

· 临床研究 ·

新鲜周期单囊胚移植 314 例临床结局

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.004

【摘要】目的 探讨新鲜周期单囊胚移植(single blastocyst transfer, SBT)的可行性。**方法** 回顾性分析 314 个新鲜周期行 SBT 患者的临床资料, 从年龄、囊胚分级等方面比较分析临床结局。**结果** 妊娠组患者的年龄显著低于未妊娠组($P < 0.001$); 选择性 SBT(elective SBT, eSBT)组的临床妊娠率显著高于非选择性 SBT(non-elective SBT, non-eSBT)组($P < 0.05$); 年龄 ≤ 35 岁的患者, eSBT组的临床妊娠率与双囊胚移植(double blastocyst transfer, DBT)组无统计学差异, 但多胎妊娠率显著降低($P < 0.001$); 而 > 35 岁的患者, eSBT组的临床妊娠率低于 DBT组($P < 0.05$), 组间的多胎妊娠率无统计学差异($P > 0.05$); 囊胚扩张和孵化的程度与临床妊娠率显著相关, 优质囊胚可获得更好的妊娠结局。**结论** 妊娠结局与囊胚的质量及患者的年龄显著相关, 对于年龄 ≤ 35 岁, 有优质囊胚的患者, 可以进行 SBT。

【关键词】 选择性单囊胚移植(eSBT); 双囊胚移植(DBT); 临床结局; 囊胚评分

基金项目: 安徽高校省级自然科学基金项目(KJ2013Z109)

· 临床研究 ·

A retrospective analysis of the clinical outcome of 314 cases of single blastocyst transfer in fresh stimulation cycles Chen Fucui, Zou Weiwei, Zhou Yanjun, Hao Yan, Chen Beili, Zhang Zhiguo, Wei Zhaolian, Cao Yunxia, Zhou Ping

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【Abstract】 Objective To investigate the feasibility of single blastocyst transfer (SBT). **Methods** A retrospective analysis was carried out on patients who performed SBT in fresh stimulation cycles, which contained 314 cycles. Clinical outcomes according to the ages and embryo qualities were analyzed. **Results** The ages of the patients in the clinical pregnancy group (CP group) were effectively lower than that in non-clinical pregnancy group (non-CP group)($P<0.001$). The clinical pregnancy rate in the elective single blastocyst transfer group (eSBT group) was effectively higher than that in non-elective single blastocyst transfer group (non-eSBT group)($P<0.05$). The pregnancy rates had no statistical significance between eSBT group and double blastocyst transfer group (DBT group)($P>0.05$) when patients were under 35 years old. While the multiple pregnancy rate was markedly reduced in the eSBT group ($P<0.001$). The clinical pregnancy rate was higher in DBT group than in eSBT group when patients were over 35 years old, which had a statistical significance ($P<0.05$). The clinical pregnancy rate was closely related to the expansion and hatching (EH) stage and the quality of the blastocyst transferred. **Conclusion** The clinical pregnancy rate closely related to the patients' ages and the quality of blastocyst transferred, eSBT can be applied to women under 35 years with top-quality embryos.

【Key words】 Elective single blastocyst transfer (eSBT); Double blastocyst transfer (DBT); Clinical outcome; Blastocyst score

Fund program: Anhui Provincial Natural Science Research Project (KJ2013Z109)

改良超长方案中促排卵时不同时期添加高纯度尿促性素对助孕结局的影响

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.005

【摘要】目的 探讨促性腺激素释放激素激动剂(GnRH-a)改良超长方案促排卵中高纯度尿促性素(HP-hMG)不同添加时机和剂量对助孕结局的影响。**方法** 回顾性分析本中心首次行体外受精/卵胞质内单精子注射-胚胎移植(IVF/ICSI-ET)中采用改良超长方案并添加使用了HP-hMG的454例患者的临床资料,根据添加HP-hMG的时机分为全程添加组(A组)和后半期添加组(B组)。A组: Gn启动日血清黄体生成素(LH) <1.2 IU/L的患者在重组卵泡刺激素(r-FSH)促排卵的第1日同时添加HP-hMG至hCG注射日; B组: Gn启动日血清LH ≥ 1.2 IU/L的患者r-FSH促排卵的第6日开始添加HP-hMG至hCG注射日。对不同年龄阶段患者(≤ 35 岁和36~40岁)进行分析,观察Gn使用总量和使用时间、hCG注射日激素水平、获卵情况、胚胎质量、着床率、临床妊娠率、活产率、流产率和中重度卵巢过度刺激综合征(OHSS)风险等临床结果。**结果** ≤ 35 岁的患者中A组相比B组,虽然Gn使用总量有所增加,但hCG注射日孕酮(P)水平降低,IVF受精率明显增高,差异均有统计学意义($P<0.05$);着床率分别为58.2%和42.4%,临床妊娠率分别为80.1%和61.7%,活产率分别为68.9%和49.5%,差异均有统计学意义($P<0.05$)。36~40岁的患者中,A组与B组的临床妊娠率分别为61.9%和26.3%,活产率分别为47.6%和15.8%,差异均有统计学意义($P<0.05$)。A、B两组在不同年龄段的流产率和中重度OHSS发生率相似。**结论** 改良超长方案中患者全程添加HP-hMG较后半期添加能降低hCG注射日P水平,显著提高着床率、临床妊娠率和活产率。

