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多囊卵巢综合征评估和管理的国际循证指南的建议

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【摘要】研究问题 结合已有的最佳证据、临床经验和患者意愿, 制定多囊卵巢综合征 (PCOS) 女性的评估标准和管理建议。**归纳总结** 本次国际循证指南, 包括 166 项推荐意见和实践要点, 阐述了需优先解决的问题, 以求统一诊疗流程, 改善 PCOS 女性的个人感受和健康状态。**已知事项** 既往的指南缺乏严谨的循证标准, 或没有结合患者自身感受及参考国际多学科的观点, 不能与时俱进。目前的 PCOS 诊断仍存在争议, 评估标准和治疗管理不一致。PCOS 女性的需求未得到充分满足, 证据和临床实践仍存在差距。**研究设计、规模、持续时间** 国际循证指南以证据为基础, 制定过程涉及专业学会、多学科专家和各阶段 PCOS 患者的直接参与。遵循指南研究与评价 (AGREE)II, 结合广泛的证据, 在证据质量、可行性、可接受性、成本、实施和最终推荐强度方面, 对建议、评估、开发和评价 (GRADE) 框架进行了分级。**参与者 / 材料、设置、方法** 成员包括六大洲国际咨询和项目委员会, 5 个指南制定小组以及患者和翻译委员会。大量的医学专业人员和患者的参与提升了指南的范围和优先事项。参与的国际多个学科专家包括儿科、内分泌学、妇科、初级保健、生殖内分泌、产科、精神病学、心理学、营养学、运动生理学、公共卫生等专家, 以及患者群体、项目管理、证据分析和翻译专家。71 个国家的 37 个协会和组织通过 15 个月的 20 场面对面国际会议进行了合作, 提出了 60 个优先考虑的临床问题, 涉及 40 个系统回顾研究和 20 个叙述性综述。五个指南制定小组根据国际反馈和同行评审对循证建议进行了修改, 后经组内一致协商表决, 制定、批准了该建议。**主要成果和改进的内容** PCOS 评估和管理中, 证据质量一般较低或中等。该指南提供了 31 个循证建议, 59 项临床共识建议和 76 项临床实践要点, 所有这些都与 PCOS 的评估和管理有关。本指南的主要变化包括: ①大大提高个体诊断标准, 重点是提高诊断的准确性; ②减少不必要的检测; ③更加注重教育、改变生活方式、情感健康和生活质量; ④提出一个以循证医疗为前提, 患者花费少、安全性高的生育管理方式。**局限性** 目前总体证据通常是低至中等质量, 低质量临床证据较多, 但也容易被忽视, 我们需要对这些低质量临床证据进行更深入的研究, 尤其是在改进 PCOS 的特异性诊断方面。同时需要结合区域医疗系统, 完善不同区域医疗体系并提供医疗指导, 以及翻译相关指南, 进行各个区域普及。**研究结果的广泛含义** 在最佳循证证据、多学科专家建议和患者意愿的基础上, PCOS 评估和管理的国际指南为临床医师提供了清晰的最佳建议。该指南目前计划多方面发布和转载, 以及多种语言的翻译、全球普及宣传。**研究资助 / 竞争利益 (S)** 该指南主要由澳大利亚国家健康与医学研究委员会 (NHMRC) 资助, 该委员会与欧洲人类生殖与胚胎学会 (ESHRE) 和美国生殖医学学会提供合作支持。指南制定小组成员未收取任何费用。差旅费用由赞助组织承担。根据 NHMRC 指导流程, 利益冲突在项目开始时就已公布, 并在指南制定过程中更新, 相关细节可在 <https://www.monash.edu/medicine/sphpm/mchri/pcos> 获取。该指南由医务工作者和相关学会联盟及患者组成的协会进行同行评审, 根据 AGREEII 标准进行独立评估并进行方法学评估。该指南得到了指南制定小组所有成员的同意, 并得到了 NHMRC 的批准。

【关键词】 多囊卵巢综合征; 指南; 循证; 评估; 管理; 证据分级

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卵巢低反应患者微刺激促排卵取卵后继续黄体期促排卵的临床效果观察

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【摘要】 目的 探讨接受体外受精/卵胞质内单精子显微注射-胚胎移植(IVF/ICSI-ET)的卵巢低反应(POR)患者在卵泡期微刺激方案促排卵取卵后继续行黄体期促排卵的临床效果。方法 回顾性分析 2016 年 6 月—2017 年 12 月期间在郑州大学第三附属医院行 IVF/ICSI-ET 助孕的卵巢低反应患者,共 144 例。所有患者均接受卵泡期微刺激方案促排卵(微刺激组),取卵后继续进行黄体期促排卵(黄体期组)。根据男方精液情况选择 IVF 或 ICSI,所得可利用胚胎全部冷冻,下一周期行冻融胚胎移植,比较 2 种促排卵方案的临床和实验室指标及移植结局。结果 ①黄体期组人绒毛膜促性腺激素(hCG)注射日雌二醇水平 $[(1\ 043.28 \pm 744.77)\text{ ng/L}]$ 和孕酮水平 $[(6.29 \pm 0.73)\text{ IU/L}]$ 均较微刺激组 $[(672.47 \pm 586.67)\text{ ng/L}, (1.21 \pm 0.94)\text{ IU/L}]$ 高, hCG 注射日促黄体生成素(LH)水平 $[(3.74 \pm 2.93)\text{ IU/L}]$ 较微刺激组 $[(8.45 \pm 5.81)\text{ IU/L}]$ 低,差异均有统计学意义(P 均 <0.001);黄体期组和微刺激组的促性腺激素(Gn)用量 $[(2\ 117.85 \pm 1\ 047.26)\text{ IU}, (2\ 213.64 \pm 877.03)\text{ IU}]$ 和促排卵时间 $[(7.76 \pm 3.56)\text{ d}, (8.03 \pm 2.63)\text{ d}]$ 差异无统计学意义($P>0.05$)。②微刺激组和黄体期组中的获卵数均呈非正态分布,获卵数为 0~1、2~3、 >3 的例数分别为 70 比 45、53 比 64、21 比 35。应用非参数秩和检验,结果显示黄体期组的获卵数较微刺激组高,差异有统计学意义($P=0.022$)。可移植胚胎数 $[1.0(0.0,2.0)$ 比 $1.0(0.0,2.0)]$ 、双原核(2PN)受精率(70.7%, 65.3%)、优质胚胎率(40.3%, 38.9%)、未获卵率(13.9%, 16.0%)及提前排卵率(6.3%, 9.0%) 在两种方案中差异均无统计学意义($P>0.05$)。③两组患者的移植胚胎数、临床妊娠率和流产率组间比较差异均无统计学意义($P>0.05$)。结论 POR 患者在卵泡期微刺激促排卵后继续行黄体期促排卵可获得更多的卵子,增加可利用胚胎数,提高累积妊娠率。此外,黄体期促排卵方案的 hCG 注射日 LH 水平较低,说明黄体期的高孕激素水平起到了明显的降调节作用,是一种安全可行的促排卵方案。

