

• 实验研究 •

党参炔苷对雌性大鼠卵巢颗粒细胞增殖分化的影响及其作用机制

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【摘要】目的: 探讨党参炔苷对雌性大鼠卵巢颗粒细胞(GCs)增殖分化的影响及其作用机制。方法: 观察大鼠卵巢GCs的生长状况, 通过CCK-8实验和细胞雌二醇(E₂)分泌量测定确定细胞体外培养时间以及最佳给药浓度, 进一步观察党参炔苷对体外培养的卵巢GCs增殖分化及分泌功能的影响, 并通过阻断GCs中的cAMP信号通路、ERK 1/2信号通路、p38MAPK信号通路和钙离子(Ca²⁺)通道来探究其对卵巢GCs功能影响的作用机制。结果: 确定24 h为GCs最佳共培养时间; 党参炔苷浓度为3.125 mg/L时, 能显著增加E₂的分泌量($P < 0.01$), 对细胞3 β -羟基固醇脱氢酶(3 β -HSD)含量和CCK-8实验吸光度(D)值均无影响($P > 0.05$)。cAMP通路抑制剂H89和p38MAPK通路抑制剂SB203580能够抑制党参炔苷对卵巢GCs分泌E₂的促进作用($P < 0.01$)。结论: 党参炔苷可有效促进卵巢GCs分泌E₂, 且不影响细胞的增殖和正常分化; 党参炔苷可能通过cAMP和p38MAPK信号通路来促进GCs对E₂的合成及分泌。

关键词: 党参炔苷; 卵巢; 颗粒细胞(GCs); 雌二醇(E₂); 信号通路

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Effects of lobetyolin on ovarian granulosa cells' proliferation, differentiation and the mechanism

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【ABSTRACT】 Objective: To investigate the effects of lobetyolin on proliferation, differentiation of ovarian granulosa cells (GCs) and its mechanism. **Methods:** Ovarian GCs' growth, tested by cell counting experiment (CCK-8) and the estradiol (E₂)'s secretion was determined to determine the time of rats' ovarian GCs cultured *in vitro* and the optimal dosing concentration so that to research the effect of lobetyolin on ovarian GCs' proliferation, differentiation and secretion function. At the same time, by blocking cAMP signal pathways, ERK1/2 signal pathways, p38MAPK signal pathways and calcium ion channels, the mechanism of the influence on ovarian GCs' secretion function was explored. **Results:** Twenty-four hours was the optimal culture time for cells. When the concentration of lobetyolin was 3.125 mg/L, it significantly increased the secretion of E₂ ($P < 0.01$). Compared with the control, the absorbance values of CCK-8 experiments and the content of 3 β -HSD were not significantly different ($P > 0.05$). H89 and SB203580 could resist the effect of lobetyolin on GCs ($P < 0.01$). **Conclusion:** Lobetyolin could promote ovarian GCs to secrete E₂, possibly through the cAMP and p38MAPK signal pathways. At the same time, lobetyolin didn't affect the GCs' differentiation and proliferation.

Key words: lobetyolin; ovarian; granulosa cells (GCs); estradiol (E₂); signal pathway

多囊卵巢综合征大鼠卵巢组织脑源性神经营养因子及其受体TrkB的表达

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【摘要】目的: 研究来曲唑(LE)诱导的多囊卵巢综合征(PCOS)大鼠模型卵巢组织中脑源性神经营养因子(BDNF)及其受体——TrkB蛋白的表达及对卵泡发育的影响。方法: 应用LE诱导大鼠PCOS模型, 放射免疫法测定大鼠血清性激素水平, 酶联免疫法(ELISA)测定血清细胞色素P450芳香化酶(P450arom)含量; HE染色观察卵巢组织学变化; 免疫印迹法检测BDNF及其TrkB蛋白在卵巢组织中的表达; 免疫组织化学法检测TrkB在各级卵泡中的表达差异。结果: 与对照组比较, 模型组(T)、黄体生成素(LH)、卵泡刺激素(FSH)浓度显著增高, 雌二醇(E₂)、孕酮(P)浓度显著降低, 血清P450arom含量显著降低; 差异均有统计学意义($P < 0.05$)。模型组卵巢体积增大, 囊状扩张卵泡明显增多, 黄体数量明显减少。模型组卵巢组织中BDNF蛋白表达水平显著高于对照组($P < 0.01$), 而TrkB在卵巢组织中的表达有2个片段, 即fl-TrkB和tr-TrkB。fl-TrkB在模型组的表达明显高于对照组, 而tr-TrkB的表达明显低于对照组, 差异均有统计学意义($P < 0.01$)。TrkB在各级卵泡卵母细胞上的表达呈递减趋势; 模型组大窦前卵泡的颗粒细胞中的表达强度高于对照组, 在卵母细胞中的表达强度低于对照组($P < 0.05$); 在模型组囊状卵泡颗粒细胞中的表达强度远高于对照组窦状卵泡颗粒细胞的表达, 且差异有统计学意义($P < 0.05$)。结论: LE诱导的PCOS大鼠模型是研究PCOS病理机制的一种理想的动物模型, 卵巢组织内BDNF/TrkB表达水平的变化可能与PCOS卵泡发育障碍相关。