【关键词】 改良超长方案; 高纯度尿促性素(HP-hMG); 黄体生成素(LH)活性

Comparing the clinical outcomes of high purified-human menopausal gonadotropin initial usage with mid follicle phase supplementation during ovarian stimulation in modified ultra-long protocols Wang

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【Abstract】 Objective To explore the effect of high purified-human menopausal gonadotropin (HP-hMG) supplement from initial or from mid follicle phase during ovarian stimulation on the clinical outcomes at GnRHa modified ultra-long protocol. **Methods** Retrospective analysis was performed on 454 patients who received *in vitro* fertilization/intracytoplasmic sperm injection and embryo transfer (IVF/ICSI-ET) treatment after modified ultra-long GnRH agonist down-regulation and HP-hMG supplement during ovarian stimulation. According to the serum LH level on gonadotropin (Gn) stimulation day, patients were divided into two groups: initial supplement group (group A) and the mild follicle phase supplement group (group B). In group A with serum LH<1.2 IU/L on Gn stimulation day, recombinant FSH (r-FSH) was used combined with HP-hMG from day one of controlled ovary stimulation (COS) until hCG injection day. In group B with LH ≥ 1.2 IU/L on Gn stimulation day, r-FSH was alone for initial COS, HP-hMG was added from the day 6 of stimulation to hCG injection day. Clinical outcomes of two groups were analyzed in subgroup patients according to the age (≤ 35 years old, 36–40 years old), including total dosage of Gn used, stimulation day of Gn, hormone levels on hCG injection day, the status of oocytes retrieved, embryo quality, implantation rate, clinical pregnancy rate, live birth rate, miscarriage rate, ovarian hyperstimulation syndrome (OHSS) rate, etc. **Results** For those patients who were younger than 35 years old, HP-hMG initial usage could lead to lower progesterone level on hCG injection day, higher fertilization rate, but need more dosage of Gn compared with those who added HP-hMG from mid follicle phase. The implantation rate was 58.2% vs 42.4%, the clinical pregnancy rate was 80.1% vs 61.7%, the live birth rate was 68.9% vs 49.5% in groups A, B respectively with statistical significances ($P<0.05$). For those older patients who were 36–40 years old, the clinical pregnancy rate was 61.9% vs 26.3%, live birth rate was 47.6% vs 15.8% in groups A, B, respectively with statistical significances ($P<0.05$). The miscarriage rate, the mild and severe OHSS rate were similar in the two groups regardless age. **Conclusion** HP-hMG supplementation from the beginning of COS rather than the late half follicular phase can lower the progesterone level, and improve implantation rate, clinical pregnancy rate, live birth rate after GnRH agonist modified ultra-long protocol.

【Key words】 Modified ultra-long protocol; High purified-human menopausal gonadotropin (HP-hMG); Luteinizing hormone (LH) activity

· 临床研究 ·

多囊卵巢综合征患者显著升高的抗苗勒管激素水平对超促排卵的影响

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.006

【摘要】目的 探讨多囊卵巢综合征(PCOS)患者血清抗苗勒管激素(AMH)水平升高的原因和对体外受精(IVF)促排卵反应的影响。**方法** 回顾性分析第1次行长方案助孕的PCOS患者($n=158$)和排卵正常的卵巢多囊样改变(PCOM)患者($n=256$)的临床资料,将患者按“获卵数”分组,获卵数 ≤ 5 个,为低反应组,获卵数6~14个为正常反应组,获卵数 ≥ 15 个为高反应组,比较各组间治疗后各项指标的差异。**结果** PCOM组和PCOS组的血清AMH值、窦卵泡数(AFC)、血清AMH/AFC比值($AMH \times 100/AFC$ 总数)组间有统计学差异($P<0.05$)。促性腺激素(Gn)使用总量和Gn使用时间组间均有统计学差异($P<0.05$)。PCOM组中,随着AMH水平、AFC总数及AMH/AFC比值的增加,卵巢低反应者也增加。PCOS组中,卵巢反应低下组较正常反应及卵巢高反应组具有更高的AMH水平、AFC总数及AMH/AFC比值。**结论** PCOS患者高血清AMH水平可能并不仅仅是因为窦卵泡数量增多的累加效应,同时可能是单个窦卵泡异常过多分泌所致。AMH异常升高可能影响卵巢对Gn的敏感性,但其作用机制仍需更深入研究。

【关键词】 多囊卵巢综合征(PCOS); 卵巢多囊样改变(PCOM); 抗苗勒管激素(AMH); AMH/窦卵泡数(AFC)比值

Comparison of antiMüllerian hormone and ovarian response between polycystic ovary syndrome patients and patients with polycystic ovarian morphology

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【Abstract】Objective To investigate whether polycystic ovary syndrome (PCOS) patients had an excessive secretion of antiMüllerian hormone (AMH) than control and its effect on *in vitro* fertilization (IVF) ovarian stimulation.

