

中华生殖与避孕杂志[®]



原刊名《生殖与避孕》

CHINESE JOURNAL OF REPRODUCTION AND CONTRACEPTION

月刊 1980年12月创刊 第50卷 第3期 2020年3月25日出版

主 管

中国科学技术协会

主 办

中华医学会
上海市计划生育科学研究所
复旦大学附属妇产科医院

编 辑

中华生殖与避孕杂志
编辑委员会
200237,上海市老沪闵路779号
电话:(021)64438169
传真:(021)64438975
Email:randc@sippr.org.cn
http://zhszybyzz.yiigle.com

总编辑

乔 杰

编辑部主任

王 健

出 版

《中华医学杂志》社有限责任公司
100710,北京市东四西大街42号
电话(传真):(010)51322059
Email:office@cmaph.org

广告发布登记号

京东市监广登字20170015号

印 刷

上海商务联西印刷有限公司

发 行

范围:公开
国内:中国邮政集团公司
上海分公司
国外:中国国际图书贸易集团
责任有限公司
(北京399信箱,100044)
代号 BM 389

订 购

全国各地邮政局
邮发代号4-928

邮 购

中华生殖与避孕杂志编辑部
200237,上海市老沪闵路779号
电话:(021)64438169,64438975
Email:randc@sippr.org.cn

定 价

每期20.00元,全年240.00元

中国标准连续出版物号

ISSN 2096-2916

CN 10-1441/R

2020年版权归主办者所有

未经授权,不得转载、摘编本刊文章,不得使用本刊的版式设计

除非特别声明,本刊刊出的所有文章不代表中华医学会和本刊编委会的观点

本刊如有印装质量问题,请向本刊编辑部调换

目 次

新型冠状病毒专栏

- 新型冠状病毒肺炎疫情下生殖医学的
新问题与挑战李蓉 杨菁 李红钢等 177
- 新型冠状病毒肺炎疫情下终止早期妊娠的
专家指导建议中华医学会计划生育学分会 182
- 新型冠状病毒疫情期间备孕及孕早期管理
专家共识上海市医师协会生殖医学医师分会 188

临床研究

- 高龄合并卵巢储备功能低下患者三种促排卵方案的
临床结局比较郑娟 周黎明 孙亦婷等 194
- 多囊卵巢综合征合并非酒精性脂肪性肝病相关
风险因素探讨李忆昆 沈山梅 杨佳苗等 201
- 女性不孕症患者体外受精-胚胎移植助孕周期用药
依从性现状及影响因素研究郭静波 胡俊平 杨媛等 207
- 贵州人群精浆中多不饱和脂肪酸代谢产物的
初步研究吴斌 朱明江 纪红蕾等 214

实验研究

- 邻苯二甲酸(2-乙基己基)酯对小鼠卵母细胞
发育潜能的影响王静静 赵华 王兴玲等 219

临床报道

- 宫颈机能不全合并胰岛素抵抗对妊娠结局的
影响王磊 任敏 洪向丽等 225
- 改良双针缝线显微输精管附睾吻合术与
疗效评价朱晓博 张祥生 张士龙等 230

个案报道

- 5例精子鞭毛多发形态异常患者的非整倍体率与卵胞质内
单精子注射的临床结局研究冯宗刚 魏磊 程兰兰等 234

综 述

- 重组人生长激素在人类辅助生殖技术助孕中的
应用进展郭晓琳 黄玲玲 梁蕾等 241
- 子宫内腔容受性与子宫内膜异位症相关性不孕朱靓雯 薛晴 246
- 调节性T细胞在女性生殖过程中的
研究进展张于念 田海清 腊晓琳 250
- 曼月乐治疗妇科常见疾病的研究进展杨颖琼 黄勤瑾 255
- 社会资本视角下辅助生殖服务质量提升
研究进展王丹妮 徐千花 张勤等 259

本刊稿约见本卷第1期封二

本期责任编辑乔杰

本期责任编辑李天琦

本期责任编辑张蔚森

CHINESE JOURNAL OF REPRODUCTION AND CONTRACEPTION

(Original title: *Reproduction and Contraception*)

Monthly

Established in December 1980

Volume 40, Number 3

March 25, 2020



Responsible Institution

China Association for Science and Technology

Sponsor

Chinese Medical Association, Shanghai Institute of Planned Parenthood Research, Obstetrics and Gynecology Hospital of Fudan University