关键词: 多囊卵巢综合征(PCOS); 疾病模型; 动物; 脑源性神经营养因子(BDNF); 受体; TrkB

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Expression of brain-derived neurotrophic factor and its receptor TrkB in ovarian tissues of polycystic ovary syndrome rats

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【ABSTRACT】 Objective: To study the expression of brain-derived neurotrophic factor (BDNF) and its receptor TrkB protein in ovary tissues of letrozole-induced polycystic ovary syndrome (PCOS) rats and to realize their impacts on follicle developments. **Methods:** The rat models with PCOS were established by using letrozole induced. Serum sex hormones were measured by radioimmunoassay and serum P450arom protein was measured by ELISA. Changes of ovaries were observed by hematein-eosin staining. Protein levels of BDNF and its TrkB receptor in ovary were detected by Western blotting and expression of TrkB in follicles at different developmental stages were estimated by immunohistochemistry. **Results:** The levels of serum testosterone (T), luteinizing hormone (LH) and follicle-stimulating hormone (FSH) in model group were markedly increased compared with control group, while estradiol (E₂), progesterone (P) and P450arom showed a considerable reduction ($P < 0.05$). Rats in model group showed increased ovary volume and high incidence of cystic follicles, together with decreased number of corpora lutea. And the protein level of BDNF was significantly higher in model group than that of control group ($P < 0.01$). The expression of TrkB protein split into two forms: fl-TrkB and tr-TrkB. fl-TrkB protein expression was higher in model group than in control group, while the tr-TrkB protein expression was the opposite. Those differences were statistically significant ($P < 0.01$). Expression of TrkB protein decreased in oocytes of different levels of developing follicles. TrkB protein expression dramatically increased in granulosa cells of preantral follicles but notably decreased in oocytes, comparing with control group. And the expression was significantly higher in granulosa cells of cystic follicles in model group than that of antral follicles in control group. The differences were statistically significant ($P < 0.05$). **Conclusion:** The rat model is proved to be an ideal PCOS animal model to study the pathophysiology mechanisms of PCOS. The changes of different expression levels of BDNF/TrkB may be associated with follicular developmental disorders in letrozole-induced PCOS rats.

Key words: polycystic ovary syndrome (PCOS); disease models; animal; brain-derived neurotrophic factor (BDNF); receptor; TrkB

• 临床研究 •

在低卵巢储备患者中灵活的促性腺激素拮抗剂方案优于标准拮抗剂方案

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【摘要】目的: 评估灵活、低剂量促性腺激素释放激素拮抗剂(GnRH-A)方案和标准的 GnRH-A 方案在卵巢储备功能减退患者体外受精-胚胎移植(IVF-ET)/ 卵胞质单精子注射(ICSI)的超促排卵过程中的应用价值。方法: 回顾性分析 108 例卵巢储备功能减退患者 IVF-ET 周期, 其中 58 例使用灵活而低剂量 GnRH-A 方案(A组), 50 例使用标准 GnRH-A 方案(B组)。比较各组实验室指标和临床结果。结果: A组 GnRH-A 使用天数、剂量均少于 B组($P<0.05$); A组 hCG 注射日 E_2 峰值、优质胚胎数、新鲜胚胎移植周期临床妊娠率、累积临床妊娠率均高于 B组($P<0.05$); 但促排卵天数、Gn用量、内膜厚度、获卵数、成熟卵数、受精率、新鲜胚胎移植周期移植胚胎数、冻融胚胎移植周期临床妊娠率、累积着床率组间无统计学差异($P>0.05$)。结论: 与标准 GnRH-A 方案相比, 灵活而低剂量的 GnRH-A 使用方案可获得更多的优质胚胎并降低 GnRH-A 的使用总剂量和天数, 提高累积临床妊娠率和胚胎着床率。

关键词: 体外受精-胚胎移植(IVF-ET); 促性腺激素释放激素拮抗剂(GnRH-A); 卵巢低反应; 累积妊娠率

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Flexible gonadotropin-releasing hormone antagonist protocol is superior to the standard GnRH-A protocol in patients with diminished ovarian reserve in IVF-ET

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【ABSTRACT】 Objective: To evaluate the application of flexible gonadotrophin-releasing hormone antagonist (GnRH-A) and the standard GnRH-A protocol in patients with diminished ovarian reserve in IVF-ET. **Methods:** Clinical data of 108 patients undergoing IVF were retrospectively analyzed. Among them 58 patients were allocated to the flexible GnRH-A (group A) and 50 patients to the standard GnRH-A protocol (group B). The laboratory indexes and clinical outcomes were compared between the two groups. **Results:** Duration and dosage of GnRH-A in group A were lower than that in group B. The E₂ level on hCG injection day, No. of good-quality embryos, clinical pregnancy rate per fresh embryo transfer cycle, accumulative pregnancy rate per embryo transfer in group A were higher than those in group B ($P < 0.05$). No significant differences were observed in ovarian stimulation days, Gn used dosage, endometrial thickness, No. of oocytes retrieved and mature oocytes retrieved, fertilization rate, No. of transferred embryos in fresh ET cycle, clinical pregnancy rate per frozen-thawed embryos transfer cycle, accumulative implantation rate between the two groups ($P > 0.05$). **Conclusion:** Compared with standard GnRH-A protocol, there are more higher-quality embryos in the flexible GnRH-A protocol than those in patients with diminished ovarian reserve. At the same time, there are lower duration and dosage of GnRH-A in the flexible GnRH-A protocol compared with the standard GnRH-A protocol. Moreover, the clinical pregnancy of the flexible GnRH-A protocol were improved compared with the standard GnRH-A protocol.

