

• 实验研究 •

## 间隙连接蛋白Cx31.1相互作用蛋白的初步鉴定

阮振超<sup>1</sup> 朱杏丽<sup>1</sup> 褚凯丽<sup>1</sup> 李元春<sup>2</sup> 黄燕<sup>1</sup>

(1.复旦大学生命科学学院, 遗传学研究所, 遗传工程国家重点实验室, 上海, 200433)

(2.国家卫生与计划生育委员会计划生育药具重点实验室, 上海市计划生育科学研究所, 上海, 200032)

**【摘要】**目的: 筛选间隙连接蛋白31.1(Cx31.1)的相互作用蛋白, 进一步阐释Cx31.1在生殖健康方面可能的作用机制。方法: 采用免疫共沉淀技术富集稳定表达Cx31.1-EGFP融合蛋白细胞中的Cx31.1结合蛋白, 以稳定表达EGFP标签蛋白的细胞作为对照组。得到的蛋白复合物直接酶解后进行高效液相色谱-串联质谱(HPLC-MS/MS)分析, 通过相应的肽段序列标签在Swiss Prot数据库中搜索蛋白质。结果: 通过数据库搜索首次鉴定了5个与生殖相关的且与Cx31.1可能发生相互作用的蛋白, 分别是HSPB1、HSPA2、HSPA5、BYP2和XAGE1A。其中HSPB1、HSPA2和HSPA5属于热休克蛋白家族, BYP2和XAGE1A蛋白在睾丸组织中特异表达。结论: Cx31.1可能与生殖相关蛋白具有相互作用。

**关键词:** 间隙连接蛋白31.1(Cx31.1); 免疫共沉淀; 高效液相色谱-串联质谱(HPLC-MS/MS); 热休克蛋白

中图分类号: Q291

文献标识码: A

文章编号: 0253-357X(2013)07-0433-05

## Protein Interaction between Connexin 31.1 and Proteins Related to Reproduction

Zhen-chao RUAN<sup>1</sup>, Xing-li ZHU<sup>1</sup>, Kai-li ZHU<sup>1</sup>,  
Yuan-chun LI<sup>2</sup>, Yan HUANG<sup>1</sup>

(1. State Key Laboratory of Genetic Engineering, Institute of Genetics, School of Life Sciences, Fudan University, Shanghai, 200433)

(2. National Population and Family Planning Key Laboratory of Contraceptives Drugs & Devices, Shanghai Institute of Planned Parenthood Research, Shanghai, 200032)

**【ABSTRACT】 Objective:** To identify connexin 31.1 (Cx31.1) interacting proteins and find out possible mechanism of Cx31.1 in the function of reproduction. **Methods:** Cx31.1 interacting proteins were separated from cells stably expressing Cx31.1-EGFP using immunoprecipitation, and proteins separated from cells stably expressing EGFP were used as the control. After in-gel digested and analyzed by HPLC-MS/MS, the possible interacting proteins were identified by peptide sequence tags and database searching in Swiss-prot. **Results:** Five Cx31.1 binding proteins were firstly identified by database searching, which were HSPB1, HSPA2, HSPA5, BYP2 and XAGE1A. HSPB1, HSPA2 and HSPA5 belong to heat shock protein, while BYP2 and XAGE1A belong to the family of GAGE were specifically expressed in testis. **Conclusion:** Cx31.1 is a protein involved in reproduction by interacting with some reproduction-related proteins.

**Key words:** connexin 31.1 (Cx31.1); immunoprecipitation; HPLC-MS/MS; heat shock protein

# 丝瓜络对高血脂症小鼠睾丸增殖细胞核抗原表达的影响

李菁<sup>1</sup> 朱伟杰<sup>2</sup>

(暨南大学 1. 医学院, 病理生理学系; 2. 生命科学技术学院, 广州, 510632)

**【摘要】** 目的: 探讨丝瓜络(*Retinervus luffae fructus*, RLF)对高血脂症小鼠睾丸增殖细胞核抗原(proliferating cell nuclear antigen, PCNA)表达的影响。方法: 24只雄性昆明小鼠随机分为3组, 每组8只。对照组(A组): 给予基础饲料; 高脂+丝瓜络组(B组): 在给予的高脂饲料中添加体积分数10%丝瓜络粉; 丝瓜络组(C组): 给予基础饲料中添加体积分数10%丝瓜络粉。光学显微镜下观察睾丸生精上皮的组织学改变, 应用免疫组织化学法检测睾丸PCNA的表达, 比较3组的曲细精管异常率和睾丸精原细胞PCNA阳性细胞率。结果: 与A组比较, B和C组的异常曲细精管率和睾丸精原细胞PCNA阳性细胞率无统计学差异( $P>0.05$ )。结论: 丝瓜络对高血脂症小鼠睾丸精原细胞PCNA的表达没有明显的影响。

**关键词:** 丝瓜络(RLF); 增殖细胞核抗原(PCNA); 睾丸; 高血脂症; 小鼠

中图分类号: Q492.4

文献标识码: A

文章编号: 0253-357X(2013)07-0438-04

## Effects of *Retinervus luffae fructus* (RLF) on the Expression of Testicular Proliferating Cell Nuclear Antigen in Hyperlipidemia Mice

Jing LI<sup>1</sup>, Wei-jie ZHU<sup>2</sup>

(1. Department of Pathophysiology, Medical College, Jinan University, Guangzhou, 510632)

(2. College of Life Science and Technology, Jinan University, Guangzhou, 510632)

**【ABSTRACT】 Objective:** To investigate effects of *Retinervus luffae fructus* (RLF) on the expression of testicular proliferating cell nuclear antigen (PCNA) in hyperlipidemia mice. **Methods:** Twenty-four male Kunming mice were randomly divided into 3 groups: control group (group A), hyperlipidemia + 10% RLF group (group B), and RLF group (group C). Group A received normal diet every day, and group C received normal diet with 10% RLF. Hyperlipidaemia was induced with high-fat diet and 10% RLF in male mice of group B. The experimental period lasted 14 d. Changes of testicular pathology were observed by light microscopy. The expression of testicular PCNA was detected by using immunohistochemistry. **Results:** Compared with the control, groups B and C showed similar testicular histology. No difference was observed on both the rate of abnormal seminiferous tubules and the rate of spermatogonia PCNA between group A and group B or C ( $P>0.05$ ). **Conclusion:** RLF would have no obvious effects on mouse testicular structure and the testicular PNCA.