【关键词】 受精, 体外; 卵胞质内单精子显微注射; 卵巢低反应; 微刺激促排卵; 黄体期促排卵; 胚胎移植

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Clinical effect of ovarian stimulation during continuous luteal phase after mini-stimulation protocol in patients with poor ovarian response

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【Abstract】 Objective To observe the effect of ovarian stimulation during continuous luteal phase after mini-stimulation protocol in patients with poor ovarian response (POR) receiving *in vitro* fertilization/intracytoplasmic sperm injection-embryo transfer (IVF/ICSI-ET). **Methods** A study of 144 cases following IVF/ICSI-ET was performed in the Third Affiliated Hospital of Zhengzhou University from June 2016 to December 2017. All patients received mini-stimulation regimen (mini-stimulation group). After ovulation, continuous luteal phase stimulation was performed (luteal phase group). According to the semen condition of the male, IVF or ICSI was selected. All the available embryos could be frozen and transferred in the next cycle. The clinical and laboratory indicators and pregnancy outcomes of the two ovulation-promoting protocols were compared. **Results** 1) In the luteal phase group, the estradiol [$(1\ 043.28 \pm 744.77)$ ng/L vs. (672.47 ± 586.67) ng/L] and progesterone levels [(6.29 ± 0.73) IU/L vs. (1.21 ± 0.94) IU/L] on the human chorionic gonadotropin (hCG) injection day were higher than those of the mini-stimulation group, and the luteinizing hormone (LH) levels on the hCG injection day [(3.74 ± 2.93) IU/L vs. (8.45 ± 5.81) IU/L] were lower than those of the mini-stimulation group, differences were statistically significant ($P < 0.001$). Between luteal phase group and mini-stimulation group, there were no significant differences in gonadotropin (Gn) used dosage [$(2\ 117.85 \pm 1\ 047.26)$ IU/L vs. $(2\ 213.64 \pm 877.03)$ IU/L] and ovulation days [(7.76 ± 3.56) d vs. (8.03 ± 2.63) d] ($P > 0.05$). 2) The number of retrieved oocytes in the mini-stimulation group and the luteal phase group presented a non-normal distribution, which was expressed by the median and quartile spacing. The number of retrieved oocytes were divided into 0-1, 2-3, >3, and the corresponding cases were 70 vs. 45, 53 vs. 64, 21 vs. 35. Non-parametric rank sum test was applied, and the results showed that the number of retrieved oocytes in the luteal phase group was higher than that in the mini-stimulation group, and the difference was statistically significant ($P = 0.022$). Available embryos [$1.0(0.0, 2.0)$ vs. $1.0(0.0, 2.0)$], two pronucleus (2PN) fertilization rate (70.7% vs. 65.3%), high-quality embryo rate (40.3% vs. 38.9%), premature ovulation rate (6.3% vs. 9.0%) were not statistically different between the two protocols ($P > 0.05$). 3) The number of transplanted embryos (1.53 ± 0.51 vs. 1.57 ± 0.54), the clinical pregnancy rate (18.4% vs. 28.3%) and the miscarriage rate (22.2% vs. 23.5%) were not statistically different between the two groups ($P > 0.05$). **Conclusion** Patients with POR can obtain more oocytes, increase available embryos and promote cumulative pregnancy rate. Moreover, the lower level of LH on the hCG injection day during luteal phase ovarian stimulation indicated that the high progesterone level in the luteal phase plays a significant role in down regulation, which is a safe and feasible program.

【Key words】 Fertilization *in vitro*; Intracytoplasmic sperm injection; Poor ovarian response; Mini-stimulation; Luteal phase ovarian stimulation; Embryo transfer

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盆腔子宫内膜异位症合并不孕患者腹腔镜术后体外受精 - 胚胎移植妊娠结局影响因素

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【摘要】目的 探讨盆腔子宫内膜异位症 (EMS) 合并不孕患者行腹腔镜手术治疗后影响体外受精 - 胚胎移植 (IVF-ET) 妊娠结局的因素。**方法** 回顾性队列研究分析 2015 年 1 月—2017 年 10 月期间在河南省生殖医院首次接受 IVF-ET 助孕且有腹腔镜下盆腔 EMS 手术史的 256 例不孕患者的临床资料, 采用单因素分析和 logistic 多因素分析影响术后 IVF 累积妊娠结局的因素。**结果** ①共 163 例患者获得临床妊娠, 累积妊娠率为 61.51%。单因素分析显示, 基础窦卵泡计数 (AFC)、美国生殖学会 EMS 的分期 (r-AFS)、EMS 生育指数 (EFI) 评分、手术时年龄、促排卵方案、获卵数、可利用胚胎数与术后累积妊娠率相关 ($P < 0.05$); ② Logistic 多因素回归分析结果显示, 年龄 ≥ 40 岁 ($OR=0.188, P=0.013$)、r-AFS 分期高 ($OR=0.211, P=0.001$)、EFI 评分 ≤ 8 分 ($OR=0.302, P=0.002$)、双侧卵巢 EMS 异位囊肿 ($OR=0.427, P=0.048$)、手术距离 IVF 时间 >3 年 ($OR=0.513, P=0.041$) 为 IVF 累积妊娠率的危险性因素, 降调节促排卵方案 ($OR=6.489, P=0.001$) 和可移植胚胎数多 ($OR=1.729, P=0.001$) 为 IVF 累积妊娠率的保护性因素; ③术后随着时间延长, IVF 累积妊娠率逐渐下降 ($P=0.041$)。**结论** 高龄 (≥ 40 岁)、r-AFS 分期高、双侧卵巢 EMS 异位囊肿、手术距离 IVF 时间长、非降调节促排卵方案和可移植胚胎数少是 EMS 合并不孕患者腹腔镜术后 IVF 累积妊娠率的独立危险因素。综合评估病情, 缩短腹腔镜手术后助孕等待时间, 可以获得更理想的 IVF-ET 妊娠结局。

【关键词】 子宫内膜异位症; 腹腔镜; 生殖技术, 辅助; 妊娠结局; 不孕

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Influencing factor analysis of pregnancy outcomes in *in vitro* fertilization-embryo transfer in patients with pelvic endometriosis associated infertility after laparoscopy treatment

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【Abstract】 Objective To analyze the multiple factors related to *in vitro* fertilization-embryo transfer (IVF-ET) pregnancy outcomes in infertile patients with pelvic endometriosis (EMS) after the laparoscopic surgery. **Methods** We collected 265 cases of EMS with infertility that received the first IVF-ET treatment after laparoscopic in Henan Reproductive Hospital from Jan. 2015 to Oct. 2017. Univariate analysis and multivariate logistic regression analysis were used to analyze the factors related to IVF cumulative pregnancy rate after surgery. **Results** 1) Totally 165 cases were pregnant and the overall cumulative clinical pregnancy rate was 61.51%. Univariate analysis showed that antral follicle count (AFC), revised American Fertility Society (r-AFS) stage, endometriosis fertility index (EFI) score, age of the surgery, excision of ovary EMS in operation, time interval between surgery and IVF, controlled ovulation stimulation (COS) protocol, oocytes retrieved, available embryos were related to IVF cumulative pregnancy rate ($P < 0.05$). 2) The logistic multivariate regression analysis showed that age ≥ 40 years ($OR = 0.188, P = 0.013$), high level r-AFS stage ($OR = 0.211, P = 0.001$), EFI score less than 8 ($OR = 0.302, P = 0.002$), dual ovary EMS excision ($OR = 0.427, P = 0.048$), time interval > 3 years ($OR = 0.513, P = 0.041$) were the risk factors of postoperative IVF cumulative pregnancy rate. Downregulation protocol ($OR = 6.489, P = 0.001$), and more available embryos ($OR = 1.729, P = 0.001$) were the protective factors of postoperative IVF cumulative pregnancy rate. 3) The rate of IVF cumulative pregnancy rate was decreased gradually with the postoperative time ($P = 0.041$). **Conclusion** The advanced age, high level r-AFS stage, low EFI score, long time interval, non-downregulation protocol, less available embryos are important risk factors affecting postoperative IVF pregnancy outcomes in those patients with EMS after laparoscopic treatment. Comprehensive assessment and shortening the waiting time after laparoscopic surgery can achieve a more ideal IVF-ET pregnancy outcome.