Key words: IVF-ET; GnRH-A; diminished ovarian reserve; accumulative pregnancy rate

新鲜和冻融胚胎移植周期异位妊娠发生率及危险因素分析

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【摘要】目的: 分析新鲜周期和冻融周期异位妊娠(EP)的发生情况及相关危险因素。方法: 回顾分析接受助孕治疗的患者 12 209 例, 共 19 144 个周期的临床资料, 其中新鲜周期移植 13 170 个、冻融周期 5 974 个, 分析输卵管因素、盆腔手术史、EP 手术史、子宫内膜异位症(EMs)及多囊卵巢综合征(PCOS)等因素对异位妊娠发生的影响。结果: 新鲜移植周期临床妊娠率显著高于冻融周期(50.12% vs 40.16%), 新鲜周期组中 IVF-ET 周期 EP 发生率显著高于 ICSI-ET 组(3.54% vs 1.76%), 差异均有统计学意义($P < 0.01$)。冻融周期异位妊娠率高于新鲜周期组(3.37% vs 3.19%), 冻融周期组中激素替代周期 EP 率高于自然周期(3.48% vs 3.25%), 但差异均无统计学意义($P > 0.05$)。新鲜周期组内, 输卵管因素、盆腔手术史、EP 手术史均可使 EP 率较之未合并该危险因素者显著增加(依次为 3.51% vs 2.61%; 4.57% vs 2.86%; 4.99% vs 3.00%), 差异有统计学意义($P < 0.05$)。冻融周期组内, 输卵管因素、盆腔手术史、EP 手术史亦均可使 EP 率较之未合并该危险因素者显著增加(依次为 4.25% vs 1.69%; 7.64% vs 2.67%; 11.03% vs 2.88%), 差异有统计学意义($P < 0.05$)。新鲜周期和冻融周期组内比较, 有 EMs 者较之无 EMs 者, 有 PCOS 者较之无 PCOS 者, EP 发生率的差异均无统计学意义($P > 0.05$)。另将 19 144 个周期分别依据有无 EMs 或 PCOS 分组进行比较, 有 EMs 者 EP 率高于无 EMs 者(1.92% vs 1.51%; $P > 0.05$), 有 PCOS 者异位妊娠率高于无 PCOS 者(3.54% vs 1.40%; $P < 0.01$)。结论: 冻融周期胚胎移植后 EP 率略高于新鲜周期; 输卵管因素、盆腔手术史、EP 手术史是助孕治疗患者 EP 发生的主要危险因素, 合并 EMs 或 PCOS 也是 EP 发生的重要因素。

关键词: 异位妊娠(EP); 新鲜周期; 冻融周期; 胚胎移植(ET); 危险因素

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A retrospective study on the incidence and risk factors of ectopic pregnancy between fresh and frozen-thawed embryo transfer cycles

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【ABSTRACT】 Objective: To analyze the incidence and risk factors of ectopic pregnancy (EP) in fresh embryo transfer cycles compared with frozen-thawed embryo transfer (FET) cycles. **Methods:** Totally 12 209 cases underwent assisted reproductive technology (ART) were analyzed retrospectively. Among them, 13 170 cases underwent fresh embryo transfer while 5 974 cases underwent FET. The influence of the tubal factors, endometriosis (EMs), polycystic ovary syndrome (PCOS), previous EP and previous pelvic surgeries on the incidence of EP was studied. **Results:** The rate of clinical pregnancy of the fresh ET cycles was significantly higher than that of FET cycles (50.12% vs 40.16%), and the incidence of EP in IVF pregnancies in comparison to ICSI pregnancies was significantly increased in the fresh cycles (3.54% vs 1.76%), there were statistically significant differences between the two groups ($P<0.01$). The EP rate in the FET group was higher than that in the fresh ET group (3.37% vs 3.19%), and the EP rate in the hormone replacement FET cycles was higher than that in the natural FET cycles (3.48% vs 3.25%), but no significant statistically difference was found. In the fresh ET group, the rates of EP following tubal factors, previous EP and previous pelvic surgeries were higher compared with that in women without the risk factor (successively was 3.51% vs 2.61%, 4.57% vs 2.86%, 4.99% vs 3.00%, respectively), there were statistically significant differences ($P<0.05$). In the FET group, the rates of EP following tubal factors, previous EP and previous pelvic surgeries were higher compared with those in women without the risk factor (successively was 4.25% vs 1.69%, 7.64% vs 2.67%, 11.03% vs 2.88%, respectively), there were also statistically significant differences ($P<0.05$). Within the fresh ET group and the FET group, the ectopic rates between women with and without EMs were similar, and women with PCOS were also at a higher risk of EP than women without PCOS. However, when the study population was grouped as women with and without EMs or PCOS, the incidence of EP in the EMs group was higher than that in non-EMs group (1.92% vs 1.51%; $P>0.05$), and the EP rate in women with PCOS was significantly higher than that in women without PCOS (3.54% vs 1.40%; $P<0.01$). **Conclusion:** The EP rate in the FET group was higher than that in the fresh ET group, but no significant difference was found. The principal risk factors for EP after assisted conception, including tubal factors, previous EP and previous pelvic surgeries were demonstrated in our study. In addition, our study showed that a maternal history of EMs or PCOS may affect the risk of EP after assisted conception.