Methods A retrospective study was done on a total of 158 PCOS patients and 256 polycystic ovarian morphology (PCOM) patients. The ratio of AMH/antral follicle count (AFC) of the two groups was compared. The patients of the two groups who underwent the long protocol IVF programme were subdivided into three groups according to the number of oocytes retrieved. The ratio of AMH/AFC and other indexes relating to ovarian sensitivity were compared within the three subgroups. **Results** The serum AMH value, AFC and serum AMH/AFC ratio ($AMH \times 100/AFC$) of PCOM group and PCOS group were significantly different ($P < 0.05$). Totally 256 PCOM patients and 158 PCOS patients underwent IVF long protocol. The body mass index (BMI) and the number of retrieved oocytes showed no statistical difference between the two groups, the total dosage and duration of Gn used were not significantly different ($P < 0.05$). According to the number of retrieved oocytes, ovarian response index increased with the increase of AMH, AFC and AMH/AFC ratio in PCOM group. In PCOS group, the poorest ovarian response group had higher AMH, AFC total and AMH/AFC ratio than the normal reaction and the over ovarian response group.

Conclusion The high level of serum AMH in PCOS patients may be not only because of the cumulative effect of the increase in the number of antral follicles, but also may be caused by excessive secretion of every single antral follicle. The abnormally high AMH and AMH/AFC level of PCOS patients may result in a poor ovarian response and may reduce the sensitivity of Gn. But the mechanism remains unknown.

【Key words】 Polycystic ovary syndrome (PCOS); Polycystic ovarian morphology (PCOM); AntiMüllerian hormone (AMH); Antral follicle count (AFC); AMH/AFC ratio

· 实验研究 ·

玻璃化冷冻对乳鼠卵巢 Dnmt1 和 Grb10 的影响研究

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.007

【摘要】目的 探索玻璃化冷冻对乳鼠卵巢 *Dnmt1* 和 *Grb10* mRNA 和蛋白表达的影响。**方法** 26 只出生 10 d 的 C57BL/6 雌性小鼠, 每只乳鼠双侧卵巢均分成新鲜组和玻璃化冷冻组。免疫组织化学法检测 *Dnmt1* 蛋白在玻璃化冻融前、后卵巢组织卵泡中的表达变化; 通过 qRT-PCR 检测 *Dnmt1* 和 *Grb10* mRNA 在玻璃化冻融前、后卵巢组织中的表达变化; 通过 Western blotting 方法检测 *Dnmt1* 和 *Grb10* 蛋白在玻璃化冻融前后卵巢组织中的表达变化。**结果** *Dnmt1* 在玻璃化冻融前、后的乳鼠卵巢组织各级卵泡的颗粒细胞及卵母细胞胞核表达。与新鲜组相比, 玻璃化冷冻组卵巢内 *Dnmt1* 蛋白和 mRNA 表达水平平均显著下调($P < 0.05$); *Grb10* 蛋白和 mRNA 表达水平平均显著上调($P < 0.05$)。**结论** 玻璃化冷冻复苏过程导致卵巢内 *Dnmt1* 表达降低, 使印记基因 *Grb10* 过表达, 可能使配子糖代谢性表观遗传信息紊乱的风险增加。

【关键词】 乳鼠卵巢; 玻璃化冷冻; DNA 甲基转移酶 1 (*Dnmt1*); 生长因子受体结合蛋白 10 (*Grb10*)

基金项目: 国家自然科学基金项目(81460243, 81460644); 宁夏回族自治区科技攻关项目(2012ZYS239); 宁夏医科大学生殖与遗传基础与临床创新团队项目(FGCT201505)

· 实验研究 ·

Study on effect of DNA methyltransferase 1 (*Dnmt1*) and growth factor receptor-binding protein 10 (*Grb10*) genes on cryopreservation juvenil mouse ovaries by vitrification