【Key words】 Endometriosis; Laparoscopy; Reproductive techniques, assisted; Pregnancy outcome; Infertility

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子宫内膜异位囊肿对卵巢储备功能的影响

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【摘要】目的 探讨未经手术治疗的子宫内膜异位囊肿对卵巢储备功能及患者临床妊娠结局的影响。

方法 收集 2011 年 1 月—2017 年 10 月期间于中山大学孙逸仙纪念医院生殖中心行体外受精/胞质内单精子注射 (IVF/ICSI) 新鲜胚胎移植的助孕患者, 其中子宫内膜异位囊肿未经手术治疗的患者 176 例为内膜异位囊肿组, 同期匹配年龄的男方因素不孕患者 176 例为对照组。子宫内膜异位囊肿组又分为单侧内膜异位囊肿亚组 ($n=146$) 和双侧内膜异位囊肿亚组 ($n=30$)。根据囊肿直径大小将内膜异位囊肿组分为 <3 cm 亚组和 ≥ 3 cm 亚组。比较各组患者的窦卵泡计数 (AFC)、血清抗苗勒管激素 (AMH), 以及超促排卵后的获卵数和妊娠结局。在单侧内膜异位囊肿患者中, 比较有囊肿侧卵巢 (患侧) 与无囊肿侧卵巢 (健侧) 的 AFC 及获卵数。**结果** 内膜异位囊肿组患者的 AFC [(5.7 ± 3.8) 个]、AMH [(3.32 ± 2.71) $\mu\text{g/L}$] 显著低于对照组 [(8.1 ± 4.3) 个, $P < 0.001$; (4.60 ± 3.18) $\mu\text{g/L}$, $P = 0.006$]; 超促排卵后, 内膜异位囊肿组的获卵数 [(9.1 ± 6.2) 个] 少于对照组 [(11.8 ± 6.3) 个, $P < 0.001$], 优质胚胎率、胚胎种植率及临床妊娠率组间差异均无统计学意义 ($P > 0.05$)。双侧内膜异位囊肿亚组 AFC [(4.8 ± 3.2) 个] 显著低于单侧内膜异位囊肿亚组 [(5.9 ± 3.4) 个, $P = 0.05$], 但两组间 AMH、获卵数和优质胚胎率差异均无统计学意义 ($P > 0.05$), 单侧内膜异位囊肿亚组的胚胎种植率 (33.54%) 及临床妊娠率 (57.63%) 均高于双侧内膜异位囊肿亚组 (22.22%、26.36%), 但差异均无统计学意义 ($P > 0.05$); 单侧内膜异位囊肿患者中, 患侧卵巢 AFC [(5.0 ± 3.6) 个] 和获卵数 [(4.2 ± 3.3) 个] 均显著少于健侧卵巢 [(6.5 ± 4.0) 个, $P < 0.001$; (4.8 ± 3.7) 个, $P = 0.030$]。不同内膜异位囊肿直径大小的患者中, 直径 <3 cm 亚组的优质胚胎率 (33.82%) 显著高于直径 ≥ 3 cm 亚组的优质胚胎率 (26.85%, $P = 0.031$)。**结论** 未经手术治疗的内膜异位囊肿本身会降低卵巢储备功能, 降低卵巢对超促排卵的反应性, 但对内膜异位囊肿患者的妊娠结局并无影响。

【关键词】 子宫内膜异位囊肿; 卵巢储备; 妊娠结局; 辅助生殖技术

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Impact of ovarian endometrioma on the ovarian reserve

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【Abstract】 Objective To evaluate the impact of ovarian endometrioma without surgery on patients' ovarian reserve and clinical pregnancy outcomes after control ovarian hypersimulation. **Methods** A total of 352 patients were included, who were performed the first cycle of *in vitro* fertilization or intracytoplasmic sperm injection (IVF/ICSI) followed by fresh embryo transfer in Sun Yat-Sen Memorial Hospital Sun Yat-Sen University Reproductive Medicine Center between January 2011 and October 2017. The 176 patients with ovarian endometrioma without surgery treatment were classified into ovarian endometrioma group; meanwhile the other 176 cases with male factor infertility matched with age were classified into control group. The ovarian endometrioma group was further divided into unilateral endometrioma subgroup ($n=146$) and bilateral endometrioma subgroup ($n=30$). According to the average diameter of the endometrioma, the ovarian endometrioma group was divided into two subgroups: <3 cm group and ≥ 3 cm group. The serum antral follicle count (AFC), anti-Müllerian hormone (AMH), and the number of oocytes retrieved and pregnancy outcomes after assisted reproductive technology (ART) were compared between the groups. The AFC and number of oocytes retrieved from the endometrioma-containing ovary and the opposite ovary were also compared in patients with unilateral ovarian endometrioma. **Results** The AFC and AMH were significantly lower in ovarian endometrioma group [5.7 ± 3.8 , (3.32 ± 2.71) $\mu\text{g/L}$] than in control group [8.1 ± 4.3 , $P < 0.001$; (4.60 ± 3.18) $\mu\text{g/L}$, $P = 0.006$], and the number of oocytes retrieved in ovarian endometrioma group (9.1 ± 6.2) was lower than that in control group (11.8 ± 6.3 , $P < 0.001$), but there were no significant differences in high-quality embryo rate, embryo implantation rate, and clinical pregnancy rate between the two groups ($P > 0.05$). The AFC was significantly lower in patients with bilateral endometrioma (4.8 ± 3.2) than that in patients with unilateral endometrioma (5.9 ± 3.4 , $P = 0.05$), but no differences have been found in terms of AMH, the number of oocytes retrieved, and high-quality embryo rate ($P > 0.05$). Embryo implantation rate and clinical pregnancy rate in unilateral group (34.54%, 57.63%) were higher than those in bilateral group (22.22%, 26.36%), but without statistical significances ($P > 0.05$). In the patients with unilateral ovarian endometrioma, the AFC and AMH were both lower in the endometrioma-containing ovary (5.0 ± 3.6 , 4.2 ± 3.3) than in the opposite ovary (6.5 ± 4.0 , $P < 0.001$; 4.8 ± 3.7 , $P = 0.030$). In the patients with different diameter of ovarian endometrioma, the high-quality embryo rate of the group with a diameter ≥ 3 cm (33.82%) was significantly lower than that of the group with a diameter < 3 cm (26.85%, $P = 0.031$). **Conclusion** The ovarian endometrioma without surgery treatment itself could damage the ovarian reserve and reduce the ovarian response to controlled hyperstimulation, but has no impact on the pregnancy outcomes of patients with ovarian endometrioma.