Key words: ectopic pregnancy (EP); fresh cycle; frozen-thawed cycle; embryo transfer (ET); risk factor

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复方玄驹胶囊联合小剂量雌激素治疗肾阳虚型薄型子宫内膜不孕症患者的临床疗效观察

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【摘要】目的: 探讨复方玄驹胶囊联合小剂量雌激素治疗肾阳虚型薄型子宫内膜不孕症患者的临床疗效。方法: 选择hCG注射日或排卵日子宫内膜厚度 <7 mm的肾阳虚型薄型子宫内膜不孕症患者, 按数字随机原则分组: A组($n=30$), 来曲唑(LE)/hMG/+ 戊酸雌二醇+复方玄驹胶囊治疗; B组($n=30$), LE/hMG/+ 戊酸雌二醇治疗。观察患者的卵泡发育、hCG注射日或排卵日子宫内膜厚度及分型, 统计临床妊娠率及生化妊娠率等指标。结果: 卵泡平均直径、平均卵泡数目及直径 ≥ 18 mm的卵泡数组间比较差异均无统计学意义($P>0.05$); A组子宫内膜厚度明显高于B组(9.73 ± 1.35 mm vs 8.04 ± 1.23 mm), 差异有统计学意义($P<0.05$); 治疗后子宫内膜厚度 ≥ 7 mm患者比例及子宫内膜分型的构成比组间均无统计学差异($P>0.05$)。A、B组临床妊娠率(23.33% vs 6.67%)、生化妊娠率(3.33% vs 6.67%)亦无统计学差异($P>0.05$)。结论: 复方玄驹胶囊联合小剂量雌激素治疗肾阳虚型薄型子宫内膜不孕症, 可在一定程度提高子宫内膜厚度, 间接地提高子宫内膜容受性。

关键词: 复方玄驹胶囊; 肾阳虚; 不孕症; 子宫内膜厚度; 子宫内膜容受性

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Effect of compound XuanJu capsule in combination with small dose of estrogen on the treatment of infertility patients with kidney Yang deficiency type thin endometrium

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【ABSTRACT】 Objective: To explore the clinical curative effect of compound XuanJu capsule in combination with small dose of estrogen on treatment of infertility patients with kidney Yang deficiency type thin endometrium. **Methods:** Infertile patients with kidney Yang deficiency and thin endometrium <7 mm on the day of hCG injection or oviposit day were collected. According to the principle of digital random grouping, the patients were divided into group A ($n=30$) who received letrozole (LE)/hMG/+ estradiol valerate+ compound XuanJu capsule and group B ($n=30$) who received LE/hMG/+ estradiol valerate. Follicular growth, endometrial thickness and classification, clinical pregnancy rate and biochemical pregnancy rate on the day of hCG injection or oviposit day were compared between the two groups. **Results:** Average diameter of follicles (19.25 ± 2.25 mm vs 19.42 ± 1.75 mm), average number of follicles (1.2 ± 0.4 vs 1.1 ± 0.3) and the percentage of follicles in diameter ≥ 18 mm (77.78% vs 75.76%) were not statistically significant ($P > 0.05$). Endometrial thickness in group A was obviously more than group B (9.73 ± 1.35 mm vs 8.04 ± 1.23 mm, $P < 0.05$). The patient ratio of endometrial thickness ≥ 7 mm after treatment and the ratio of endometrial parting between the two groups were not statistically different ($P > 0.05$). The clinical pregnancy rate (23.33% vs 6.67%) and the biochemical pregnancy rate (3.33% vs 6.67%) between group A and group B were also not statistically different ($P > 0.05$). **Conclusion:** Compound XuanJu capsule in combination with small dose of estrogen for treating infertility patients with kidney Yang deficiency type thin endometrium can improve the endometrial thickness to a certain extent, and indirectly improve the receptivity of endometrium.