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【Abstract】 Objective To study the effect of vitrified-warmed juvenil mouse ovaries on the mRNA and protein expression of DNA methyltransferase 1 (*Dnmt1*) and growth factor receptor-binding protein 10 (*Grb10*). **Methods** Twenty-six 10-day-old C57BL/6 female mice were used in this experiment. The bilateral ovaries of each juvenile mouse were divided into two groups: the fresh group and the vitrified-warmed group. The expression of *Dnmt1* in follicles embedding was detected by immunohistochemistry. The expressions of *Dnmt1* and *Grb10* protein in fresh group and vitrified-warmed group were detected by Western blotting technology. The expressions of *Dnmt1* and *Grb10* mRNA in fresh group and vitrified-warmed group were detected by qRT-PCR. **Results** *Dnmt1* protein all appeared in the nucleus of granulosa cell and oocytes of fresh and vitrified-warmed juvenil mouse ovaries. The expressions of *Dnmt1* protein and mRNA in vitrified-warmed juvenil mouse ovaries were remarkably decreased than that of fresh group ($P < 0.05$). The expressions of *Grb10* protein and mRNA in vitrified-warmed juvenil mouse ovaries were remarkably increased than that of fresh group ($P < 0.05$). **Conclusion** Decreased expression of *Dnmt1* in juvenil mouse ovaries induced by vitrified-warmed process may result in the overexpression of *Grb10*, which may lead to an increased risk of glucose metabolism epigenetic defects in the oocyte.

【Key words】 Juvenil mouse ovaries; Vitrification; DNA methyltransferase 1 (*Dnmt1*); Growth factor receptor-binding protein 10 (*Grb10*)

Fund program: National Foundation of Natural Science of China (81460243, 81460644); Science and Technology Project of Ningxia (2012ZYS239); Reproductive and Genetic Basis and Clinical Innovation Project of Ningxia Medical University (FGCT201505)

· 实验研究 ·

大鼠子宫内膜损伤模型的建立与评价

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.008

【摘要】目的 建立大鼠子宫内膜损伤模型, 并对模型进行评价。**方法** 选取 SD 大鼠 26 只, 每只大鼠左侧子宫作为模型组, 右侧子宫作为对照组, 左侧子宫宫腔注入体积分数 95% 乙醇 0.3~0.5 mL 持续 5 min 建立模型, 右侧子宫注入等量生理盐水, 术后 2 个动情周期后切除子宫, 观察子宫内膜形态学改变, 子宫内膜厚度及内膜损伤程度评分, 用免疫组织化学方法检测子宫内膜表面中角蛋白(cytokeratin, CK18)、波形蛋白(vimentin)、整合素 $\beta 3$ (integrin $\beta 3$) 的表达。**结果** 与对照组相比, 模型组子宫质硬、粗细不均, 形态不规则, 宫壁厚薄不均, HE 染色子宫内膜上皮细胞排列紊乱, 间质充血、水肿, 腺体数量减少, 测得子宫内膜厚度明显变薄, 损伤程度明显升高, 免疫组织化学测得模型组 CK18、波形蛋白、整合素 $\beta 3$ 的表达明显低于对照组, 差异有统计学意义($P < 0.05$)。**结论** 体积分数 95% 乙醇可成功、有效地建立大鼠子宫内膜损伤的动物模型。

【关键词】 动物模型; 大鼠; 乙醇; 子宫内膜损伤

· 实验研究 ·

Establishment and evaluation of rat model of endometrial injury Han Hua, Xue Gai, Tian Fei, Yan Ping, Wang Xiaona

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【Abstract】 Objective To establish and evaluate a rat model of endometrial injury. **Methods** Totally 26 SD rats were selected, and left uterus of each rat was selected as the model group, the right uterus was selected as control group. The left uterine cavity was injected with 95% alcohol for 5 min, the right uterus was injected with normal saline. The uterus was removed after two estrogen cycles. The changes of endometrial morphology, the endometrial thickness, score the degree of endometrial injury were observed, and the expression of cytokeratin (CK18), vimentin, integrin $\beta 3$ were detected by immunohistochemical method. **Results** Compared with control group, the uterine of model group was hard, uneven thickness, irregular shape, and uneven thickness of uterine wall. HE staining showed that the endometrial epithelial cells of model group arranged disorder, interstitial congestion, edema, decreased the number of glands. The endometrial thickness of model group was significantly thinner, and the degree of injury was significantly increased. The expression of CK18, vimentin and integrin $\beta 3$ in the model group was significantly lower than that in control group, and the difference was statistically significant ($P < 0.05$). **Conclusion** The animal model of rat endometrial injury can be established successfully and effectively by 95% alcohol.