【Key words】 Ovarian endometrioma; Ovarian reserve; Pregnancy outcomes; Assisted reproductive technology

Fund program: Sun Yat-Sen University Clinical Research 5010 Program (2016004)

血清 CA125 水平对妊娠早期自然流产的预测价值

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【摘要】 目的 评估血清 CA125 水平对妊娠结局的预测价值。方法 采用前瞻性观察研究方法, 分别选取 2016 年 1 月—2018 年 5 月期间在温州市中西医结合医院妇科就诊的先兆流产患者 (先兆流产组) 160 例、非先兆流产妊娠妇女 (对照组) 105 例、非孕期正常妇女 (非孕组) 40 例。根据入组时 B 超提示有无绒毛膜下血肿 (SCH) 将先兆流产组再分为妊娠合并 SCH 亚组 (SCH⁺ 组, $n=65$), 妊娠未合并 SCH 亚组 (SCH⁻ 组, $n=95$)。所有妊娠妇女随访至孕 12 周, 根据妊娠结局将先兆流产组分为流产亚组 ($n=54$)、继续妊娠亚组 ($n=106$); 将对照组分为无临床症状而 B 超提示胚胎停育者 (无症状流产亚组, $n=45$) 及正常妊娠者 (正常妊娠亚组, $n=60$)。应用电化学发光法检测妊娠妇女孕 6~9 周及非孕妇女卵泡期的血清 CA125 水平。比较各组血清 CA125 水平的差异并应用受试者工作特征 (ROC) 曲线分析 CA125 对妊娠结局的预测价值。**结果** 正常妊娠亚组 CA125 水平为 (40.37 ± 17.80) IU/mL, 显著高于非孕组 $[(15.82 \pm 7.07)$ IU/mL, $P < 0.001$]。流产亚组 CA125 水平 $[(96.20 \pm 60.05)$ IU/mL] 显著高于正常妊娠亚组及继续妊娠亚组 $[(39.74 \pm 19.08)$ IU/mL] (P 均 < 0.001)。无症状流产亚组 CA125 水平 $[(20.05 \pm 9.52)$ IU/mL] 显著低于正常妊娠亚组及继续妊娠亚组 (P 均 < 0.001)。先兆流产患者 SCH⁺ 组的 CA125 水平 $[66.16(37.19, 95.64)$ IU/mL] 显著高于 SCH⁻ 组 $[27.98(15.43, 52.75)$ IU/mL] ($P < 0.001$)。对孕 6~9 周先兆流产患者当血 CA125 ≥ 54.19 IU/mL 时妊娠结局不良, 其敏感度为 83.4%, 特异度为 78.4%, 曲线下相对面积为 0.86。对孕 6~9 周无临床症状的早孕妇女时, 当血清 CA125 ≤ 18.82 IU/mL 时, 妊娠结局不良, 其敏感度为 96.0%, 特异度为 65.8%, 曲线下相对面积为 0.87。**结论** CA125 在正常妊娠早期会升高, 但过高或过低表达均不利于妊娠持续发展。CA125 可以反映蜕膜破坏的程度及蜕膜发育状况, 是早期预测妊娠结局的有效指标。

【关键词】 CA125; 自然流产; 绒毛膜下血肿; 妊娠结局

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Prognostic value of serum CA125 in first trimester spontaneous abortion

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【Abstract】 Objective To assess the clinical value of serum CA125 for predicting pregnancy outcome. **Methods** This prospective observational study enrolled 160 threatened abortion patients (threatened abortion group), 105 non-threatened abortion pregnant women (control group) and 40 non-pregnant normal women (non-pregnant group) who were admitted to the Gynecology Department of Wenzhou Hospital of Integrated Traditional Chinese and Western Medicine from January 2016 to May 2018. According to ultrasonography with or without subchorionichematoma (SCH), the threatened abortion group was divided into SCH⁺ group ($n=65$) and SCH⁻ group ($n=95$). All pregnant women were followed up until 12 weeks of gestation. According to the pregnancy outcome, the threatened abortion group was divided into symptomatic abortion subgroup (54 cases of abortion outcome) and ongoing pregnancy subgroup (106 cases of ongoing pregnancy). Control group was divided into 45 cases without clinical symptoms which ultrasound indicated embryo abortion (no symptom abortion subgroup) and 60 cases with normal pregnancy (normal subgroup). Serum CA125 levels were measured at the gestational age between 6–9 weeks or follicular phase in non-pregnant women by electro-chemiluminescence. The differences of serum CA125 levels in each group were compared and the receiver operating characteristic (ROC) curve was used to analyze the predictive value of CA125 for pregnancy outcomes. **Results** The CA125 level in normal pregnancy subgroup [(40.37±17.80) IU/mL] was significantly higher than that in non-pregnant group [(15.82±7.07) IU/mL] ($P=0.001$). The CA125 levels were significantly higher in symptomatic abortion subgroup [(96.20±60.05) IU/mL] than in normal group and ongoing pregnancy subgroup [(39.74±19.08) IU/mL] ($P<0.001$). The CA125 level in the asymptomatic abortion subgroup [(20.05±9.52) IU/mL] was significantly lower than that in normal group and ongoing group ($P<0.001$). The CA125 level was significantly higher in SCH⁺ group [66.16(37.19,95.64) IU/mL] as compared with the SCH⁻ group [27.98(15.43,52.75) IU/mL] ($P<0.001$). The pregnancy outcome of patients with threatened abortion was poor when CA125 \geq 54.19 IU/mL at 6–9 weeks. The sensitivity, specificity and area under curve (AUC) were 83.4%, 78.4% and 0.86 respectively. For threatened abortion patients in early pregnancy, the pregnancy outcomes were poor when CA125 \leq 18.82 IU/mL at 6–9 weeks. The sensitivity, specificity and AUC were 96.0%, 65.8% and 0.87 respectively. **Conclusion** Maternal serum levels of CA125 was higher during the first trimester of normal pregnancy. Both too high or too low is not conducive to the process of pregnancy. It can be useful to reflect the extent of decidual destruction or the defective decidual development which is directly related to the outcome of pregnancy. CA125 is valid early predictors of the outcome of pregnancy.

