ET cycles and 8 frozen ET cycles for 23 patients. The mean basal FSH and E<sub>2</sub> levels were  $6.26 \pm 1.87$  IU/L and  $41.9 \pm 24.7$  pg/ml, respectively. The mean peak E<sub>2</sub> level on the day of hCG administration was  $1\ 202 \pm 976$  pg/ml. The mean number of oocytes and mature oocytes retrieved was  $6.0 \pm 5.3$  and  $5.2 \pm 4.8$ , respectively, with the mean fertilization rate of 83.5%. The mean number of portable embryos, superior embryos and transferred embryos was  $3.1 \pm 2.7$ ,  $2.8 \pm 2.8$  and  $1.8 \pm 0.7$ , respectively. Ten pregnancies were achieved in the 35 fresh embryo cycles with the clinical pregnancy rate of 28.6% and implantation rate of 29%, whereas two pregnancies were achieved in the 8 frozen embryo cycles with the clinical pregnancy rate of 25% and implantation rate of 25%. The mean follow-up time that elapsed since the first IVF cycle was 23 months. There was only one case of recurrence diagnosed in our patients after IVF treatment, and no disease-related deaths occurred in our series and all patients were without evidence of disease at the time of last follow-up. **Conclusion:** IVF-ET treatment could be used effectively and safely in infertile patients with the history of conservative operation for benign and borderline ovarian tumor.

**Key words:** ovarian tumor; conservative treatment; *in vitro* fertilization-embryo transfer (IVF-ET)

## 3 178周期宫腔内夫精人工授精临床结局 及其影响因素分析

刘作强 吴日然 程立子 黎智彪

于文娟 杜静 杜彦 吴嘉齐

(广东省中山市博爱医院生殖中心, 中山, 528403)

**【摘要】**目的: 评估宫腔内夫精人工授精(IUI)的临床结局及其影响因素。方法: 回顾性分析行 IUI 治疗的 1 646 对夫妇共 3 178 个周期的临床资料, 分析临床妊娠率及其与女方年龄、不孕类型、不孕病因、是否促排卵治疗、IUI 时机、IUI 周期次数的关系。结果: IUI 临床妊娠率为 12.4%(394/3 178); 对临床妊娠率有统计学意义的影响因素是女方年龄、不孕病因、是否促排卵治疗; 而不孕类型、IUI 时机、IUI 周期次数不影响临床妊娠率。结论: 女方年龄、不孕病因、是否促排卵治疗均可影响妊娠率, 治疗时应综合考虑多种因素的影响。

**关键词:** 宫腔内夫精人工授精(IUI); 临床结局; 影响因素

中图分类号: R711.6

文献标识码: A

文章编号: 0253-357X(2013)02-0133-04

## **Analysis of 3 178 IUI Cycles to Determine Clinical Outcomes and Its Associated Factors**

Zuo-qiang LIU, Ri-ran WU, Li-zi CHENG, Zhi-biao LI,  
Wen-juan YU, Jing DU, Yan DU, Jia-qi WU

*(Reproductive Medicine Center of Zhong Shan Boai Hospital, Zhongshan, 528403)*

**【ABSTRACT】 Objective:** To determine clinical outcomes and its associated factors in intrauterine insemination (IUI). **Methods:** A retrospective analysis of 3 178 IUI cycles was conducted on all available records of infertile couples. The relationship of pregnancy rate and its associated factors including female age, the etiology of infertility, ovarian stimulation protocol, the time point of IUI and cycle number of IUI was analyzed. **Results:** The overall clinical pregnancy rate was 12.4% (394/3 178). The predictive variables which influenced the pregnancy rate were female age, the etiology of infertility, ovarian stimulation protocol. Pregnancy rate was not related to the type of infertility, cycle number of IUI and the time point of IUI. **Conclusion:** The optimal treatment should be given according to female age, the etiology of infertility and ovarian stimulation protocol.

**Key words:** intrauterine insemination (IUI); clinical outcomes; associated factors

# 介入治疗83例剖宫产瘢痕部妊娠临床效果分析

王蓓颖 帅文 王海云

(同济大学附属第一妇婴保健院, 上海, 200040)

**【摘要】**目的: 评价介入治疗对剖宫产瘢痕部妊娠的临床效果。方法: 回顾性分析83例因剖宫产子宫瘢痕部妊娠(CSP)行双侧子宫动脉化疗栓塞术介入治疗(UAE治疗)的临床效果。结果: ① 83例CSP患者术前B超诊断: 早孕胚胎继续发育型52例; 早孕胚胎停止发育型27例; 流产出血型4例。经UAE后, 79例在术后24~48 h行刮宫术, 妊娠终止, 术后1~2个月转经。3例继续妊娠, 改用其他方法治疗; 1例流产不全后子宫大出血, 改行开腹手术。② 术前胚胎继续发育型者52例, 经UAE治疗后48 h复查B超, 胎心消失49例, 胚胎灭活率为94.23%, 3例仍然存活, 占5.77%; 胚胎早期停止发育型和流产出血型共31例全部妊娠终止。结论: UAE治疗是治疗CSP可靠、有效的方法, 但对胚胎继续发育型的CSP有治疗失败的风险。