【Key words】 Animal model; Rat; Alcohol; Endometrial injury

孕二烯酮固体分散体微丸的工艺研究

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.009

【摘要】目的 旨在提高孕激素孕二烯酮(gestodene, GSD)口服固体制剂的溶出度和含量均匀度。**方法** 以羟丙基- β -环糊精(HP- β -CD)和聚氧乙烯蓖麻油(Cremophor EL)为载体材料, 采用流化床技术制备GSD固体分散体微丸。以微丸上药率和溶出度为主要评价指标, 单因素考察了药物载体比例、乙醇浓度和上药液体积等处方因素及进风风量、进风温度和雾化压力等工艺因素对微丸性质的影响; 并采用二因素五水平星点设计效应面法优化处方制备工艺。**结果** 药物载体比例和上药液体积对 GSD 固体分散体微丸的性质影响较显著。处方最优区域为药物载体比例 1 : 25~1 : 35, 上药液体积 25~55 mL。**结论** 星点设计优化制备的 GSD 固体分散体微丸 5 min 溶出度达 90% 以上。该优化区域与单因素考察结果基本一致, 表明该法具有较好的可靠性和预测性。

【关键词】 孕二烯酮(GSD); 流化床; 固体分散体; 微丸; 星点设计

基金项目: 上海市计划生育科学研究所青年科技创新基金(Q2013-3)

· 实验研究 ·

Process study of gestodene solid dispersion pellets Zeng Jia, Pu Tianlei, Huang Ting, Xue Man, Li Fang, Pan Feng, Hou Anguo, Feng Linglin, Chen Jianxing

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【Abstract】 Objective To improve dissolution and content uniformity of oral gestodene (GSD) solid formulations. **Methods** GSD solid dispersion pellets were prepared by the fluid-bed coating technology with hydroxypropyl- β -cyclodextrin (HP- β -CD) and Cremophor EL as carrier. The criteria to evaluate the pellets included the drug loading efficiency assay and dissolution rate. The influence of formulation factors such as the ratio of drug to carrier, the concentration of ethanol and the volume of solution were investigated based on single factor test. In addition, the process factors included the air volume, temperature and atomization pressure were investigated as well. Central composite design and response surface methodology (CCD-RSM) with two factors and five levels was used to optimize the formulation and process of GSD pellets. **Results** The ratio of drug and the volume of the solution had a significant effect on the properties of the pellets. The optimal region of formulation was 1 : 25-1 : 35 for the ratio of drug to carrier, and 25-55 mL for the volume of drug solution. **Conclusion** The dissolution of GSD solid dispersion pellets prepared by CCD-RSM optimized formulation and process was more than 90% in 5 min. The result of optimization region was consistent with the results of single factor test, which indicated that CCD-RSM has a good predictability and reliability.

【Key words】 Gestodene (GSD); Fluid bed; Solid dispersion; Pellets; Central composite design

Fund program: Youth Science and Technology Innovation Fund of Shanghai Institute of Planned Parenthood Research (Q2013-3)

使用促性腺激素释放激素激动剂过程中妊娠的临床分析

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.010

【摘要】目的 研究在控制性超促排卵(COH)使用促性腺激素释放激素激动剂(GnRH-a)过程中妊娠的临床结局。**方法** 回顾性分析我中心 4 988 例体外受精或卵母细胞质内单精子显微注射受精与胚胎移植(IVF/ICSI-ET)长方案超促排卵使用 GnRH-a 过程中妊娠的 21 例临床资料。**结果** 在使用 GnRH-a 过程中 21 例妊娠, 妊娠发生率为 0.42%(21/4 988)。其中宫内孕 19 例, 2 例足月分娩健康新生儿; 8 例妊娠中; 7 例自然流产, 自然流产发生率为 33.33%(7/21); 2 例异位妊娠, 异位妊娠发生率为 9.52%(2/21); 2 例失访。**结论** 在 COH 中使用 GnRH-a 可导致意外妊娠, GnRH-a 对妊娠结果无不良影响、无胎儿致畸作用, 且有良好的妊娠结局。

【关键词】 促性腺激素释放激素激动剂(GnRH-a); 妊娠; 自然流产

· 临床报道 ·

Analysis of pregnancies exposed to gonadotropin-releasing hormone agonist during controlled ovarian hyperstimulations Li Jing, Wang Xingling, Qiao Hongwu

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【Abstract】 Objective To evaluate the outcomes of human gestations exposed in very early stage to gonadotropin-releasing hormone agonist (GnRH-a) during controlled ovarian hyperstimulation (COH). **Methods** The clinical data including the pregnancy outcomes of 21 cases were retrospectively analyzed, who were exposed to GnRH-a at very early stage of their pregnancies, among 4 988 *in vitro* fertilization or intracytoplasmic sperm injection and embryo transfer (IVF/ICSI-ET) cycles. **Results** Twenty-one cases of pregnancies were found during their COH, the incidence was 0.42%. Among 21 cases, 19 were intrauterine gestation, 2 produced 2 normal babies, 8 were carrying on and 7 pregnancies were aborted, 2 were ectopic pregnancies with a rate of 9.52% (2/21), and 2 pregnancies lost following up. **Conclusion** There appear to be no increased risk of birth defects or pregnancy wastage in pregnancies exposed to daily low-dose GnRH-a therapy in early of gestation .