【Key words】 CA125; Spontaneous abortion; Subchorionichematoma; Pregnancy outcome

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基于零膨胀模型的武汉市女性人工流产次数影响因素分析

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【摘要】目的 了解武汉市女性人工流产次数的影响因素, 为相关研究提供方法学参考, 并为有效降低人工流产率提供科学依据。**方法** 利用 2016 年武汉市孕前优生健康检查资料, 对参检女性的人工流产次数构建零膨胀模型, 分析人工流产次数的影响因素。**结果** 24 732 名参检女性中流产 0 次的有 17 489 人 (占 70.71%), 存在零膨胀现象。零膨胀模型结果显示, 年龄、户籍、职业、现有子女数、夫妻年龄差距、吸烟 / 饮酒是影响有无流产经历的因素; 年龄越大、户籍为农村、职业为农民 / 工人、现有子女数越多、夫妻年龄差距越大、吸烟 / 饮酒的女性发生人工流产的可能性更大。女性受教育程度、职业、现有子女数、有无避孕措施均是影响人工流产次数多少的重要因素; 受教育程度低、职业为农民 / 工人、现有子女数多、无避孕措施女性人工流产期望次数多。**结论** 零膨胀模型用于分析人工流产次数相关因素优于传统模型; 相关部门在制定政策降低人工流产率和重复人工流产率时应重点关注户籍为农村、职业为农民 / 工人、受教育程度低、吸烟 / 饮酒和无避孕措施的女性。

【关键词】 人工流产; 零膨胀模型; 影响因素

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Analysis on the influencing factors of the risks of induced abortion frequency among women in Wuhan City with the zero-inflate model

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【Abstract】 Objective To explore the risk factors of induced abortion frequency among women in Wuhan City as well as to provide methodology reference for related research and provide scientific basis to reduce induced abortion rate effectively. **Methods** The data of pre-pregnancy health examination of Wuhan City in 2016 were used to accomplish the zero-inflate model to explore the affecting factors about abortion frequency. **Results** Among 24 732 women, 17 489 (70.71%) women had not experienced induced abortion, existing zero expansion. Zero-inflate model analysis showed that women who were older, registered in rural areas, worked as farmers or workers, had more children, had more age gaps between husband and wife, reported smoking or drinking were more likely to report abortions. Women with low education, working as farmers or workers, having more children, without contraception had more expected abortions frequency. **Conclusion** Zero-inflate model has decisive advantages when applied to analyze associated factors with induced abortion frequency. Relevant departments need to take measures targeting on women registering in rural areas, working as farmers or workers, with low education, smoking or drinking, without contraception, in order to reduce the induced abortion rate and the repeated abortion rate.

【Key words】 Induced abortion; Zero-inflate model; Affecting factor

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避孕干预对产后妇女避孕、非意愿妊娠和人工流产的影响——系统评价和 Meta 分析

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李玉艳和陈中宝对本文有同等贡献

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【摘要】目的 系统评价避孕宣教、咨询等干预对产后妇女避孕、非意愿妊娠和人工流产的影响, 为提高产后妇女的生殖健康提供参考依据。**方法** 计算机系统检索 PubMed、Poptline、Cochrane Library、Clinicaltrial.gov、Web of Science、世界卫生组织网站、中国知网、万方数据库、中国生物医学文献数据库等查找与产后避孕相关的随机对照临床试验 (RCT), 按照纳入和排除标准筛选文献并提取相关数据。对文献进行质量评价后, 采用 Stata12.1 软件进行 Meta 分析。**结果** 最终纳入 13 项 RCT 研究, 纳入产妇 10 606 名。Meta 分析显示, 产后干预能提高干预组产后 6 个月避孕率 ($RR=1.50$, $95\% CI=1.17\sim1.92$, $n=1551$); 但干预组产后 1 年避孕率与对照组接近 ($RR=1.02$, $95\% CI=0.98\sim1.06$, $n=2851$); 干预组产后 1 年非意愿妊娠率显著低于对照组 ($RR=0.69$, $95\% CI=0.50\sim0.96$, $n=6064$), 剔除低质量研究后, 两者差异无统计学意义 ($RR=0.94$, $95\% CI=0.72\sim1.22$, $n=3328$); 1 项研究报告干预能显著降低产后 1 年人工流产率, 但该研究质量评价较低。**结论** 产后避孕宣教和咨询等干预措施可能提高产后 6 个月避孕率、降低产后 1 年非意愿妊娠率和人工流产率。但纳入的部分文献研究质量评价较低, 迫切需要开展大样本、高质量的 RCT 研究提供可靠证据。

【关键词】 产后妇女; 避孕干预; 避孕率; 非意愿妊娠率; 人工流产率; 随机对照试验; Meta 分析

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Effect of contraceptive intervention on contraceptive use, unintended pregnancy and induced abortion among postpartum women—a systematic review and Meta-analysis

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【Abstract】 Objective To assess the effect of contraceptive intervention [including information, education, counseling (IEC), family planning counseling, etc.] on the contraceptive use, unintended pregnancy and induced abortion among postpartum women, so as to provide solid evidence to policy-makers, service providers and service users to improve reproductive health of women. **Methods** The electronic databases, including PubMed, Popline, the Cochrane Library, Web of Science, Website of World Health Organization, CNKI, China Biology Medicine disc (CBM), etc., were searched to identify the randomized control trials (RCTs) that evaluated effects of intervention on contraceptive use, unintended pregnancy and abortion in postpartum women. Eligible studies were selected according to the inclusion and exclusion criteria, followed by extracting data. Meta-analyses were performed using Stata12.0 software. **Results** A total of 13 articles were included and 10 606 participants were involved in this article. The Meta analysis results showed that the postpartum intervention could increase the contraceptive rate after 6 months of delivery ($RR=1.50$, 95% $CI=1.17-1.92$, $n=1551$). The probability of contraceptive use 1 year after delivery in intervention group was similar to that in control group ($RR=1.02$, 95% $CI=0.98-1.06$, $n=2851$). The likelihood of unintended pregnancy 1 year after delivery was significantly lower than that in control group ($RR=0.69$, 95% $CI=0.50-0.96$, $n=6064$), but the difference was not statistically significant after removing low-quality studies ($RR=0.94$, 95% $CI=0.72-1.22$, $n=3328$). Only one paper with low study quality provided information on induced abortion, in which, the induced abortion rate in intervention group was significantly lower than that in control group. **Conclusion** The contraceptive intervention (including IEC, counseling, etc.) after delivery could increase the rate of contraceptive use 6 months after delivery and reduce the risk of unintended pregnancy and induced abortion 1 year after delivery. However, more RCTs with large sample sizes are needed to confirm this conclusion because some papers with low study quality were included in this study.

【Key words】 Postpartum women; Contraceptive intervention; Contraceptive rate; Unintended pregnancy rate; Induced abortion rate; Randomized control clinical trials; Meta-analysis

Fund program: Science and Technology Climbing Fund of SIPPR (PD2017-10)

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卵巢低反应高龄患者使用来曲唑联合克罗米芬和全程克罗米芬的温和刺激方案实验室结局的比较

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【摘要】目的 探讨来曲唑+克罗米芬(CC)与全程CC联合促性腺激素(Gn)两种温和刺激方案对卵巢低反应高龄患者实验室治疗结局的影响。**方法** 回顾性分析2015年1月—2017年12月期间在兰州大学第一医院生殖医学专科医院接受体外受精/卵胞质内单精子显微注射-胚胎移植(IVF/ICSI-ET)的卵巢低反应高龄患者376例,根据促排卵方案分为来曲唑+CC方案组(A组, $n=209$)和全程CC方案组(B组, $n=167$),比较两组患者的实验室治疗结局。**结果** A组的获卵率(91.9%)、获卵数(2.85 ± 1.96)、卵裂率(97.2%)及可用胚胎率(84.5%)均显著高于B组(84.4%, 2.31 ± 1.95 , 86.5%, 73.8%),IVF/ICSI受精率(70.6%/77.0%)和周期取消率(26.3%)显著低于B组(80.9%/89.3%, 40.1%)($P < 0.05$);两组患者的M_{II}卵率、双原核(2PN)率及优质胚胎率组间差异均无统计学意义($P > 0.05$)。**结论** 对卵巢低反应高龄患者采用来曲唑+CC联合Gn温和刺激方案较全程CC联合Gn方案能够有效降低周期取消率,并且可以获得更高的可用胚胎率。