**Key words:** *Retinervus luffae fructus* (RLF); proliferating cell nuclear antigen (PCNA); testis; hyperlipidemia; mouse

# 正常人前列腺外周带和移行带成纤维细胞 差异性基因表达与蛋白分泌的研究

刘媛媛<sup>1</sup> 李玉华<sup>1</sup> 彭御冰<sup>2</sup> 李天琦<sup>1</sup> 李润生<sup>1</sup>

(1. 国家卫生与计划生育委员会计划生育药具重点实验室, 上海市计划生育科学研究所, 上海, 200032)

(2. 交通大学医学院附属上海市第九人民医院, 上海, 200011)

**【摘要】** 目的: 寻找正常人前列腺外周带和移行带细胞在基因表达水平及相关信号通路蛋白表达水平的差异。试图从机理上探求两者在不同前列腺疾病中所占比例不同的原因。方法: 用 Trizol 一步法从外周带(PZ)和移行带(TZ)成纤维细胞中抽提总 RNA。通过定量 RT-PCR 技术测定 CXCL1、CXCL2、CXCL3、IGFBP2、IGFBP3、IL-8、TAGLN、MEST 的基因表达水平。此外, 从 PZ、TZ 成纤维细胞条件培养基中收集、浓缩分泌的蛋白, 通过 Western blotting 技术比较分析分泌蛋白的水平。结果: 一些分泌蛋白的基因表达水平在 PZ 与 TZ 成纤维细胞存在显著差别, 其中 CXCL1、CXCL2、CXCL3 与 IL-8 的 mRNA 在 TZ 成纤维细胞中的表达水平明显高于其在 PZ 成纤维细胞中的表达水平。而 IGFBP2、IGFBP3 与 TAGLN 的 mRNA 在 PZ 成纤维细胞中的表达水平明显高于其在 TZ 成纤维细胞中的表达水平。IGFBP3 与 TAGLN 在 PZ 成纤维细胞中的蛋白分泌水平明显高于其在 TZ 成纤维细胞中的蛋白分泌水平。结论: PZ 与 TZ 成纤维细胞中基因表达及蛋白分泌水平的差异可能参与导致前列腺癌与前列腺增生(BPH)发病率在前列腺不同区带的显著区别。

**关键词:** 前列腺癌; 外周带(PZ); 移行带(TZ); 基因表达; 分泌蛋白

中图分类号: R737.25

文献标识码: A

文章编号: 0253-357X(2013)07-0442-06

## Study on the Differences of Gene Expression and Protein Secretion Level of the Normal Prostate Peripheral Zone and Transitional Zone Fibroblast Cells

Yuan-yuan LIU<sup>1</sup>, Yu-hua LI<sup>1</sup>, Yu-bing PENG<sup>2</sup>, Tian-qi LI<sup>1</sup>, Run-sheng LI<sup>1</sup>

(1. National Population and Family Planning Key Laboratory of Contraceptives Drugs & Devices, Shanghai Institute of Planned Parenthood Research, Shanghai, 200032)

(2. Department of Urology, Ninth People's Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, 200011)

**【ABSTRACT】 Objective:** To detect the different expression levels of gene and protein in relevant signal pathway between the peripheral zone (PZ) and transitional zone (TZ) of human normal prostate and to find the reason of different proportions in the different prostate diseases about the mechanism between the two cell lines. **Methods:** Total RNA with Trizol was extracted from the PZ and TZ fibroblast cells. The expression level of gene was determined by Real-time PCR technology. Secretory proteins were collected and concentrated from the conditioned medium of the two fibroblast cells. The level of the secretory protein was contrasted and analyzed by Western blotting. **Results:** There were significant differences about the expression level of some genes between the PZ and TZ fibroblast cells. Levels of four gene expression including CXCL1, CXCL2, CXCL3 and IL-8 in TZ fibroblasts were significantly higher than in PZ fibroblast cells. While the expression levels of three genes *IGFBP2*, *IGFBP3* and *TAGLN* in PZ fibroblasts were significantly higher than those in TZ fibroblast cells. Finally, the protein secretion levels of *IGFBP3* and *TAGLN* in PZ fibroblast cells is significantly higher than in TZ fibroblast cells. **Conclusion:** There are some differences in gene expression and protein secretion between the PZ and TZ fibroblast cells. It may be involved in the cause of the remarkable distinction about the morbidity of the prostate cancer and benign prostatic hyperplasia (BPH) in different zones of prostate.

**Key words:** prostate cancer; peripheral zone (PZ); transitional zone (TZ); gene expression; secretory proteins

· 临床研究 ·

## 不育男性精子DNA碎片化指数与精液解脲脲原体及人型支原体感染关系的研究

潘锋<sup>1,2</sup> 何增<sup>1</sup> 石亮<sup>1</sup> 陈赞<sup>1</sup> 徐志鹏<sup>1</sup> 潘连军<sup>2</sup> 戴玉田<sup>1</sup>

(1. 南京大学医学院附属鼓楼医院泌尿男科, 南京, 210008)

(2. 南京医科大学附属南京妇幼保健院泌尿男科, 南京, 210004)

**【摘要】** 目的: 探讨解脲脲原体(Uu)和人型支原体(Mh)对不育男性精子浓度、活动力、正常形态率及精子DNA碎片化指数(DNA fragmentation index, DFI)的影响。方法: 选取169份精液标本, 其中129例特发不育者为不育组, 40例正常生育者为对照组, 计算机辅助精液分析(CASA)系统分析精子浓度和活动力。精子形态分析采用Shorr染色法, 吖啶橙试验(acridine orange test, AOT)检测精子DFI。支原体检测采用培养法。结果: 与对照组相比无Uu/Mh、Uu或Uu+Mh感染组精子DFI显著增高( $P<0.05$ ), 与无Uu/Mh感染组相比, Uu或Uu+Mh感染组DFI亦显著增高( $P<0.05$ )。与正常生育对照组相比无Uu/Mh、Uu或Uu+Mh感染组正常形态率显著降低( $P<0.05$ ), 其余组间无统计学差异( $P>0.05$ )。与正常对照组相比, 无Uu/Mh、Uu、Mh和Uu+Mh感染组的精子浓度、a级、a+b级和a+b+c级精子百分比均显著降低( $P<0.05$ ), 而除无Uu/Mh感染组外, 其余各组间无统计学差异( $P>0.05$ )。结论: 特发性不育男性的精子浓度、正常形态率、a级、a+b级和a+b+c级精子百分比比较正常男性的均显著下降, Uu/Mh感染并非是最主要原因, 可能是其他重要因素或综合因素影响的结果。特发性不育男性精子DFI明显增加, Uu是其中的主要因素之一。Uu可能主要通过影响精子DNA, 而不是常规参数的影响来造成男性生育力的下降。