Key words: compound XuanJu capsule; kidney Yang deficiency; infertility; endometrial thickness; endometrial receptivity

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IVF/ICSI-ET中三维超声对子宫内膜容受性的评价价值

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【摘要】目的: 探讨三维超声在体外受精/卵胞质内单精子显微注射-胚胎移植(IVF/ICSI-ET)中对子宫内膜容受性的评价价值。方法: 回顾性分析422例IVF/ICSI助孕患者hCG注射日子宫内膜三维超声参数, 将妊娠组与非妊娠组资料进行比较, 并进一步根据年龄(<35 岁, ≥ 35 岁)、内膜体积(<2.5 ml, ≥ 2.5 ml)分层, 分析各项超声参数与妊娠结局的关系。结果: 妊娠组234例, 非妊娠组188例, 妊娠组年龄、不孕年限显著低于非妊娠组($P < 0.05$), 内膜体积显著大于非妊娠组($P < 0.05$), Logistic回归显示年龄及内膜体积对妊娠有预测价值。年龄 <35 岁时, 妊娠组与非妊娠组患者一般资料及各项超声参数均无统计学差异($P > 0.05$); 年龄 ≥ 35 岁时, 妊娠组内膜体积显著大于非妊娠组($P < 0.05$), 一般资料及其它超声参数无统计学差异($P > 0.05$)。与内膜体积 <2.5 ml组相比, 内膜体积 ≥ 2.5 ml组临床妊娠率及胚胎种植率均显著增加($P < 0.05$); 患者体质指数(BMI)显著降低($P < 0.05$), 内膜厚度及内膜螺旋动脉血流参数收缩期峰值血流速度(PSV)、舒张期峰值血流速度(EDV)、搏动指数(PI)、阻力指数(RI)、血流指数(FI)均显著增加($P < 0.05$)。结论: IVF/ICSI-ET中子宫内膜hCG注射日三维超声测定对内膜容受性的评价具有一定作用, 内膜体积对妊娠有预测作用, 高龄患者可根据hCG注射日内膜体积慎重选择ET时机, 提高妊娠率, 避免有限的优质胚胎浪费。

关键词: 体外受精/卵胞质内单精子显微注射-胚胎移植(IVF/ICSI-ET); 超声; 三维多普勒; 子宫内膜容受性

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Role of three-dimensional ultrasound in evaluating endometrial receptivity during IVF/ICSI-ET treatment

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【ABSTRACT】 Objective: To explore the value of endometrial parameters by three-dimensional ultrasonography and power Doppler angiography (3D US-PDA) in assessing endometrial receptivity during *in vitro* fertilization/ intracytoplasmic sperm injection-embryo transfer (IVF/ICSI-ET). **Methods:** Three-dimensional ultrasound parameters of 422 women measures on hCG injection day were retrospectively analyzed. These variables in pregnant and non-pregnant patients were compared. Stratified analysis was carried out according to age (<35 years old, ≥ 35 years old) and endometrial volume (<2.5 ml, ≥ 2.5 ml), respectively. **Results:** There were 234 women in pregnant group and 188 in non-pregnant group. Compared with the non-pregnant group, the pregnant group exhibited significantly lower age, infertility duration, and significantly higher endometrial volume, while the two groups did not significantly differ in demographic data and other ultrasound parameters. In patients <35 years old, there was no significant difference of patient general condition or endometrial ultrasound parameters between pregnant and non-pregnant groups, while significantly higher endometrial volume was exhibited in pregnant group when patients ≥ 35 years old. Compared with patients with endometrial volume <2.5 ml, those with endometrial volume ≥ 2.5 ml exhibited significantly higher clinical pregnancy rate and implantation rate, and significantly higher endometrial thickness, endometrial spiral arteries peak systolic velocity (PSV), end diastolic velocity (EDV), pulsatility index (PI), resistance index (RI), flow index (FI), while significantly lower body mass index (BMI) at the same time. **Conclusion:** In IVF/ICSI-ET cycles, three-dimensional ultrasound measurement on hCG injection day is useful for evaluating endometrial receptivity. Endometrial volume favours pregnancy, according to which aged women can make decision on ET to improve chance of pregnancy, and avoid wasting limited good-quality embryos.

Key words: *in vitro* fertilization/intracytoplasmic sperm injection-embryo transfer (IVF/ICSI-ET); ultrasound; three-dimensional Doppler; endometrial receptivity

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• 循证医学 •

不同剂量来曲唑对多囊卵巢综合征患者 疗效的 Meta 分析

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【摘要】目的: 系统评价不同剂量的来曲唑(LE)对多囊卵巢综合征(PCOS)患者的疗效, 为临床用药提供一定的依据。方法: 计算机检索中国知网、维普、万方、Pubmed、The Cochrane Library、ScienceDirect 等数据库, 提取出相关的随机对照试验, 对各文献进行质量评价后, 采用 RevMan5.3 软件分析患者的促排卵结局和妊娠结局。结果: ① 共有 9 篇文献纳入本研究中, 包含 816 例 PCOS 患者, 共计 816 个周期; ② Meta 分析显示 2.5 mg LE 与 5.0 mg LE 在排卵率、流产率、不良事件(多胎妊娠和卵巢过度刺激综合征)发生率及hCG注射日子宫内膜厚度之间的差异均无统计学意义($P>0.05$), 而 5.0 mg 组的妊娠率高于 2.5 mg 组, 差异具有统计学意义($RR=0.58, P=0.001$); 5.0 mg 组与 7.5 mg 组在排卵率、周期妊娠率、不良事件发生率、hCG 注射日子宫内膜厚度之间的差异均无统计学意义($P>0.05$)。结论: 在临床上对有生育要求的 PCOS 患者可使用 LE 促排卵时, 5.0 mg 剂量有着更高的妊娠率, 值得在临床上推广使用。对于效果不佳者, 进一步提高剂量并未显示有提高疗效的作用。