【关键词】 受精, 体外; 胚胎移植; 高龄; 卵巢低反应; 温和刺激

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Comparing the laboratory outcome after letrozole combined with clomiphene versus clomiphene treatment for mild ovarian stimulation protocol in aged poor ovarian responders

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【Abstract】 Objective To compare the laboratory treatment outcomes after letrozole and clomiphene versus clomiphene treatment for mild ovarian stimulation protocol in aged poor ovarian responders. **Methods** This retrospective study conducted from January 2015 to December 2017 in the Reproductive Medicine Special Hospital of the 1st Hospital of Lanzhou University. A total of 376 poor ovarian responders were divided into two groups based on the regimes of ovarian, letrozole and clomiphene (group A, $n=209$) and clomiphene (group B, $n=167$). Both groups were used in conjunction with gonadotropin. Laboratory treatment outcomes were compared. **Results** The rates of oocyte-obtained (91.9%), cleavage (97.2%), available embryo (84.5%) and the number of retrieved oocytes (2.85 ± 1.96) were significantly higher in group A than in group B (84.4%, 86.5%, 73.8%, 2.31 ± 1.95) ($P < 0.05$). The rate of *in vitro* fertilization/intracytoplasmic sperm injection (IVF/ICSI) fertilization (80.9%/89.3%) and cancellation rate (40.1%) were higher in group B than in group A (70.6%/77.0%, 26.3%) ($P < 0.05$). No significant differences were found in the M_{II} oocyte rate, 2 pronucleus (PN) rate and high-quality embryo rate between the two groups ($P > 0.05$). **Conclusion** The mild ovarian stimulation use letrozole and clomiphene could reduce the cancellation rate effectively, and achieved higher rate of available embryo.

【Key words】 Fertilization *in vitro*; Embryo transfer; Aged patients; Poor ovarian response; Mild ovarian stimulation

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多囊卵巢综合征患者应用高孕激素状态下促排卵方案的体外受精结局

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【摘要】目的 探讨高孕激素状态下促排卵 (PPOS) 方案在治疗多囊卵巢综合征 (PCOS) 患者的临床效果。**方法** 回顾性队列研究分析 2016 年 9 月—2018 年 2 月期间在河南省人民医院生殖中心行体外受精/卵胞质内单精子显微注射技术 (IVF/ICSI) 助孕的 159 例 PCOS 患者的临床资料, 其中 87 例采用 PPOS 方案 (PPOS 组), 72 例采用拮抗剂方案 (拮抗剂组), 观察比较 2 种方案患者的基本情况、促排卵情况及妊娠结局。**结果** 患者的年龄、体质量指数 (BMI)、基础激素水平等基础资料, 组间差异均无统计学意义 ($P>0.05$)。PPOS 组既往 IVF/ICSI 失败次数大于拮抗剂组, 差异有统计学意义 ($P=0.006$)。促性腺激素 (Gn) 用量 [$2\ 124.86\pm 1\ 164.67$] IU、人绒毛膜促性腺激素 (hCG) 注射日卵泡刺激素 (FSH)[11.56 ± 3.35] IU/L、hCG 注射日优势卵泡数 (直径 ≥ 14 mm)(8.86 ± 5.29)、hCG 注射日雌二醇水平 [$2\ 024.50\pm 1\ 227.23$] ng/L 在 PPOS 组均大于拮抗剂方案组 [$1\ 470.89\pm 667.92$] IU, (9.50 ± 3.41) IU/L, 7.11 ± 5.18 , ($1\ 529.44\pm 1\ 300.84$) ng/L], 而获卵率 (74.69%) 低于拮抗剂组 (78.87%), 差异有统计学意义 ($P=0.035$)。全部胚胎冷冻首次复苏时, 周期取消率、生化妊娠率、临床妊娠率、早期流产率、宫外孕率和累积妊娠率组间差异均无统计学意义 ($P>0.05$)。**结论** PPOS 方案在 PCOS 患者中应用能较好地抑制早发黄体生成素 (LH) 峰, 与拮抗剂方案相比能进一步降低 OHSS 的发生风险, 获得类似的临床妊娠结局。

【关键词】 多囊卵巢综合征; 控制性促排卵; 促性腺激素释放激素拮抗剂方案; 高孕激素状态下促排卵方案

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Comparison of efficacy between progestin-primed ovarian stimulation and gonadotropin-releasing hormone antagonist protocol in polycystic ovary syndrome patients

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【Abstract】Objective To compare the efficacy between the progestin primed ovarian stimulation (PPOS) protocol and gonadotropin-releasing hormone antagonist (GnRH-A) protocol in polycystic ovary syndrome (PCOS) patients who underwent *in vitro* fertilization (IVF). **Methods** A retrospective analysis was performed in a total of 159 patients with PCOS who performed IVF/intracytoplasmic sperm injection (ICSI) from September 2016 to February 2018 in Reproductive Center of Henan Province People's Hospital. Among them, 87 patients were treated with PPOS protocol and 72 with GnRH-A protocol. The basic information, process of controlled ovarian hyperstimulation, and pregnancy outcome were compared between the two groups. **Results** There were no statistically significant differences in age, body mass index (BMI), basal sex hormone levels between the two groups ($P>0.05$). The number of previous failures in PPOS group was greater than that in GnRH-A group, and the difference was significant ($P=0.006$). Amount of gonadotropin (Gn) [(2 124.86±1 164.67) IU] and follicle stimulating hormone (FSH) [(11.56±3.35) IU/L], the number of dominant follicle (diameter ≥ 14 mm) (8.86 ± 5.29), estradiol level on the human chorionic gonadotropin (hCG) trigger day [(2 024.50±1 227.23) ng/L] in PPOS group were higher than those in GnRH-A group [(1 470.89±667.92) IU, (9.50±3.41) IU/L, 7.11 ± 5.18 , (1 529.44±1 300.84) ng/L], while the oocyte retrieval rate (74.69%) was lower than that in GnRH-A group (78.87%), the differences were statistically significant ($P=0.035$). Between the two groups, cycle cancellation rate, biochemical pregnancy rate, clinical pregnancy rate, early abortion rate and ectopic pregnancy rate had no significant differences ($P>0.05$). When first frozen embryo transfer (FET) after freezing all the fresh embryos were carried out. And the cumulative pregnancy rates after egg retrievals between the two groups had no statistical differences. **Conclusion** The application of PPOS protocol in PCOS patients can effectively inhibit the early LH peak, and can further reduce the risk of OHSS compared with GnRH-A protocol, can achieve similar clinical pregnancy outcomes.