**关键词:** 支原体; 男性不育; 精子; 染色质; DNA碎片化指数(DFI)

中图分类号: R698<sup>+2</sup>

文献标识码: A

文章编号: 0253-357X(2013)07-0448-05

## Research on the Relationship between Sperm DNA Fragmentation and Seminal Infection by *Ureaplasma urealyticum* and *Mycoplasma hominis* of Infertile Males

Feng PAN<sup>1,2</sup>, Zeng HE<sup>1</sup>, Liang SHI<sup>1</sup>, Yun CHEN<sup>1</sup>,  
Zhi-peng XU<sup>1</sup>, Lian-jun PAN<sup>2</sup>, Yu-tian DAI<sup>1</sup>

(1. Department of Urology, Affiliated Drum Tower Hospital, Nanjing University, School of Medicine, Nanjing, 210008)

(2. Department of Andrology, Nanjing Maternity and Child Healthcare Hospital Affiliated to Nanjing Medical University, Nanjing, 210004)

**【ABSTRACT】 Objective:** To investigate the influence of *Ureaplasma urealyticum* (Uu) and *Mycoplasma hominis* (Mh) to spermatozoa of infertile males. **Methods:** A total of 169 semen samples from patients who met the including criteria were analyzed with the computer-assisted semen analysis (CASA) system for sperm concentration and motility. Shorr staining method was used to obtain morphology parameters, and acridine orange test (AOT) was used to test the DFI. Seminal infection by Uu and Mh was diagnosed by culture. **Results:** The sperm DFI of non-Uu/Mh, Uu, and Uu+Mh groups was all significantly higher than that of the control ( $P<0.05$ ). Significant raise was also observed in the DNA fragmentation index (DFI) of Uu and Uu+Mh groups when compared with the non-Uu/Mh group ( $P<0.05$ ). As for sperm morphology, the percentage of normal sperm morphology in non-Uu/Mh, Uu and Uu+Mh groups was significantly lower than that of the control, respectively ( $P<0.05$ ), while other groups were all similar in this aspect ( $P>0.05$ ). Compared with the control, the concentration and percentages of grade a, a+b and a+b+c of spermatozoa in non-Uu/Mh, Uu, Mh and Uu+Mh groups were all significantly lower ( $P<0.05$ ), while other groups were all similar in these aspects ( $P>0.05$ ). **Conclusion:** It is not Uu/Mh but other factors or integrated influence of multiple factors that could lead to the significant degradation of concentration, normal morphology and percentages of grade a, a+b and a+b+c of spermatozoa in idiopathic infertile males when compared with normal males. Infection by Uu is one of the most important factors which could lead to a significant increase of sperm DFI in idiopathic infertile males. The decreasing of fertility in these males may be mainly induced by the Uu influence on sperm DNA, not on other regular parameters.

**Key words:** mycoplasma; male infertility; sperm; chromatin; DNA fragmentation index (DFI)



# 辅助生殖治疗中9号染色体倒位的临床意义

梁珊珊 潘家坪 滕晓明

(同济大学附属第一妇婴保健院辅助生殖中心, 上海, 200040)

**【摘要】** 目的: 探讨9号染色体倒位在辅助生殖治疗中的临床意义。方法: 回顾性分析9号染色体倒位患者的IVF/ICSI-ET生育结局, 与同期夫妻染色体均正常患者进行比较。结果: 不育夫妇一方9号染色体倒位的23对共进行23个周期的IVF/ICSI-ET治疗, 平均获卵数 $10.6 \pm 6.0$ 枚, 受精率81.22%, 卵裂率93.97%, 有效胚胎形成率80.21%, 胚胎种植率40.00%, 临床妊娠率52.63%, 流产率20.00%, 与对照组230个周期的平均获卵数( $10.7 \pm 5.9$ 枚)、受精率(75.85%)、卵裂率(92.36%)、有效胚胎形成率(79.06%)、胚胎种植率(25.15%)、临床妊娠率(33.91%)、流产率(11.86%)相比均无统计学差异( $P > 0.05$ )。结论: 9号染色体倒位患者辅助生殖技术助孕后结局与普通人群相比未见明显差异。

**关键词:** 辅助生殖技术; 9号染色体倒位; 临床结局

中图分类号: R711.6

文献标识码: A

文章编号: 0253-357X(2013)07-0453-03

## Outcome of Reproductive Treatment to the Inversion of Chromosome 9 Infertile Patient

Shan-shan LIANG, Jia-ping PAN, Xiao-ming TENG

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

**【ABSTRACT】 Objective:** To determine if inversion of chromosome 9 could change the outcome of reproductive treatment in the infertile patients. **Methods:** A retrospective analysis was performed, the outcome between inv(9) couples (study group) and normal karyotype couples (the control) was compared. **Results:** Totally, 23 cycles of study group and 230 cycles of control group were included. No. of oocytes retrieved, fertilization rate, cleavage rate, rate of effective embryo formation, implantation rate, clinical pregnancy rate and abortion rate in study group and the control were  $10.6 \pm 6.0$  vs  $10.7 \pm 5.9$ , 81.22% vs 75.85%, 93.97% vs 92.36%, 80.21% vs 92.36%, 40.00% vs 25.15%, 52.63% vs 33.91%, 20.00% vs 11.86%, respectively. There were no significant differences between the two groups ( $P>0.05$ ). **Conclusion:** The outcome of inv(9) infertile patient treated by IVF/ICSI-ET was similar to normal karyotype patients.