【Key words】 Gonadotropin-releasing hormone agonist (GnRH-a); Pregnancy; Spontaneous abortion

· 临床报道 ·

生活事件对试管婴儿辅助助孕临床妊娠率的影响

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.011

【摘要】目的 探讨生活事件对试管婴儿辅助助孕临床妊娠率的影响。**方法** 收集接受试管婴儿治疗不孕患者的一般情况、内膜厚度、内膜形态等生理因素以及生活事件, 并追踪记录其临床妊娠结局。采用多因素 Logistic 回归, 分析生活事件对妊娠结局的影响。**结果** 生活事件、内膜形态、内膜厚度、移植优质胚胎比例是妊娠率的重要影响因素。主观生活事件(SE)增加 1 分, 成功妊娠的几率为原来的 0.895; 客观生活事件(OE)中第 2 类应激强度(OE2)增加 1 分, 成功妊娠的几率为原来的 0.894。**结论** 不孕患者经历的生活事件过多, 应激水平过高, 不利于妊娠。

【关键词】 生活事件; 子宫内膜; 胚胎质量; 体外受精 - 胚胎移植

· 临床报道 ·

Effect of life events on the clinical pregnancy rate in *in vitro* fertilization-embryo transfer women

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【Abstract】 Objective To investigate the effect of life events on the clinical pregnancy rate of *in vitro* fertilization-embryo transfer (IVF-ET) women. **Methods** The basic information, the physiological factors such as the thickness and the shape of endometrium and life events were collected. Then the pregnancy outcomes were recorded. The data were analyzed by multiple factors logistic regression analysis. **Results** Endometrial morphology, endometrial thickness, the ratio of high-quality embryos transferred and life events were important factors for the clinical pregnancy rate. 1-point increase in subjective life events (SE) can lead the clinical pregnancy rate to decrease to about 0.895 of the original. With 1-point increase in the second objective life events (OE2), the probability of a successful pregnancy would reduce to 0.894 of the original. **Conclusion** More life events and high stress level are negative factors that are not conducive to pregnancy.

【Key words】 Life events; Endometrium; Embryo quality; *In vitro* fertilization-embryo transfer (IVF-ET)

· 循证医学 ·

补肾健脾法治疗少弱精子症临床有效性的 Meta 分析

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.012

【摘要】目的 系统评价补肾健脾法治疗少弱精子症的临床疗效。**方法** 检索中国期刊全文数据库(CNKI)、维普资源系统(VIP)以及万方数据库, 均从建库至 2014 年 12 月, 收集数据库中有关补肾健脾法治疗少弱精子症的随机对照试验(RCT)。制定严格的文献纳入标准和排除标准及检索策略, 并对纳入文献进行方法学质量评价, 采用 Revman5.3 软件进行统计分析。**结果** 纳入 8 个 RCT, 共 838 例, 根据对照不同分为单纯补肾组和西药组, 但经过仔细筛选后, 其中 2 项研究组间样本量差异较大, 故针对单纯补肾组做敏感性分析。**Meta 分析显示**, 补肾健脾组在提高精子浓度及 a 级精子百分率方面优于单纯补肾组及西药组 ($P < 0.05$)。**结论** 在提高精子浓度及 a 级精子百分率方面, 健脾补肾法有优于单纯补肾法及西药治疗的趋势, 但所纳入文献质量不高, 部分数据差异性过大, 且敏感性分析证实本研究结果稳定性不高, 因此有待更为设计严谨、合理的 RCT 来证实补肾健脾法的临床疗效。

【关键词】 补肾健脾; 少弱精子症; 随机对照试验(RCT); Meta 分析

基金项目: 天津市卫计委中医中西医结合课题(2015106)

A Meta analysis on the effects of the treatment for oligoasthenozoospermia by the method of tonifying kidney and spleen Zhao Yu, Ouyang Bin, Geng Qiang, Gan Yongkang