关键词: 多囊卵巢综合征(PCOS); 来曲唑(LE); 芳香化酶抑制剂; 促排卵; Meta 分析

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A Meta-analysis of two different dosages of letrozole in women with polycystic ovary syndrome

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【ABSTRACT】 Objective: To evaluate the effectiveness and safety of three different dosage of letrozole (LE) for ovulation induction in patients with polycystic ovary syndrome (PCOS). **Methods:** Pubmed, Cochrane Library, ScienceDirect, CNKI, Wanfang, VIP were searched for relevant randomized controlled trials (RCTs). Two reviewers selected trials and assessed trial quality independently. Meta-analysis was performed by Revman 5.3 software with the fix-effects model or random-effects model according to the heterogeneity. **Results:** Nine relevant RCTs studies involving 816 women and 816 cycles were included. There were no significant differences in the ovulation rate, the miscarriage rate, adverse event incidence, and endometrial thickness on the day of hCG administration between 2.5 mg group and 5.0 mg group. But the pregnancy rate per cycle was significant higher in 5.0 mg group than in 2.5 mg group. There were no significant differences in the ovulation rate, the pregnancy rate per cycle, adverse event incidence, and the endometrial thickness on the day of hCG administration between 5.0 mg group and 7.5 mg group. **Conclusion:** It appears that 5.0 mg LE is a preferable dosage for ovulation induction in infertile women with PCOS because of its high pregnancy rate.

Key words: polycystic ovary syndrome (PCOS); letrozole (LE); aromatase inhibitor; ovulation; Meta-analysis

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• 综述 •

建立胚胎与子宫内膜相互作用 体外模型的研究进展

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【摘要】 胚胎与子宫内膜协调合作对胚胎正常着床至关重要。由于伦理与法律的限制, 胚胎着床相关机制的研究进展缓慢, 尽管已有许多动物体内实验, 但是其研究结果并不能完全应用于人类。近几年来, 体外模型的建立给我们提供了一个新的途径。本文将研究胚胎与子宫内膜相互作用的体外模型分为三类, 包括二维模型、三维模型以及迁移与侵袭实验模型。这些模型不仅可以用来研究胚胎-子宫内膜在早期着床位点的对话及其分子机制, 还可以用来研究早期胚胎发育的过程和生殖内分泌紊乱的病理生理机制。

关键词: 体外模型; 胚胎; 子宫内膜; 蜕膜化

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Research progress on *in vitro* model for the study of embryo and endometrium interactions

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【ABSTRACT】 The coordination between embryos and endometrium is essential to the normal embryo implantation. Some animal models have been used to study the embryo implantation, but the results could not be *fully applied to human*. In recent years, *in vitro* model provides us with a new approach. In this article, the *in vitro* model is divided into three categories, including 2D model, 3D model and the migration and invasion model. These models can not only be used to study the embryo-endometrial dialogue at the implantation sites in the early stages of implantation, but can also be used to study the early embryonic development and the pathophysiology of reproductive endocrine disorder.

Key words: *in vitro* model; embryo; endometrium; decidua

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晚期糖基化终产物在女性生殖中的研究进展

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【摘要】晚期糖基化终产物(advanced glycation end products, AGEs)是体内蛋白质与还原糖在无酶条件下发生反应后的产物。AGEs与机体衰老密切相关,病理情况下AGEs通过直接影响卵巢功能,以及通过参与多囊卵巢综合征(PCOS)、子宫内膜异位症(EMs)的发生发展,对女性生殖产生重要影响。

关键词:晚期糖基化终产物(AGEs); 卵巢衰老; 多囊卵巢综合征(PCOS); 子宫内膜异位症(EMs); 女性生殖

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Research progress of advanced glycation and products in female reproduction

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【ABSTRACT】 Advanced glycation end-products (AGEs) are reactive cross-linked molecules formed by non-enzymatic reactions of reducing sugars with amino groups of proteins, lipids or nucleic acids. Formation and accumulation of AGE occurs during normal aging. AGEs not only participates in the development of ovary dysfunction, but also in closely related to polycystic ovary syndrome (PCOS), endometriosis (EMs), and be proposed to play an important role in diminished female reproduction.