Editing

Editorial Board of Chinese Journal of Reproduction and Contraception
779 Laohumin Road, Shanghai 200237, China
Tel: 0086-21-64438169
Fax: 0086-21-64438975
Email: randc@sippr.org.cn
http://zhshzybyzz.yiigle.com
http://www.medline.org.cn

Editor-in-Chief

Qiao Jie

Managing Director

Wang Jian

Publishing

Chinese Medical Journals Publishing House Co., Ltd.
42 Dongsi Xidajie, Beijing 100710, China
Tel(Fax):0086-10-51322059
Email:office@cmaph.org

Printing

Business Book Printing Shop Shanghai Printing Co., LTD

Overseas Distributor

China International Book Trading Corporation
P.O. Box 399, Beijing 100044, China
Code No.M389

Mail-Order

Editorial Board of Chinese Journal of Reproduction and Contraception
779 Laohumin Road, Shanghai 200237, China
Tel: 0086-21-64438169
Fax: 0086-21-64438975
Email: randc@sippr.org.cn

CSSN

ISSN 2096-2916
CN 10-1441/R

Copyright © 2020 by the all sponsors

No content published by the journals of Chinese Medical Association may be reproduced or abridged without authorization. Please do not use or copy the layout and design of the journals without permission.

All articles published represent the opinions of the authors, and do not reflect the official policy of the Chinese Medical Association or the Editorial Board, unless this is clearly specified.

CONTENTS IN BRIEF

COVID-19 Column

- Emerging questions and challenges of COVID-19 on reproductive health**.....177
Li Rong, Yang Jing, Li Honggang, et al
- Expert consensus on termination of early pregnancy in the spread of COVID-19 outbreak**182
Family Planning Branch of the Chinese Medical Association
- A Chinese experts' consensus for responding to COVID-19 during pregnancy preparation and pregnancy in early stage**188
Reproductive Medicine Branch of Shanghai Medical Association

Clinical Study

- Comparison of the clinical outcomes of three ovulation induction protocols in elderly patients with decline in ovarian reserve**194
Zheng Juan, Zhou Liming, Sun Yiting, et al
- Analysis of related factors for polycystic ovary syndrome patients complicated non-alcoholic fatty liver disease**201
Li Yikun, Shen Shanmei, Yang Jiamiao, et al
- Study on the status quo and influencing factors of medication adherence in female infertility patients during *in vitro* fertilization and embryo transfer cycles**207
Guo Jingbo, Hu Junping, Yang Yuan, et al
- Preliminary study on metabolites of polyunsaturated fatty acids in seminal plasma of Guizhou Province population**214
Wu Bin, Zhu Mingjiang, Ji Honglei, et al

Laboratory Study

- Effect of di-2-ethylhexyl phthalate on oocyte development potential**219
Wang Jingjing, Zhao Hua, Wang Xingling, et al

Clinical Report

- Effects of cervical insufficiency combined with insulin resistance on pregnancy prognosis**225
Wang Lei, Ren Min, Hong Xiangli, et al
- Modified double-armed suture technique for microsurgical vasopididymostomy and its clinical efficacy**230
Zhu Xiaobo, Zhang Xiangsheng, Zhang Shilong, et al

Case Report

- Sperm aneuploidy rate and intracytoplasmic sperm injection outcomes in five Chinese patients with multiple morphological abnormalities of sperm flagella**234
Feng Zonggang, Wei Lei, Cheng Lanlan, et al

Review

- Application progress of recombinant human growth hormone in assisted reproductive technology**241
Wu Xiaolin, Huang Lingling, Liang Lei, et al
- Endometrial receptivity and endometriosis-associated infertility**246
Zhu Jingwen, Xue Qing
- Research progress of regulatory T cells in female reproductive process**250
Zhang Yunian, Tian Haiqing, La Xiaolin
- Research progress of the levonorgestrel-releasing intrauterine system for the treatment of common gynecological diseases**255
Yang Yingqiong, Huang Qinjin
- Overview of promoting strategy of assisted reproductive technology service in the perspective of social capital**259
Wang Danni, Xu Qianhua, Zhang Qin, et al

DOI : 10.3760/cma.j.cn101441-20200228-00094

收稿日期 2020-02-28 本文编辑 王李艳

引用本文 : 李蓉, 杨菁, 李红钢, 等. 新型冠状病毒肺炎疫情下生殖医学的新问题与挑战[J]. 中华生殖与避孕杂志, 2020, 40(3): 177-181. DOI: 10.3760/cma.j.cn101441-20200228-00094.