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【Abstract】 Objective To review the clinical effectiveness of the method of tonifying kidney and spleen on oligoasthenozoospermia by systematic review. **Methods** All randomized controlled trials (RCTs) which relate to the treatment on oligoasthenozoospermia by the method of tonifying kidney and spleen were searched from CNKI, VIP and Wanfang database, from database foundation to 2014.12. Strict inclusion criteria, search strategy and exclusion criteria about literature were established, methodological evaluation was taken on included literature in addition. All statistical analysis was performed with RevMan 5.0 software. **Results** Eight RCTs meeting the criteria were selected, including 838 cases totally, they were divided into the simple tonifying kidney subgroup and the western medicine subgroup according to the different reference drugs, but we found that there were two studies among included studies which there was a significant discrepancy between each group, therefore we made a sensitivity analysis in allusion to the simple tonifying kidney subgroup. Meta analysis showed that the clinical efficiency of tonifying kidney and spleen group were superior to the simple tonifying kidney group ($P<0.05$) and the western medicine group ($P<0.05$) on improving the sperm concentration and the percentage of a level sperm. **Conclusion** There was the tendency about the clinical efficacy of the method of tonifying kidney and spleen was superior to the simple tonifying kidney and the western medicine on improving the sperm concentration and the percentage of a level sperm, all included literatures were low in quality, there were large differences among the several data, and sensitivity analysis suggest the result of our study has a low stability, therefore we look forward to more rigorous and professional RCTs in order to prove the clinical efficacy of the method of tonifying kidney and spleen.

【Key words】 Tonifying kidney and spleen; Oligoasthenozoospermia; Randomized controlled trial (RCT); Meta analysis

Fund program: the subject in Chinese Medicine and Integrated Traditional and Western Medicines of Tianjin Municipal Health and Family Planning Commission (2015106)

卵母细胞线粒体移植疗法的基础研究及临床应用进展

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.013

【摘要】 线粒体是卵子的质量标志, 其数量和功能异常导致卵细胞及胚胎质量低下。卵母细胞线粒体移植技术有望成为改善卵母细胞及胚胎质量和提高辅助生殖成功率新的治疗手段。本文就线粒体在卵母细胞成熟及着床前胚胎发育中的作用及线粒体移植疗法的最新研究进展进行了综述。

【关键词】 线粒体移植; 线粒体异常; 不孕不育; 辅助生殖

基金项目: 国家自然科学基金(重点项目)(批准号: 81430026); 上海市科委基础研究领域项目(批准号: 16JC1404700)和江苏省科技计划项目(批准号: BM2014052)

Progress of basic research and clinical application on oocyte mitochondria transplantation therapy

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【Abstract】 Mitochondrion is a critical indicator of oocyte quality. The abnormality in mitochondrial quantity and function always leads to low quality of oocytes or embryos in assisted reproduction. The oocyte mitochondria transplantation has become a new method for improving the oocyte/embryo quality and increasing the success rate in assisted reproduction treatment. In this review, we explain the roles that mitochondria play in oocyte maturation and embryo development during preimplantation, and highlight the future application of mitochondria transplantation therapy in assisted reproduction treatment.

【Key words】 Mitochondrial transplantation; Mitochondrial abnormalities; Infertility; Assisted reproduction treatment

Fund program: National Natural Science Foundation of China (Key Program 81430026); Science and Technology Commission of Shanghai Municipality (16JC1404700) and Jiangsu Science and Technology Planning Project (BM2014052)

颗粒细胞与卵母细胞自噬对卵泡发育和闭锁的调控

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.014

【摘要】 卵巢早衰(POF)、多囊卵巢综合征(PCOS)等卵巢生殖疾病发病率日益增高, 已经成为严重危害女性身心健康的疾病。目前研究表明卵巢生殖疾病中各时期卵泡的闭锁由颗粒细胞(GCs)和卵母细胞凋亡引起, 随着对卵泡发育中分子机制研究的深入, 揭示了 GCs 和卵母细胞的凋亡并不是导致卵泡闭锁的唯一因素, 自噬的诱导同时参与了卵泡的生长、闭锁和分化, 介导了颗粒细胞和卵母细胞的程序性死亡。本文就当前 GCs 与卵母细胞自噬的诱导进行系统回顾, 总结卵巢卵泡发育和闭锁过程中细胞自噬机制, 旨在为后续研究提供参考。

【关键词】 卵泡发育与闭锁; 自噬; 颗粒细胞(GCs); 卵母细胞

基金项目: 国家自然科学基金项目(81303123); 湖南省教育厅创新平台项目(15K090); 国家级大学生创新创业训练计划项目(201510541002); 湖南省大学生研究性学习与创新性实验计划项目(2015-202,219, 2016-281)

Progress in mechanism of granulosa cell and oocyte autophagy in ovarian follicular growth and atresia

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【Abstract】 The incidence of ovarian reproductive diseases such as premature ovarian failure and polycystic ovary syndrome are increasing, which has become the diseases that harm to female physical and psychological health seriously. Current studies suggest that follicular atresia in ovarian reproductive diseases has a great relationship with apoptosis of oocyte and granulosa cell. However, with the deepening of the study, researchers find that apoptosis is not the only factor that cause follicular atresia. Induced autophagy can also act on human granulosa cell and oocyte so as to participate in the follicular growth, atresia and differentiation. Therefore, we make a review of current researches of oocyte and granulosa cell apoptosis and summarize autophagy mechanism in ovarian follicular growth and atresia in order to provide a reference information for future research.