**关键词:** 子宫动脉栓塞术(UAE); 剖宫产; 子宫瘢痕部妊娠(CSP)

中图分类号: R714.22

文献标识码: A

文章编号: 0253-357X(2013)02-0137-04

## Observation on the Clinical Effect of Interventional Treatment for Cesarean Scar Pregnancy

Bei-ying WANG, Wen SHUAI, Hai-yun WANG

*(Shanghai First Maternity and Infant Hospital, Tongji University School of Medicine, Shanghai, 200040)*

**【ABSTRACT】 Objective:** To evaluate the clinical effect of intervention treatment for cesarean scar pregnancy (CSP). **Methods:** A total of 83 CSP cases treated by uterine arterial embolization (UAE) were enrolled in this retrospective study. All women took the bilateral uterine artery embolization and chemotherapy. **Results:** 1) All cases were preoperatively diagnosed to three types according to the embryonic heartbeat by B-ultrasound, 52 cases were developing type, 27 cases were ceased type, and 4 cases were abortion hemorrhage type. Among 83 CSP patients after interventional therapy, 79 patients took curettage in the postoperative period of 24–48 h, then terminated pregnancy, whose menstruation was restored after 1–2 months, 3 cases who continued pregnancy and 1 case of massive hemorrhage after incomplete abortion were switched to the other treatment methods. 2) In 52 cases of developing type, reviewed by B-ultrasound in 48 h after interventional therapy, fetal heart disappeared in 49 cases (94.23%), but 3 cases (5.77%) were still survived; 31 cases of cessation of development type and abortion hemorrhage type succeeded. **Conclusion:** Intervention treatment is the reliable and effective method for CSP, but for the type of continued developmental embryos still lies a risk of failure.

**Key words:** uterine arterial embolization; cesarean section; cesarean scar pregnancy (CSP)

# 卵母细胞固定、染色及压片方法研究

王雁林<sup>1</sup> 雷聪<sup>1</sup> 王梅林<sup>2</sup> 李清春<sup>1</sup> 刁兴华<sup>1</sup>

(1. 滨州医学院附属医院生殖医学科, 滨州, 256603)

(2. 滨州医学院附属医院护理部, 滨州, 256603)

**【摘要】**目的: 建立卵母细胞(单细胞)固定、染色及压片方法。方法: 应用显微操作技术, 在体视显微镜下通过液滴法移动、洗涤和抗体孵育卵母细胞。结果: 通过点柱法压片的方法成功建立了卵母细胞(单细胞)固定、染色及压片方法。共固定卵母细胞58枚, 其中1枚丢失, 1枚破损, 成功率96.55%。结论: 此制片方法解决了卵母细胞在固定、染色及压片中容易丢失和碎裂的问题, 从而使卵母细胞和胚胎的实验室研究变得较为简单有效。

**关键词:** 卵母细胞; 固定; 压片

中图分类号: R331

文献标识码: A

文章编号: 0253-357X(2013)02-0141-03

## Study of the Fixing, Staining and Tableting Method of Oocytes

Yan-lin WANG<sup>1</sup>, Cong LEI<sup>1</sup>, Mei-lin WANG<sup>2</sup>, Qing-chun LI<sup>1</sup>, Xing-hua DIAO<sup>1</sup>

(1. Department of Reproductive Medicine, Affiliated Hospital of Binzhou Medical College, Binzhou, 256603)

(2. The Nursing department, Affiliated Hospital of Binzhou Medical College, Binzhou, 256603)

**【ABSTRACT】 Objective:** To establish the design and implementation of oocyte 拮 fixing, staining and tableting method. **Method:** Adopt liquid droplet displaces, washes and antibody incubates the oocyte under the stereomicroscope, by micromanipulation technology. **Result:** Oocytes were sucessfully fixed stained and tableted throug post-pillar fin stopping. A total of 58 oocytes were fixed, tained and tableted. There were only one lost, the other one ruptured. The rate of failure was 3.45%. **Conclusion:** This method has successfully solved the prodlom of oocyte loss and fragmentation in the process of cell tablet and will make the laboratory studies of oocyte and embryo become easier and effective.

**Key words:** oocyte; fixing; tableting