·新型冠状病毒专栏·

新型冠状病毒肺炎疫情下生殖医学的新问题与挑战

李蓉¹ 杨菁² 李红钢³ 王媛媛¹ 程丹² 段鹏³ 吴庚香² 尹太郎² 熊承良³ 乔杰¹

¹北京大学第三医院生殖医学中心 100191 ; ²武汉大学人民医院生殖医学中心 430060 ; ³华中科技大学同济医学院生殖健康研究所, 武汉 430030

通信作者 : 乔杰, Email : jie.qiao@263.net, 电话 : +86-10-82265080

【摘要】 本文旨在探讨新型冠状病毒肺炎 (COVID-19) 疫情下, 病毒感染、治疗药物、环境消毒剂以及由此产生的各类心理问题等对人们生殖系统及功能的潜在影响或危害。通过对既往及最新研究进行文献综述可知, COVID-19 可能对两性生殖系统存在潜在影响; 在抗病毒治疗期间及治疗结束后至少 8 个月内建议避孕, 但尚无证据支持早孕期在无医学指征的情况下终止妊娠; 辅助生殖实验室不建议采用含氯消毒液消毒。医务工作者应该根据患者的生育需求、疾病状况和心理状态进行综合评估, 以便给予合理的生育指导和咨询。

【关键词】 新型冠状病毒肺炎; 传染病; 生殖健康

Emerging questions and challenges of COVID-19 on reproductive health

Li Rong¹, Yang Jing², Li Honggang³, Wang Yuanyuan¹, Cheng Dan², Duan Peng³, Wu Gengxiang², Yin Tailang², Xiong Chengliang³, Qiao Jie¹
¹Reproductive Medical Center, Peking University Third Hospital, Beijing 100191, China ; ²Reproductive Medical Center, Renmin Hospital of Wuhan University, Wuhan 430060, China ; ³Institute of Reproductive Health, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430030, China
Corresponding author: Qiao Jie, Email: jie.qiao@263.net, Tel: +86-10-82265080

【Abstract】 During the outbreak of COVID-19, this paper aimed to discuss its potential risks on reproductive health, which was underpinned by the virus, drugs, disinfectants and psychological problems. The literatures review on previous and latest studies showed that COVID-19 may have potential effects on both men's and women's reproductive systems; that contraception should be recommended during antiviral treatment and for at least eight months after the end of antiviral treatment, but there is no evidence to support the termination of pregnancy without medical indicators during early pregnancy; and that chlorine disinfectants are not recommended for assisted reproduction laboratories. Medical professionals should make a comprehensive assessment according to the patient's

fertility needs, disease status and psychological level, in order to provide reasonable fertility guidance and counselling.

【Key words】 COVID-19 ; Infectious disease ; Reproductive health

DOI : 10.3760/cma.j.cn101441-20200218-00069

收稿日期 2020-02-18 本文编辑 孙敏

引用本文 : 中华医学会儿科学分会. 新型冠状病毒肺炎疫情下终止早期妊娠的专家指导建议[J]. 中华生殖与避孕杂志, 2020, 40(3): 182-187. DOI: 10.3760/cma.j.cn101441-20200218-00069.

·新型冠状病毒专栏

新型冠状病毒肺炎疫情下终止早期妊娠的专家指导建议

中华医学会儿科学分会

通信作者 : 顾向应 , Email : gxy6283@163.com , 电话 : +86-18622186957

【摘要】 2019年12月以来,新型冠状病毒肺炎逐渐蔓延。终止早期妊娠的手术属于限期手术,为保证在当前形势下顺利、规范、安全地终止早期妊娠,特制定本专家指导建议,供临床参考。

【关键词】 新型冠状病毒肺炎;早期妊娠;手术流产;防控

Expert consensus on termination of first-trimester pregnancy in the spread of COVID-19 outbreak

Family Planning Branch of the Chinese Medical Association

Corresponding author: Gu Xiangying, Email: gxy6283@163.com, Tel: +86-18622186957

【Abstract】 Since December 2019, COVID-19 has gradually spread.

Termination of the first-trimester pregnancy is a surgery that should be served within a constrict time interval. In order to ensure the safety, standardization, success and smooth of this clinical practice under such circumstance, this expert guidance proposal is formulated for clinical reference.