Key words: advanced glycation end-products (AGEs); ovary dysfunction; polycystic ovary syndrome (PCOS); endometriosis (EMs); female reproduction

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卵巢过度刺激综合征并发血栓栓塞

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【摘要】 在体外受精(*in vitro* fertilization, IVF)周期中, 血栓栓塞是卵巢过度刺激综合征(ovarian hyperstimulation syndrome, OHSS)中最严重的并发症, 而促性腺激素是诱发血栓栓塞的最主要原因。血栓标志分子的作用存在争议。在IVF周期中, 血栓的发病率为0.11%, 致死率为1/45 000~ 1/500 000。血栓通常发生在静脉(67%~81%), 多为头颈部, 动脉血栓(19%~33%)多发于脑部。精确识别OHSS高危患者, 对其选择恰当的促排卵方案和促性腺激素剂量, 并结合冷冻全部卵子或胚胎后行冻融胚胎移植, 将显著降低高危患者血栓栓塞的风险。一旦血栓栓塞被早期确诊, 使用抗凝剂肝素进行预防就显得尤为关键。但是, 减少卵巢刺激后血栓形成风险的最有效方法是识别OHSS高危患者并及时采取预防措施。本文分析促排卵过程中发生OHSS患者血栓形成的发病机理及临床表现, 并为此提出实用的预防和治疗方案。

关键词: 血栓栓塞; 卵巢过度刺激综合征(OHSS); 体外受精(IVF)

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Ovarian hyperstimulation syndrome complicating with thrombosis

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【ABSTRACT】 Among *in vitro* fertilization (IVF) cycle, thrombosis is the most serious complication of ovarian hyperstimulation syndrome (OHSS), and gonadotrophin is the most important reason of thrombosis induction. The influence of thrombophilia on OHSS and thrombotic complications of ovarian stimulation is very controversial. The incidence of thromboembolism in women undergoing IVF cycle was 0.11%, and the mortality rate was 1/45 000–1/500 000. Thrombosis generally occurred in vein (67%–81%), mostly in neck and head, arterial thrombosis (19%–33%) mostly occurred in head. The risk of thrombosis can be reduced significantly for patients through exactly identifying these high-risk women with OHSS, and then to select one proper ovulation-inducing programme and gonadotrophin dosage following a freeze-all strategy with subsequent replacement of embryos or oocytes in the context of a frozen-thawed embryo transfer (FET). Once early diagnosis is established, it is crucial to use an anticoagulant treatment with heparin proceeded with thromboprophylaxis. However, identification of high-risk patients with OHSS and adoption of preventive measures are the best means in reducing the risk of thrombosis after ovarian stimulation. The aim of this review is to analyse the pathophysiology and complications of thrombosis in conjunction with OHSS following ovulation induction and to suggest practical guidelines for the prevention and treatment.

Key words: thromboembolism; ovarian hyperstimulation syndrome (OHSS); *in vitro* fertilization (IVF)

• 临床报道 •

夫精人工授精过程中的精液质量评估

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【摘要】目的: 分析精液中处理前前向运动精子总数(TPMSC)与处理后前向运动精子总数(PTMSC)的相关性。方法: 收集426对不孕夫妇共563个IUI周期的临床资料, 统计分析TPMSC与正常形态精子百分率、精子浓度、活力、PTMSC的相关性, 按照TPMSC不同分成3个区间组: $<10 \times 10^6$ 组(A组)、 $(10\sim 19) \times 10^6$ 组(B组)、 $\geq 20 \times 10^6$ 组(C组), 比较这3组的前向运动精子(PMS)回收率和周期临床妊娠率。结果: TPMSC与正常形态精子百分率、精子浓度、活力、PTMSC有显著相关性($P < 0.001$); 不同TPMSC数量组处理后PMS回收率无统计学差异($P > 0.05$); 周期临床妊娠率分别为6.82%、17.59%、16.35%, A组周期妊娠率明显低于B组、C组($P < 0.05$), B、C组间差异无统计学意义($P > 0.05$)。结论: TPMSC是反映精液质量的重要综合参数, 是夫精人工授精选择和评估预后的重要参考指标。

关键词: 处理前前向运动精子总数(TPMSC); 宫腔内人工授精(IUI); 临床妊娠率

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Evaluating the sperm quality of husband during intrauterine insemination

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【ABSTRACT】 Objective: To explore the relationship between the total progressive motile sperm count (TPMSC) and the processed total motile sperm count (PTMSC). **Methods:** The clinical data of 426 infertile couples who underwent 563 IUI cycles were collected. The relevance among TPMSC, the percentage of sperm normal form, sperm concentration, motility and PTMSC was analyzed. According to TPMSC, the patients were divided into 3 groups: $<10 \times 10^6$ (group A), $(10-19) \times 10^6$ (group B), and $\geq 20 \times 10^6$ (group C). The difference of the recovery rates of progressive motile sperm (PMS) and pregnancy rate per cycle among the subgroups was then compared by statistical analysis. **Results:** TPMSC was significantly correlated with the percentage of sperm normal forms, sperm concentration, motility and PTMSC ($P < 0.001$). There was no statistically significant difference in recovery rates of PMS among the three groups ($P > 0.05$). The pregnancy rates of groups A, B and C were 6.82%, 17.59% and 16.35%, respectively, the pregnancy rate per cycle in group A was significantly lower than that in groups B and C ($P < 0.05$), but no significant difference was found between group B and group C ($P > 0.05$). **Conclusion:** TPMSC is an important comprehensive parameter. It is an important reference to choose cases for IUI and to assess pregnancy rates of IUI.