**Key words:** reproductive medicine; inversion of chromosome 9; clinical outcome

# 晚卵泡期孕酮水平提前上升相关因素分析 及其发生机制的新探讨

郭悦 杨菁 蔡晶 潘颖 闫文杰

(武汉大学人民医院生殖中心, 武汉, 430060)

**【摘要】**目的: 探讨晚卵泡期孕酮(P)水平上升对妊娠结局的影响, 分析与P水平上升的相关因素并探讨其潜在机制。方法: 回顾性分析1083例IVF/ICSI患者的临床资料。根据hCG注射日血清P水平结合早发性LH峰将患者分为3组: 低孕酮LH正常组(A组)、高孕酮LH正常组(B组)、高孕酮LH峰组(C组); 根据hCG注射日卵泡数及E<sub>2</sub>水平将患者分为: 卵巢正常反应组、卵巢高反应组。比较各组患者的临床特征、用药情况和妊娠结局。结果: P水平上升的最佳判断点为1.205 ng/ml。A、B和C组的临床妊娠率分别为51.0%、38.9%和28.6%( $P=0.000$ ), 胚胎种植率分别为32.2%、24.9%和15.6%( $P=0.001$ )。与A组相比, B和C组的Gn使用总量更高( $P=0.000$ )、获卵数更多( $P=0.000$ )。与B组相比, C组直径 $\geq 18$  mm的卵泡数更少、E<sub>2</sub>水平更低、P水平上升更高, 差异有统计学意义( $P<0.05$ )。与卵巢正常反应组相比, 卵巢高反应组同量用药情况下P水平上升更高。孕酮提前上升的相关因素为体质量指数(BMI)、基础FSH、hCG注射日最大卵泡直径、E<sub>2</sub>水平、Gn使用总量和Gn启动剂量。结论: 晚卵泡期P水平提前上升不利于妊娠结局, 但不影响卵母细胞及胚胎质量。卵巢自身反应性与FSH剂量是导致P水平提前上升的关键因素。

**关键词:** 孕酮; 卵巢反应; 体外受精 - 胚胎移植(IVF-ET); 妊娠结局

中图分类号: R711.6

文献标识码: A

文章编号: 0253-357X(2013)07-0456-07

## Exploration of Factors and Mechanism of Serum Progesterone Level Rise on Late Follicular Phase

Yue GUO, Jing YANG, Jing CAI, Ying PAN, Wen-jie YAN

(Reproductive Medicine Center, Renmin Hospital of Wuhan University, Wuhan, 430060)

**【ABSTRACT】 Objective:** To investigate the relationship between serum progesterone (P) level on late follicular phase and pregnancy outcomes and to explore relevant factors and underlying mechanism of P level rise. **Methods:** Clinical data belonging to 1 083 women underwent IVF/ICSI were retrospectively analyzed. Patients were assigned to 3 groups according to serum P concentration on the day of human chorionic gonadotropin (hCG) administration and occurrence of premature LH surge: low P and LH surge negative group (group A), high P and LH surge negative group (group B), high P and LH surge group (group C). The ovarian response was classified as intermediate or high according to the number of oocytes and estradiol (E<sub>2</sub>) levels on hCG injection day. Clinical characteristics, treatment regimen and pregnancy outcomes were compared between each two groups. **Results:** Serum P concentration >1.205 ng/ml was the threshold which was set for an elevated P concentration. Clinical pregnancy rates were 28.6% (group C), 38.9% (group B) and 51.0% (group A) ( $P=0.000$ ). Implantation rates were 15.6% (group C), 24.9% (group B) and 32.2% (group A) ( $P=0.001$ ). Compared with group A, group B and group C had higher total dosage of Gn used ( $P=0.000$ ), more numbers of oocytes retrieved ( $P=0.000$ ). Group C had less number of follicles with diameter  $\geq 18$  mm, lower E<sub>2</sub> level and higher P level rise with statistical significances compared with group B. Increased P level rise was associated with high ovarian response under the same medication. Relevant factors of elevated P level were BMI, basal FSH, total follicle numbers and the largest follicle diameter on hCG injection day, E<sub>2</sub> level on hCG injection day, total dosage of Gn used and Gn starting dosage. **Conclusion:** Elevated P level on hCG injection day negatively influences pregnancy outcomes, but the detrimental effect seems to be unrelated to oocyte and embryo qualities. It is the ovarian response and FSH dosage that make serum P level rise.

**Key words:** progesterone (P); ovarian response; IVF-ET; pregnancy outcomes

# 原因不明复发性流产患者心理状况调查及心理干预对其细胞免疫功能和疗效的影响

赵静<sup>1</sup> 焦永慧<sup>2</sup> 胡泊<sup>1</sup> 巩晓芸<sup>1</sup>

王鹏<sup>1</sup> 热娜古丽·艾买江<sup>2</sup> 蔡霞<sup>1</sup>

(1. 新疆医科大学第一附属医院, 乌鲁木齐, 830054)

(2. 新疆自治区人民医院, 乌鲁木齐, 830002)

**【摘要】**目的: 探讨原因不明复发性自然流产(URSA)患者的心理健康状况及心理干预对其免疫功能和治疗效果的影响。方法: 采用症状自评量表(SCL-90)对142例URSA患者和102例正常妇女进行心理状况调查, URSA患者知情选择分为淋巴细胞主动免疫组、心理干预联合黄体酮组和单纯黄体酮组, 并用双抗体夹心酶联免疫吸附法检测治疗前、后Th1(IFN- $\gamma$ 、TNF- $\alpha$ )和Th2(IL-4、IL-10)细胞因子水平, 并观察妊娠结局。结果: URSA患者SCL-90自评总分、总均分、抑郁、人际关系敏感因子均高于正常对照组( $P < 0.05$ ); 治疗前URSA患者IFN- $\gamma$ 、TNF- $\alpha$ 水平高于正常对照组( $P < 0.05$ ), IL-4水平低于正常对照组( $P < 0.05$ )。主动免疫治疗后IFN- $\gamma$ 、TNF- $\alpha$ 水平降低( $P < 0.05$ ), IL-4和IL-10水平升高( $P < 0.05$ ); 心理干预联合黄体酮治疗后IFN- $\gamma$ 、TNF- $\alpha$ 水平降低( $P < 0.05$ )。随访至足月分娩, 主动免疫组、心理干预联合黄体酮组和黄体酮组妊娠成功率分别为85.71%(54/63)、83.67%(41/49)和73.33%(22/30), 黄体酮组的妊娠成功率低于其他两组( $P < 0.05$ )。结论: 反复自然流产可以影响妇女的正常心理活动, 较差的心理状态干扰机体免疫功能, 适当心理干预可调整机体免疫功能, 提高治疗效果, 有临床应用价值。