【Key words】 Polycystic ovary syndrome; Controlled ovarian hyperstimulation; Gonadotropin-releasing hormone antagonist protocol; Progestin primed ovarian stimulation; Antagonist protocol

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甲状腺自身抗体与早期妊娠失败的相关性研究

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【摘要】目的 探讨抗甲状腺球蛋白抗体 (anti-thyroglobulin antibody, TG-Ab) 和甲状腺过氧化物酶抗体 (anti-thyroid peroxidase antibody, TPO-Ab) 与早期妊娠状态的关系。方法 回顾性分析 2008 年 6 月—2018 年 6 月期间在温州市人民医院治疗的浙南地区自然流产患者及正常妊娠孕妇为研究对象, 其中先兆流产 (已治愈) 组 ($n=585$)、妊娠失败 1 次组 ($n=621$) 和妊娠失败 ≥ 2 次组 ($n=646$), 同期正常妊娠孕妇 523 例为对照组。采用化学免疫发光法检测孕妇血清中 TG-Ab 和 TPO-Ab 水平。结果 妊娠失败 ≥ 2 次组血清 TG-Ab (32.04%) 和 TPO-Ab 阳性率 (28.17%) 显著高于先兆流产组 (16.75%, 15.56%) 和妊娠失败 1 次组 (16.26%, 14.33%), 差异有统计学意义 ($P < 0.001$)。结论 血清中高 TG-Ab 和 TPO-Ab 水平可能与妊娠失败 ≥ 2 次相关。

【关键词】 抗甲状腺球蛋白抗体; 早期妊娠; 妊娠失败

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Study on the relationship between thyroid autoantibodies and early pregnancy failure

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【Abstract】 Objective To study the relationship between early pregnancy outcome and anti-thyroid autoantibodies, including anti-thyroglobulin antibody (TG-Ab) and anti-thyroid peroxidase antibody (TPO-Ab).

Methods Data from 2375 women with early pregnancy in Wenzhou People's Hospital from June 2008 to June 2018 were retrospectively analyzed in this study. Totally 1852 cases included threatened abortion group (all cases had been cured), one time failure of pregnancy group, two times or more than two times failure of pregnancy group and 523 normal pregnant women were regarded as control group. The levels of TG-Ab and TPO-Ab in the serum of all enrolled pregnant women were detected by ELISA. **Results** The levels of TG-Ab and TPO-Ab in the serum of the pregnant women in two times or more than two times failure of pregnancy group were significantly higher than those in other three groups ($P < 0.01$). **Conclusion** The high levels of TG-Ab and TPO-Ab in the serum of the pregnant women may be related to two times or more than two times failure of pregnancy.

【Key words】 Anti-thyroglobulin antibody; Early pregnancy; Failure of pregnancy

Fund program: Basic Public Welfare Research Project of Zhejiang Science and Technology Department (LGF19H040014)

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影响睾丸显微取精结局的相关因素分析(附 74 例报告)

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【摘要】目的 了解影响睾丸显微取精结局的相关因素。方法 回顾性分析 2017 年 7 月—2018 年 4 月间 74 例因非梗阻性无精子症在广东省计划生育科学技术研究所(广东省计划生育专科医院)行睾丸显微取精手术患者的临床资料, 根据取精结局分为获得精子组(A 组)与未获精子组(B 组), 比较两组间的激素水平、睾丸体积、术前睾丸病理结果、术前治疗状况、术中生精小管饱满度、生精小管血供以及间质组织等状况, 分析影响睾丸显微取精结局的相关因素。结果 A 组 33 例, B 组 41 例, 获精率 44.59%。其中 A 组的术前治疗状况、生精小管饱满程度、间质组织增生状况与 B 组比较差异有统计学意义($P < 0.05$), 而在激素水平、睾丸体积、生精小管的血供状况等指标比较差异无统计学意义($P > 0.05$)。40 例术前曾行睾丸穿刺活检未见精子的患者中有 17 例找到精子, 23 例未找到精子, 找到精子者与未找到精子者间的睾丸病理结果与取精结局比较差异亦无统计学意义($P > 0.05$)。结论 激素水平、睾丸体积、睾丸穿刺病理结果、生精小管的血供丰富与否等指标不影响睾丸显微取精结局, 生精小管饱满、睾丸间质组织中重度增生处容易获得精子, 而间质组织轻度或重度增生者均不易获得精子。

【关键词】显微取精; 影响因素; 非梗阻性无精子症

基金项目: 广东省医学科研基金项目(B2018250)

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Analysis of related factors affecting the outcome of testicular microextraction (a report of 74 cases)

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【Abstract】 Objective To investigate the related factors affecting the outcome of testicular microextraction. **Methods** The clinical data of 74 patients with non obstructive azoospermia undergoing testicular microsurgery in Family Planning Research Institute of Guangdong Province (Family Planning Hospital of Guangdong Province) from July 2017 to April 2018 were retrospectively analyzed. According to the spermatozoa outcome, they were divided into sperm group (group A) and non-sperm group (group B). The hormone levels, testicular volume, preoperative testicular pathological results, preoperative treatment, plumpness of spermatogenic tubule, blood supply of spermatogenic tubule and interstitial tissue were compared, and the related factors affecting the outcome of testicular microextraction were analyzed. **Results** In 74 cases of non-obstructive azoospermia, 33 cases got sperm, 41 cases did not get sperm, and the sperm acquisition rate was 44.59%. Among them, preoperative treatment, seminiferous tubule plumpness and interstitial tissue hyperplasia in group A were significantly different from those in group B ($P<0.05$). But there was no difference in hormone levels, testicular volume and blood supply status of seminiferous tubules ($P>0.05$). Of the 40 patients who had not found sperm before operation, 17 of the patients found sperm, 23 cases did not find sperm, and there was no difference between the results of testicular pathology and the outcome of sperm extraction between those who found the sperm and those who did not find the spermatozoon ($P>0.05$). **Conclusion** Hormone level, testicular volume, testicular biopsy results, and abundant blood supply of seminiferous tubules do not affect the outcome of testicular microextraction. Spermatozoa are filled with seminiferous tubules and interstitial tissue of middle testis is easy to get spermatozoa.

【Key words】 Microscopic refinement; Influencing factors; Non-obstructive azoospermia

Fund program: Medical Research Fund project of Guangdong Province (B2018250)

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多囊卵巢综合征患者促排卵治疗的研究进展

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【摘要】 多囊卵巢综合征 (polycystic ovary syndrome, PCOS) 是育龄期女性最常见的内分泌及代谢紊乱性疾病之一, 但其发病机制尚不明确。目前大多数研究认为, 胰岛素抵抗、高雄激素血症、神经内分泌、炎症等因素在 PCOS 发病过程中起重要作用。PCOS 同时也是女性不孕的重要原因之一。对于 PCOS 合并不孕, 促排卵治疗是其助孕的重要手段。为此本文对 PCOS 排卵障碍及促排卵治疗的研究进展做一综述, 探讨促排卵治疗在 PCOS 合并不孕中的作用。

【关键词】 多囊卵巢综合征; 排卵障碍; 促排卵

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Ovulation induction in the treatment of patients with polycystic ovary syndrome

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【Abstract】 Polycystic ovary syndrome (PCOS) is a common endocrine and metabolic disorder in women of reproductive age, but the pathogenesis is still unknown. At present, most studies suggest that insulin resistance, hyperandrogenism, neuroendocrine and inflammatory factors play important roles in the pathogenesis of PCOS. PCOS-related anovulation is an important reason of female infertility. For PCOS with infertility, ovulation induction is an essential method to assisted reproduction. Therefore, we reviewed the development of the studies of PCOS-related anovulation and ovulation induction therapy, and discussed the role of ovulation induction therapy for PCOS with infertility.