Key words: total progressive motile sperm count (TPMSC); intrauterine insemination (IUI);
clinical pregnancy rate

宫腔镜在绝经后困难取宫内节育器中的 临床应用——附121例临床分析

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【摘要】目的: 探讨绝经后宫内节育器(IUD)取出困难的原因及宫腔镜在绝经后困难取IUD中的临床应用价值。方法: 收集121例绝经后IUD困难取出妇女宫腔镜下取器的资料进行分析。结果: 121例妇女在宫腔镜下均取器成功。术前应用超声诊断IUD嵌顿符合率为60%, 灵敏度为62%, 阳性似然比为1.24。另外, 绝经 \leq 1年组妇女IUD嵌顿数明显低于绝经1~2年及 $>$ 2年组($P<0.05$)。置器年限 \leq 10年组IUD嵌顿数明显低于置器10~20年及 $>$ 20年组($P<0.05$)。结论: IUD嵌顿是绝经后取器困难的主要原因。宫腔镜能准确了解IUD宫腔内情况, 很大程度上能提高取器成功率, 降低手术风险, 是一种安全、有效的取器方法。

关键词: 宫腔镜; 绝经后; 宫内节育器(IUD); 困难取器

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Hysteroscopic management of intrauterine devices (IUD) with difficult removal in postmenopausal women: a retrospective study with 121 cases

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【ABSTRACT】 Objective: To investigate the reasons that are responsible for difficult removal of intrauterine device (IUD) and the efficacy of hysteroscopy in its management in postmenopausal women. **Methods:** A retrospective study was carried out with 121 postmenopausal patients who experienced a difficult removal of an IUD, and underwent hysteroscopy for the removal of an IUD. Analysis of the IUD removals database retrieving data concerning hysteroscopies was performed for occult IUD removal in postmenopausal women. **Results:** All the 121 patients (100%) had successful removal of IUD. The diagnostic coincidence rates, sensitivity and positive likelihood ratio of preoperative ultrasonography were high (60%, 62% and 1.24, respectively) for diagnosis of type of IUD incarceration. In addition, the percentage of IUD incarceration was positively associated with a longer menopausal time span (MTS) or duration of IUD insertion (DII): significantly higher IUD incarceration rate was observed in the subgroup with a MTS \leq 1 year than those with a MTS $>$ 1 year ($P < 0.05$), or in the subgroup with a DII \leq 10 years than those with a DII $>$ 10 years ($P < 0.05$). **Conclusion:** Difficult removal was associated with incarceration and fracture of IUD, intrauterine adhesion, neoplasm in uterine cavity, as well as vaginal and cervical atrophy. Hysteroscopy is effective and safe in removing IUD.

Key words: hysteroscopy; postmenopausal; intrauterine device (IUD); difficult removal of IUD

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66例阴道发育异常的临床分析

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【摘要】目的: 探讨不同类型阴道发育异常的临床特点及诊治策略。方法: 回顾分析收治的66例阴道发育异常患者的临床资料。结果: 66例阴道发育异常患者中, 先天性无阴道21例(31.9%), 阴道闭锁1例(1.5%), 阴道横膈9例(13.6%), 阴道纵膈17例(25.8%), 阴道斜膈9例(13.6%), 处女膜闭锁9例(13.6%), 临床表现主要为原发性闭经、周期性腹痛、性生活困难。阴道发育异常患者常合并其他器官畸形。无阴道患者中有1例采用模具扩张, 其余65例患者均采用手术治疗, 治疗效果满意。结论: 66例阴道发育异常以先天性无阴道多见, 手术为主要的治疗方案, 疗效可靠。

关键词: 阴道发育异常; 先天性无阴道; 阴道隔膜; 处女膜闭锁; 阴道闭锁

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Clinical analysis of 66 cases with vaginal dysplasia

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【ABSTRACT】 Objective: To investigate the clinical features of different vaginal abnormalities and treatment strategy. **Methods:** The clinical data of 66 cases with vaginal abnormalities were analyzed. **Results:** Of the 66 cases with vaginal abnormalities, 21 cases were vaginal agenesis, 1 case was stesia of vagina, 9 cases were oblique vaginal septum, 9 cases were transverse vaginal septum, and 9 cases were imperforate hymen. The major clinical symptoms were primary amenorrhea, cyclic abdominal pain and difficulty in sexual life. The vaginal abnormalities often occur in combination with abnormalities of other organs. Of the 66 cases, besides 1 case was treated with tool, all the 65 cases underwent surgery and got good effects. **Conclusion:** Congenital absence of vagina is the most frequent aplasia of various congenital aplasia. Surgery is the primary treatment way and the clinical effects are favorable.

Key words: vaginal heteroplasia; congenital absence of the vagina; contraceptive diaphragm; hymenal atresia imperforated hymen; vaginal atresia