**关键词:** 复发性流产; 心理健康状况; 心理干预; 细胞免疫; 主动免疫治疗

中图分类号: R711.6

文献标识码: A

文章编号: 0253-357X(2013)07-0463-06

## Study on Psychological Factors of Recurrent Abortion and the Influence of Psychological Intervention on Function of Cellular Immunity and Treatment in Patients Undergoing Recurrent Abortion

Jing ZHAO<sup>1</sup>, Yong-hui JIAO<sup>2</sup>, Bo HU<sup>1</sup>, Xiao-yun GONG<sup>1</sup>,  
Peng WANG<sup>1</sup>, Renaguli • Aimaijiang<sup>2</sup>, Xia CAI<sup>1</sup>

(1. First Affiliated Hospital, Xinjiang Medical University, Urumqi, 830011)

(2. People's Hospital of Xinjiang Autonomous Region, Urumqi, 830002)

**【ABSTRACT】 Objective:** To investigate the psychological factors of recurrent abortion and the influence of psychological intervention on immune function and treatment in patients undergoing recurrent abortion. **Methods:** A total of 142 unexplained recurrent spontaneous abortion (URSA) cases and 102 normal cases were assessed psychological factors with Self-reporting Inventory (SCL-90) and URSA patients were divided into three groups including group A (treated with active immunotherapy), group B (treated with psychological intervention adding progesterone therapy) and group C (treated with progesterone therapy) for prospective study. Serum IFN- $\gamma$ , TNF- $\alpha$ , IL-4 and IL-10 levels were detected and the outcome of pregnancy was recorded after three kinds of therapy. **Results:** The total scores, total average scores, depress scores and sensitive interpersonal relationship scores in SCL-90 of URSA patients were significantly higher than those of normal women ( $P < 0.05$ ). The levels of IFN- $\gamma$  and TNF- $\alpha$  of URSA patients were significantly higher and the IL-4 level was significantly lower than those of normal women before therapy. The levels of IFN- $\gamma$  and TNF- $\alpha$  were significantly lower than those before active immunotherapy and psychological intervention adding progesterone therapy ( $P < 0.05$ ), the levels of IL-4 and IL-10 were significantly higher than those before active immunotherapy ( $P < 0.05$ ). The success rates of pregnancy in group A, group B and group C were 85.71% (54/63), 83.67% (41/49) and 73.33% (22/30), respectively. The success rate of pregnancy in group C was significantly lower than that in other groups ( $P < 0.05$ ). **Conclusion:** Recurrent abortion can affect the normal psychological factors and abnormal psychological status can disturb immune function. Psychological intervention is probably useful in alleviating anxiety level and improving immune function of women undergoing recurrent abortion.

**Key words:** recurrent abortion; psychological factor; psychological intervention; cellular immunity; active immunotherapy

• 综述 •

## G 蛋白耦联雌激素受体-1 与卵巢癌

蒋雪莉 闫彦 刘国艺

(哈尔滨医科大学生理教研室, 哈尔滨, 150081)

**【摘要】** G 蛋白耦联雌激素受体-1(G protein-coupled estrogen receptor 1, GPER-1)是一种新型的雌激素受体,能够介导雌激素的快速非基因组效应。GPER-1与雌激素具有高亲和力,能与天然雌激素和人工合成雌激素结合,快速激活细胞内第二信使或级联信号通路,间接调节转录活动,从而介导雌激素的生物学效应。GPER-1的亚细胞定位存在争议,因其亚细胞定位可能取决于不同的细胞类型。另外,性别、年龄等内在因素以及细胞外刺激、损伤等外在因素也影响 GPER-1 在质膜的相对丰度。近年来研究表明 GPER-1 的表达与女性生殖系统肿瘤的发生、发展密切相关,在卵巢癌组织中高表达,参与卵巢癌的发生发展,并可能作为评价卵巢癌患者预后的指标,有望成为卵巢癌重要的治疗靶点。

**关键词:** G 蛋白耦联雌激素受体-1(GPER-1); 卵巢癌; 雌激素受体(ER)

中图分类号: R737.31

文献标识码: A

文章编号: 0253-357X(2013)07-0469-04

## **G Protein-coupled Estrogen Receptor-1 and Ovarian Carcinoma**

Xue-li JIANG, Yan YAN, Guo-yi LIU

*(Department of Physiology, Harbin Medical University, Harbin, 150081)*

**【ABSTRACT】** G protein-coupled estrogen receptor 1 (GPER-1) is a novel estrogen receptor, which has been found to mediate the non-genomic effects of estrogen. GPER-1 has a high affinity to natural and synthetic estrogens. It is capable of activating multiple second messengers and rapid signaling pathways, and indirectly regulates transcriptional activities of estrogens. A growing body of evidence has demonstrated that GPER-1 is involved in the tumorigenesis and progression of female reproductive malignancies. GPER-1 is overexpressed in ovarian carcinomas, and predicts the poor outcome of the disease. GPER-1 might serve as a therapeutic target in the treatment of ovarian carcinomas. In the present review, the structure, location and signaling transduction of GPER-1, and its biological functions in ovarian carcinomas were discussed, and its prospect as a new therapeutic target of ovarian carcinomas was also previewed.