【Key words】 Follicular growth and atresia; Autophagy; Granulosa cell; Oocyte

Fund program: National Natural Science Foundation of China (81303123); Hunan Provincial Department of Education Innovation Platform Project (15K090); National Undergraduate Training Programs for Innovation and Entrepreneurship (201510541002); Research-based Learning and Innovative Experimental Project of College Students of Hunan Province (2015-202,219; 2016-281)

腺苷及其受体在生殖系统的研究进展

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DOI: 10.3760/cma.j.issn.2096-2916.2017.02.00

【摘要】腺苷是一种内生性核苷,由腺嘌呤和核酸糖组成,广泛分布于哺乳动物各个组织中。细胞内的前体腺嘌呤核苷酸如三磷酸腺苷(adenosine 5'-triphosphate, ATP)、二磷酸腺苷(adenosine 5'-diphosphate, ADP)和单磷酸腺苷(adenosine 5'-monophosphate, AMP)等经核苷磷酸水解酶和 5'-外核苷酸酶水解为腺苷,并经腺苷转运载体分泌于胞外,腺苷及其受体在体内发挥着至关重要的作用,如在神经系统和呼吸系统中等。在生殖系统中腺苷及其受体与阴茎勃起功能和精子活力有关;调节睾丸细胞分泌;在输精管中发挥神经样调节作用;调节附睾和前列腺平滑肌收缩;参与调节卵巢细胞内分泌和卵母细胞成熟;调节输卵管细毛运动和子宫平滑肌舒缩;调节胎盘血流量等。本文就腺苷及其受体在生殖系统的表达及作用作一综述。

【关键词】腺苷;腺苷受体;生殖系统

Advances of adenosine and adenosine receptors in reproductive system Xing Genbao, Cheng Houyang, Wu Qiongfang

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【Abstract】 Adenosine is a kind of endogenous nucleoside, which is consisted of adenine and ribose and ubiquitous in mammalian tissues. The precursor of adenine nucleotide in the cell, such as adenosine 5'-triphosphate (ATP), adenosine 5'-diphosphate (ADP) and adenosine 5'-triphosphate (AMP), hydrolyzed to adenosine by nucleoside phosphate hydrolysis enzyme and 5'-ectonucleotidase. And they play a crucial role by adenosine receptors in extracellular, such as nervous and respiratory system. In reproductive system, adenosine and adenosine receptors are related to the erection of penis and the capacitation of sperm; regulating the secretion of testis cell; regulating never-mediated contraction of vas deferens, epididymis and prostate; regulating the secretion of ovary cell, the maturation of oocyte, the activity of tubal cilia, the diastolic and retractile function of uterine smooth muscle and the blood flow of placenta. Therefore, this article will expound the expression and function of adenosine and adenosine receptors in the reproductive system.

【Key words】 Adenosine; Adenosine receptor; Reproductive system

组蛋白甲基化修饰与哺乳动物生殖

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DOI: 10.3760/cma.j.issn.2096-2916.2017.01.016

【摘要】 组蛋白甲基化是表观遗传学研究的热点和难点, 研究表明, 组蛋白甲基化修饰在哺乳动物配子的发生、胚胎着床和发育以及胎盘的发育过程中有着特殊作用, 这些修饰可影响基因的表达, 从而动态调节哺乳动物生殖过程中许多生物学进程。但目前研究的组蛋白甲基化修饰相关基因位点多而杂, 且多停留在广泛的探索和描述这一层面, 这些甲基化修饰发生动态变化的机制, 以及相互作用等一系列过程还有待深入研究。

【关键词】 组蛋白甲基化; 组蛋白去甲基化; 生殖; 哺乳动物; 配子发生, 胚胎发育

基金项目: 湖北省自然科学基金(2015CFB543); 湖北医药学院中青年创新团队(2014CXX03);
湖北医药学院重点学科建设资助项目

· 综述 ·

Histone methylation modification and mammalian reproduction Liao Huiqi, Zhang Changjun, Diao Honglu.
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【Abstract】 Histone methylation has been the focus and difficulty of epigenetic research. Previous studies have shown that histone methylation modification plays an important role in mammalian gametogenesis, embryo implantation and development, and placenta development. These modifications may affect gene expression to dynamically regulate mammalian reproduction in many biological processes. But the study of histone methylation related many and complex gene loci, and stays in a wide range of exploration and description. The mechanism of these methylation changes dynamically, and the interaction of a series of processes to be further studied.

【Key words】 Histone methylation; Histone demethylation; Reproduction; Mammals; Gametogenesis; Embryonic development

Fund program: The Natural Science Foundation of Hubei Province of China (2015CFB543); The Foundation for Innovation Research Team of Hubei University of Medicine (2014CXX03); The Key Disciplinary Project of Hubei University of Medicine