【Key words】 Polycystic ovary syndrome; Ovulation failure; Ovulation induction

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巨噬细胞在子宫内膜异位症中作用的研究进展

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【摘要】 子宫内膜异位症 (endometriosis, EMS) 是一种引起女性慢性盆腔疼痛和不孕的常见妇科良性疾病, 其细胞浸润、增生及复发等均属恶性生物学行为。在 EMS 患者腹腔内存在巨噬细胞数量增加、活化类型改变, 并伴有促炎因子、生长因子、血管生成等变化。随着研究的深入, 腹腔内异常的免疫反应似乎对疾病发展十分重要。本文总结巨噬细胞新近研究进展, 及其在 EMS 发病机制中的作用, 有助于开发 EMS 新的治疗策略。

【关键词】 子宫内膜异位症; 巨噬细胞; 炎性介质; 纤维化; 上皮-间充质转化

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Research progress of the role of macrophages in the pathogenesis of endometriosis

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【Abstract】 Endometriosis (EMS) is a common gynecological benign disease that causes chronic pelvic pain and infertility in women, but many of its behaviors are malignant such as cell infiltration, hyperplasia and recurrence. Some studies have pointed out that in the peritoneal cavity of patients with EMS, there is an increase in the number of macrophages and changes in the type of activation, accompanied by changes in pro-inflammatory factors, growth factors, and angiogenesis. As the study progresses, aberrant immune responses in the peritoneum appear to be crucial for disease progression. Summarizing recent advances in macrophage may elucidate its role in the pathogenesis of EMS and contribute to the development of new therapeutic strategies.

【Key words】 Endometriosis; Macrophages; Inflammatory mediators; Fibrosis; Epithelial-mesenchymal transition

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女性肥胖降低辅助生殖成功率机制和治疗措施的研究进展

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【摘要】 女性肥胖与不良生育结局有关, 包括不孕、生育力低下、流产、死产等, 因此越来越多的肥胖女性寻求助孕治疗, 然而肥胖也会降低辅助生殖的成功率, 胚胎植入率、临床妊娠率、活产率降低, 流产率、早产率增加, 这些已是临床共识。女性肥胖影响辅助生殖结局的机制有很多研究, 虽无明确的结论, 但基本包括影响卵细胞、胚胎发育及子宫内膜容受性这三个环节。理论上, 减重是改善肥胖女性辅助生殖结局的一线治疗方法, 但现有资料及研究显示减重对于辅助生殖结局的影响仍有争议, 减重的时机及理想体质量也没有统一标准, 规律的运动、饮食结构的改变、减肥手术及联合使用某些药物对改善辅助生殖结局有重要意义。本文就现阶段女性肥胖影响辅助生殖结局的机制及干预措施进行综述。

【关键词】 肥胖; 辅助生殖技术; 作用机制; 干预措施

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Mechanism and improvements of female obesity affecting assisted reproductive technology outcomes

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【Abstract】 Female obesity is associated with infertility, subfertility, increased pregnancy loss, stillbirth and so on. Therefore, more and more obese women are seeking to fertility treatment. However, overweight and obese women also receive inferior assisted reproductive technology (ART) outcomes, such as implantation rate, clinical pregnancy rate, pregnancy loss rate, and live birth rate. The clinical impact of obesity on female infertility has been well characterized. There are many studies concentrating on the mechanism of female obesity affecting assisted reproductive outcomes, which include the poor oocyte/embryo quality and negative effect on endometrial receptivity, but no clear answer has been obtained. Weight loss is the initial treatment to improve the ART outcomes of obese women theoretically. However, it is still controversial whether weight loss is indeed helpful and the appropriate time to lose weight and the ideal weight before fertility treatment are also unclear. Regular physical exercise, diet and bariatric surgery are of great significance in improving the assisted reproductive outcomes of obese women. This article reviews the mechanism and treatment of female obesity affecting assisted reproductive outcomes at present.

【Key words】 Obesity; Assisted reproductive technology; Function mechanism; Interventions

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雌激素功能研究进展

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【摘要】 雌激素是女性主要的性激素之一, 其功能具有多效性, 在人体生理过程中起着非常重要的作用。本文从 4 个部分重点归纳雌激素功能最新研究进展: 雌激素的合成途径、雌激素受体及其功能、雌激素作用的信号通路、与雌激素异常相关的疾病及治疗手段, 为雌激素异常相关疾病的防治提供新的研究思路和理论依据。

【关键词】 雌激素; 雌激素受体; 雌激素信号通路; 雌激素相关疾病

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Research progress of estrogen function

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【Abstract】 Estrogen is one of the major female sex hormones. Its function is multi-effect and plays a very important role in the human physiological process. This article focuses on the latest advances in the study of estrogen function from four parts: the synthetic route of estrogen; estrogen receptor and its function; the signaling pathway of estrogen action; diseases and treatment related to estrogen abnormalities, in order to provide new research ideas and theoretical basis for prevention and treatment of estrogen-related diseases.

【Key words】 Estrogen; Estrogen receptor; Estrogen signaling pathway; Estrogen-related diseases

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干细胞治疗卵巢早衰动物模型的机制探讨

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【摘要】 近年来, 化疗是女性恶性肿瘤最常用的治疗方法。女性卵巢对化疗毒性非常敏感, 常会导致卵巢早衰 (premature ovarian failure, POF)。目前 POF 主要通过激素补充治疗, 尚无有效根治方法。基于干细胞的自我更新和再生潜能, 一些研究学者提出干细胞疗法。研究表明干细胞可通过旁分泌、抗炎、抗氧化应激和卵巢生殖细胞再生等机制恢复卵巢功能。本文主要阐述间充质干细胞在 POF 动物模型上的研究进展, 为 POF 的临床治疗提供参考。

【关键词】 卵巢早衰; 干细胞治疗; 动物模型; 机制

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Mechanism of stem cell therapy in animal model of premature ovarian failure

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【Abstract】 In recent years, chemotherapy is the most commonly used for treating malignancies. The female ovaries are sensitive to chemotherapy which may cause premature ovarian failure (POF). Currently, the main treatment of POF is hormone replacement therapy; however, there is still no ideal cure treatment for it. Due to the ability of self-renewal and regeneration, stem cells are thought to be used to treat POF. With the in-depth study, it was found that stem cell treatment of POF may restore ovarian function by paracrine mechanism, anti-inflammation mechanism, anti-ovarian oxidative stress mechanism, ovarian stem cells regeneration mechanism, etc. This article describes the mechanism of mesenchymal stem cell treatment on POF animal models, to provide reference for the clinical treatment of POF.

【Key words】 Premature ovarian failure; Stem cell therapy; Animal models; Mechanisms

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