**Key words:** G protein-coupled estrogen receptor-1 (GPER-1); ovarian carcinoma; estrogen receptor (ER)



# 抗苗勒管激素与女性生育功能关系研究进展

钱警语 陈秀娟

(内蒙古医科大学附属医院生殖中心, 呼和浩特, 010059)

**【摘要】** 抗苗勒管激素(anti-Müllerian hormone, AMH)是女性生殖生理调节因子之一。AMH可在胚胎期参与生殖系统发育调节。生育期女性的AMH主要由次级卵泡、窦前和窦状卵泡颗粒细胞表达, 调节卵泡的生长发育, 不受促性腺激素的调节, 可早期准确评估卵巢储备功能。AMH可抑制卵泡的募集、选择, 对生殖内分泌疾病如多囊卵巢综合征(PCOS)和卵巢早衰(POF)的发病机制及诊断有重要价值。

**关键词:** 抗苗勒管激素(AMH); 卵巢储备; 生殖内分泌疾病; 辅助生殖技术(ART)

中图分类号: R711

文献标识码: A

文章编号: 0253-357X(2013)07-0473-06

## Study Progress of Relationship Between Anti-Müllerian Hormone and Female Reproductive Function

Jing-yu QIAN, Xiu-juan CHEN

*(Reproductive Center of Hospital of Inner Mongolia Medical University, Hohhot, 010059)*

**【ABSTRACT】** Anti-Müllerian hormone (AMH) is a regulator of female reproductive physiology. AMH can regulate the development of reproductive system in the embryo stage. AMH is expressed by granulosa cells in secondary follicles, preantral and antral follicles of ovary, and involved in follicular growth and development, it can accurately assess the ovarian reserve in the early stage, but regulated by gonadotropin. The AMH could restrain follicle recruitment, selection and it has an important value for reproductive endocrine disorders such as polycystic ovary syndrome (PCOS) and premature ovarian failure (POF) in pathogenesis and diagnosis.

**Key words:** anti-Müllerian hormone (AMH); ovarian reserve; reproductive endocrine disorders; assisted reproductive technology (ART)

# 控制性促排卵下凝血相关因素变化研究

黄影 王蔼明 闫玲 陈怡 李敏

(海军总医院, 北京, 100037)

**【摘要】**控制性超促排卵(COH)是体外受精-胚胎移植(IVF-ET)的关键步骤,但与自然周期相比较,其胚胎着床率和妊娠率仍低于自然周期,这可能和该过程中激素水平的波动有关,该过程中产生超生理剂量的雌、孕激素,可引起多种凝血相关因素的改变,与血栓的形成密切相关,由此继发的子宫内膜微循环障碍可能是影响子宫内膜容受性进而影响着床率和妊娠率的重要原因之一。COH过程中凝血和纤溶系统均有不同程度的激活,凝血因子、抗凝因子、纤溶因子、血液流变学及血管内皮功能等均有不同程度的改变,这些改变与COH中高雌、孕激素状态密切相关。

**关键词:** 控制性超促排卵(COH); 凝血相关因素; IVF-ET

中图分类号: R711.6

文献标识码: A

文章编号: 0253-357X(2013)07-0479-06

## Changes and Clinical Relevance of Hemostasis Parameters in Women Undergoing Controlled Ovarian Hyperstimulation

Ying HUANG, Ai-ming WANG, Ling YAN, Yi CHEN, Min LI

(Navy General Hospital, Beijing, 100037)

**【ABSTRACT】** Controlled ovarian hyperstimulation (COH) is the key procedure of *in vitro* fertilization-embryo transfer (IVF-ET) which still has low implantation rate and pregnancy rate compared with natural cycle and it is closely related to the fluctuation of hormones such as supraphysiological estrogen and progesterone which are produced during COH. The increasing of estrogen level can lead to great changes of many hemostasis parameters which has been pointed out as an important pre-thrombotic factor. The secondary disorder of endometrial microcirculation would be an assignable mechanical to influence endometrial receptivity which then influences the implantation rate and the pregnancy rate. Activation of coagulation and fibrinolytic system exists in COH, and blood coagulation factor, anticoagulation factor, fibrinolytic factor, hemorheology indice as well as function of vessel endothelium are also changed in this process, all of which are closely related to high levels of estrogen and progesterone produced by COH.

**Key words:** controlled ovarian hyperstimulation (COH); hemostasis parameters; IVF-ET

· 临床报道 ·

## 长方案促排卵中期添加黄体生成素 对助孕结局的影响

马 兰 陈 潇 李 红

(南方医科大学南方医院妇产科生殖中心, 广州, 510515)

**【摘要】** 目的: 探讨 GnRHa 长方案促排卵中期 LH 水平为 0.5~1.5 IU/L 的患者外源性 LH 添加与否对其助孕结局的影响。方法: 回顾性分析首次接受体外受精(IVF)或卵胞质内单精子注射(ICSI)助孕治疗、采用经典长方案、单用 rFSH 促排卵且在卵泡晚期血清黄体生成素(LH)水平在 0.5~1.5 IU/L 之间的患者 199 例, 根据是否添加 LH 的情况分为 3 组, A 组无添加( $n=64$ ), B 组添加 hMG ( $n=83$ ), C 组添加 rLH( $n=52$ )。分析 3 组对象的临床结局。结果: 3 组患者促排中期  $E_2$  水平两两比较, A 组>B 组>C 组, 组间差异具有统计学意义( $P<0.01$ ); hCG 注射日  $E_2$  水平两两比较, B 组>C 组>A 组, 组间差异具有统计学意义( $P=0.00$ ); LH 水平两两比较, C 组>B 组>A 组, 组间差异具有统计学意义( $P=0.00$ ); 3 组受精率分别为 87.6%、68.4% 和 76.4%, 差异有统计学意义( $P=0.000$ ); 正常受精率分别为 75.4%、62.1% 和 68.6%, 组间具有显著差异( $P=0.00$ ); 取消移植率分别为 0.0%、14.5% 和 11.5%, 差异显著( $P<0.05$ )。3 组间促性腺激素(Gn)使用天数、Gn 使用总量、获卵数、成熟卵子数、优质胚胎率以及其他妊娠结局相关指标均无统计学差异( $P>0.05$ )。结论: 长方案促排卵中期 LH 水平在 0.5~1.5 IU/L 范围之间时无需添加外源性 LH 制剂, 若添加外源性 LH(包括 hMG、rLH)会降低受精率以及正常受精率, 增加移植取消率及 OHSS 发生率的风险。

**关键词:** 长方案; 控制性超促排卵(COH); 体外受精(IVF); 黄体生成素(LH)

中图分类号: R724.21

文献标识码: A

文章编号: 0253-357X(2013)07-0485-06

## Effects of LH Supplementation in GnRH-agonist Long Protocol

Lan MA, Xiao CHEN, Hong LI

(Center for Reproductive Medicine, Department of Obstetrics and Gynecology, Nanfang Hospital, Southern Medical University, Guangzhou, 510515)

**【ABSTRACT】 Objective:** To evaluate the effect of exogenous LH supplementation in patients receiving ovarian stimulation in GnRH-agonist protocol with the concentration of serum LH ranging from 0.5 IU/L to 1.5 IU/L during the intermediate phase of folliculogenesis. **Methods:** A retrospective analysis was been conducted on 199 normogonadotropic infertile patients who underwent their first IVF/ICSI cycle. Patients treated with recombinant FSH following GnRH-agonist suppression with serum LH concentration ranging from 0.5 IU/L to 1.5 IU/L during the intermediate phase of folliculogenesis were divided into 3 groups: group A without any LH supplementation, group B supplemented with hMG and group C supplemented with rLH. **Results:** There were no significant differences in the basic clinical features of patients among three groups ( $P > 0.05$ ). There was a statistical difference in the serum  $E_2$  level during the intermediate phase of folliculogenesis between each two groups. Serum LH levels ( $C > B > A$ ) and  $E_2$  ( $B > C > A$ ) levels on the day of hCG injection were statistically different ( $P = 0.00$ ). In group A, group B and group C, fertilization rates were 87.6%, 68.4% and 76.4%, respectively with significant differences ( $P = 0.00$ ), normal fertilization rates were 75.4%, 62.1% and 68.6% with significant differences ( $P = 0.00$ ). There were no statistical differences among these groups in the total Gn consumption, the number of oocytes retrieved, the number of second meiosis oocytes, high-quality embryo formation rate or other related indicators of pregnancy outcome. **Conclusion:** Exogenous LH supplementation is not needed when serum LH concentration during the mid-follicle phase ranges 0.5–1.5 IU/L. Endogenous LH is sufficient to ensure the oocyte development and embryo quality. Adding exogenous LH will reduce the fertilization and normal fertilization rate, decrease clinical pregnancy rate and increase the financial burden for patients. Meanwhile, adding hMG will conceivably increase the risk of ovarian hyper-stimulation syndrome (OHSS) and cause higher cancellation rate in the fresh transfer cycles.

**Key words:** GnRH-agonist long protocol; controlled ovary hyperstimulation (COH); *in vitro* fertilization (IVF); LH

# 促性腺激素释放激素激动剂联合曼月乐治疗保守性手术后中重度子宫内膜异位症的疗效分析

彭艳 姚吉龙 刘凯 孟喆

(南方医科大学附属深圳市妇幼保健院, 深圳, 518000)

**【摘要】** 目的: 探讨促性腺激素释放激素激动剂(GnRHa)联合曼月乐治疗中重度子宫内膜异位症(EMs)保守性手术后的疗效。方法: 选择腹腔镜保守性手术后中重度EMs、无生育要求的患者43例, 随机分为2组, 试验组23例, 术后使用GnRHa联合曼月乐治疗, 对照组20例, 术后单纯使用GnRHa治疗。随访12个月, 比较手术前、手术后3个月、6个月、9个月和12个月疼痛评分、CA125值和复发率。结果: 试验组和对照组中, 术后各时间点的疼痛评分均低于术前( $P<0.05$ ); 试验组中术后各时间点的疼痛评分无统计学差异; 对照组中术后12个月疼痛评分均高于术后3个月、6个月和9个月( $P<0.05$ ); 在术后12个月试验组的疼痛评分低于对照组( $P<0.05$ )。试验组和对照组中, 术后各时间点CA125值均低于术前( $P<0.05$ ); 试验组中术后各时间点CA125值无统计学差异。对照组中术后12个月CA125值均显著高于术后3个月、6个月和9个月( $P<0.05$ )。术后12个月试验组的CA125低于对照组( $P<0.05$ )。试验组的复发率为0.0%; 对照组的复发率为15.0%。结论: GnRHa联合曼月乐治疗保守性手术后中、重度EMs, 可以长时间缓解疼痛, 降低术后复发率, 是一种有效的巩固治疗方法。

**关键词:** 子宫内膜异位症(EMs); 促性腺激素释放激素激动剂(GnRHa); 曼月乐; 疼痛

中图分类号: R711.71

文献标识码: A

文章编号: 0253-357X(2013)07-0491-05

## **Efficacy of GnRH Agonist Combined with Levonorgestrel Releasing Intrauterine System in the Treatment of Moderate to Severe Endometriosis after Conservative Surgery**

Yan PENG, Ji-long YAO, Kai LIU, Zhe MENG

(Shenzhen Maternal and Child Health Hospital, Southern Medical University, Shenzhen, 518000)

**【ABSTRACT】 Objective:** To explore the efficacy of GnRH agonist (GnRHa) combined with levonorgestrel intrauterine system (LNG-IUS) in the treatment of moderate to severe endometriosis (EMs) after conservative surgery. **Methods:** Forty-three patients with moderate to severe EMs after conservative surgery were randomly divided into 2 groups: experimental group in which 23 women were given GnRHa and LNG-IUS therapy, and control group in which 20 women were given GnRHa therapy only. The follow-up period was 12 months. The mean visual analogue scale (VAS) scores of their pains, serum CA125 levels, recurring rate between the two groups and between pre-therapy and post-therapy were compared. **Results:** In two groups, significant differences ( $P<0.05$ ) existed in VAS scores at the end of 3-month, 6-month, 9-month and 12-month treatment when compared with the preoperative situation. In experimental group, there were no differences in VAS scores among difference times after post-operation. In control group, the VAS score at the end of 12-month treatment was significantly higher than that at the end of 3-month, 6-month and 9-month treatment ( $P<0.05$ ). At the end of 12-month treatment, the VAS scores in experimental group were significantly lower than those in control group. In two groups, significant differences ( $P<0.05$ ) existed in serum CA125 at the end of 3-month, 6-month, 9-month and 12-month treatment when compared with the preoperative situation. In experimental group, there were no differences in the value of serum CA125 among difference times after post-operation. In control group, the value of serum CA125 at the end of 12-month treatment was significantly higher than that at the end of 3-month, 6-month and 9-month treatment ( $P<0.05$ ). At the end of 12-month treatment, the value of serum CA125 in experimental group was significantly lower than that in control group. After 1-year treatment, the recurrence rate of experimental group was obviously lower than that in control group (0.0% vs 15.0%,  $P<0.05$ ). **Conclusion:** GnRHa combined with LNG-IUS is an effective therapy in the treatment of moderate to severe EMs after conservative surgery.

**Key words:** endometriosis (EMs); GnRH agonist (GnRHa); levonorgestrel releasing intrauterine system (LNG-IUS); pain



• 临床报道 •

## 微型腹腔镜手术在输卵管复通中的应用

王凤 黄浩 杨尚武 文仲勇

(南方医科大学附属南海人民医院妇科, 南海, 528200)

**【摘要】**目的: 探讨微型腹腔镜手术在输卵管吻合复通中的应用价值。方法: 回顾性分析66例输卵管绝育术后因需生育而行吻合复通术的患者资料, 将其中36例利用微型腹腔镜完成输卵管复通术者(腹腔镜组), 并与同期完成的开腹下输卵管复通术30例(开腹组)作对比研究。结果: 所有患者手术均顺利完成, 术后随访5~48个月。腹腔镜组宫内妊娠27例, 异位妊娠2例, 未孕7例, 宫内妊娠率75.00%, 总妊娠率80.56%。开腹组宫内妊娠15例, 异位妊娠3例, 未孕12例, 宫内妊娠率50.00%, 总妊娠率60.00%。宫内妊娠率、总妊娠率组间差异有统计学意义( $P < 0.05$ )。合并盆腔粘连者, 术后宫内妊娠率、总妊娠率组间比较, 差异有统计学意义( $P < 0.05$ )。结论: 与开腹手术相比, 微型腹腔镜手术用于输卵管复通具有损伤小、出血少、术后恢复快、术后宫内妊娠率提高的优势, 尤其适合于合并盆腔粘连的患者。

**关键词:** 微型腹腔镜手术; 输卵管复通; 妊娠率

中图分类号: R713.5

文献标识码: A

文章编号: 0253-357X(2013)07-0496-04

## Application of Microlaparoscopic Tubal Anastomosis

Feng WANG, Shang-wu YANG, Hao HUANG, Zhong-yong WEN

(Department of Gynecology, Nanhai South China Sea People's Hospital, Southern Medical University, Foshan, 528200)

**【ABSTRACT】 Objective:** To investigate the value of the microlaparoscopic tubal anastomosis. **Methods:** Sixty-six patients who had tubal anastomosis because of their fertility requirement after tubal ligation were retrospectively analyzed. All the patients had operation at the same period. Comparative study was performed between 36 cases of patients who had microlaparoscopic tubal anastomosis (laparoscopic group) and 30 cases of patients who had laparotomy tubal anastomosis (laparotomy group). **Results:** Operation were all successfully performed and patients were followed up for 5–48 months. The laparoscopic group had 27 cases of intrauterine gestations, 2 cases of ectopic gestations, 7 cases of non-pregnancy, the intrauterine pregnancy rate was 75.00% and the total pregnancy rate was 80.56%. The laparotomy group had 15 cases of intrauterine pregnancy, 3 cases of ectopic pregnancy, 12 cases of non-pregnancy, the intrauterine pregnancy rate was 50.00% and the total pregnancy rate was 60.00%. The intrauterine pregnancy rate and the total pregnancy rate were statistically different between the two groups ( $P<0.05$ ). Statistical differences in intrauterine pregnancy rate and the total pregnancy rate were also found in patients with pelvic adhesions between the two groups ( $P<0.05$ ). **Conclusion:** Microlaparoscopic instruments come from amelioration of conventional laparoscopic instruments, and can make operation more accurate and precise. Microlaparoscopic have advantages of less bleeding, less injury, promoting postoperative recovery, more intrauterine pregnancy rate compared with laparotomy tubal anastomosis and especially appropriate for patients who have pelvic adhesions.

**Key words:** miniature laparoscopic operation; tubal reversal; pregnancy rate

· 个案报道 ·

## 选择性减胎术成功治疗子宫疤痕妊娠合并宫内妊娠1例报道及文献复习

骆丽华 刘雨生 陈玲 季静娟 程东红 胡美红 付应云 桑美英

(安徽医科大学附属省立医院生殖医学中心, 合肥, 230001)

**【摘要】**目的: 探讨子宫疤痕妊娠合并宫内妊娠的选择性减胎术的治疗效果。方法: 报道1例孕7周确诊为子宫疤痕妊娠合并宫内妊娠患者, 经阴道超声指导下实施疤痕妊娠胚胎抽吸减胎术, 同时进行文献复习。结果: 成功实施了选择性减胎术, 疤痕妊娠被终止, 宫内妊娠继续, 于孕35<sup>+3</sup>周剖宫产分娩一健康婴儿, 无并发症发生。结论: 疤痕妊娠选择性减胎术对需要保留宫腔妊娠的患者是侵入性最小且比较安全的治疗方法。

**关键词:** 子宫疤痕妊娠(CSP); 复合性妊娠; 选择性减胎术; 胚胎抽吸

中图分类号: R714.2

文献标识码: A

文章编号: 0253-357X(2013)07-0500-04

## Successful Management of Cesarean Scar Pregnancy Combined with Intrauterine Pregnancy with Selective Embryo Reduction: A Case Report and Review the Literature

Li-hua LUO, Yu-sheng LIU, Ling CHEN, Jing-juan JI, Dong-hong CHENG,  
Mei-hong HU, Ying-yun FU, Mei-ying SANG

*(Reproductive Medicine Center of Anhui Provincial Hospital Affiliated to Anhui Medical University, Hefei, 230001)*

**【ABSTRACT】 Objective:** To explore the efficacy of embryo reduction of cesarean scar pregnancy (CSP) combined with intrauterine pregnancy after IVF-ET. **Methods:** A case of heterotopic CSP was diagnosed and selective embryo aspiration was performed by ultrasound-guided and the literatures on the current management were reviewed. **Results:** Cesarean scar pregnancy was terminated at 7-week gestational age and an intrauterine pregnancy was ongoing, a healthy infant was delivered at 35<sup>+3</sup>-week gestational age by cesarean section. **Conclusion:** Selective embryo reduction is a safe and minimally invasive method of treatment to terminate the CSP while simultaneously preserving the intrauterine pregnancy.

**Key words:** cesarean scar pregnancy (CSP); heterotopic pregnancy; selective embryo reduction; embryo aspiration