【Key words】 COVID-19; First-trimester pregnancy; Surgical abortion; Prevention and control

DOI : 10.3760/cma.j.cn101441-20200317-00137

收稿日期 2020-03-17 本文编辑 李天琦

引用本文 : 引用格式:上海市医师协会生殖医学医师分会. 新型冠状病毒疫情期间备孕及孕早期管理专家共

新型冠状病毒疫情期间备孕及孕早期管理专家共识

上海市医师协会生殖医学医师分会

通信作者：李文，Email：liwen@smmueducn，电话：+86-21-

81886715，传真：+86-21-81886711；黄荷凤，Email：

huanghefg@sjtu.edu.cn，电话：+86-21-64040734，传真：+86-21-64073896

【摘要】 新型冠状病毒肺炎的暴发及蔓延，给我国乃至全球带来极大的考验和挑战。面对疫情，备孕人群有特殊的担忧。从疑似孕妇易感，到新生儿感染病例发生，再到可能存在母婴垂直传播的消息传出，给备孕人群带来极大的心理恐慌和思想负担。在此特殊时期，对于有备孕需求的夫妇以及需要进行辅助生殖技术助孕的患者，如何就诊，就诊期间如何管理，尚没有统一规范。因此，上海市医师协会生殖医学医师分会专家编写了此共识，以满足当前需要，减少疫情期期间备孕以及早孕人群的相关困惑，同时提供及时的防护指导。

【关键词】 新型冠状病毒肺炎； 备孕； 早孕； 受精，体外； 胚胎移植

A Chinese experts' consensus for responding to COVID-19 during pregnancy preparation and pregnancy in early stage

Reproductive Medicine Branch of Shanghai Medical Association

Corresponding author: Li Wen, Email: liwen@smmu.edu.cn, Tel: +86-21-

81886715, Fax: +86-21-81886711; Huang Hefeng, Email:

huanghefg@sjtu.edu.cn, Tel: +86-21-64040734, Fax: +86-21-64073896

【Abstract】 COVID-19 pandemic has proved to be a global health crisis. News around the world of the suspected susceptibility of pregnant women, occurrence of neonatal infection cases, and possible mother to child vertical transmission, left many pregnant women in great psychological panic and ideological burden. There are no clear and unified guidelines for couples preparing for pregnancy and for patients needing assisted reproductive technology to consult doctors during this special period. Therefore, the experts of Reproductive Medicine Branch of Shanghai Medical Association have compiled this consensus to meet the current needs, resolve confusions that many people preparing for pregnancy and in early pregnancy during the epidemic, and provide timely protection guidance.

【Key words】 COVID-19; Pregnancy preparation; Early pregnancy; Fertilization *in vitro*; Embryo transfer

DOI : 10.3760/cma.j.cn101441-20190325-00121

收稿日期 2019-04-25 本文编辑 李天琦

引用本文 : 郑娟, 周黎明, 孙亦婷, 等. 高龄合并卵巢储备功能低下患者三种促排卵方案的临床结局比较 [J]. 中华生殖与避孕杂志, 2020, 40(3): 194-200. DOI: 10.3760/cma.j.cn101441-20190325-00121.

·临床研究·

高龄合并卵巢储备功能低下患者三种促排卵方案的临床结局比较

郑娟 周黎明 孙亦婷 夏爱丽 李脉 梁坤

宁波市妇女儿童医院生殖中心 315000

通信作者 : 郑娟, Email : zhengjuan0726@163.com, 电话 : +86-15968933289

【摘要】 目的 分析体外受精-胚胎移植(IVF-ET)中使用 3 种不同促排卵方案对于高龄合并卵巢储备功能低下患者的临床结局和费效比, 探讨经济有效的促排卵方案。方法 回顾性分析 2017 年 1 月至 2018 年 10 月期间宁波市妇女儿童医院生殖中心高龄同时合并卵巢储备功能低下(按照 POSEIDON 标准, 属于第 4 组)的低预后患者, 行 IVF-ET 助孕, 根据其使用的促排卵方案的不同, 分为 3 组: 拮抗剂方案组(A 组, 169 个周期), 微刺激方案组(B 组, 57 个周期), 高孕激素状态下促排卵(PPOS)组(C 组, 59 个周期), 分析 3 种促排卵方案的临床结局及费效比。结果 A 组获卵数(4.46 ± 1.45)多于 B 组(2.42 ± 1.12)和 C 组(3.28 ± 1.62)($P=0.013$, $P=0.021$); 累积临床妊娠率 A 组(35.50%)高于 B 组(21.43%)、C 组(23.73%)($P=0.012$, $P=0.021$); 周期取消率 A 组(0.95%)最低; 每获一卵所需费用 A 组[(3817 ± 1450)元]明显低于 B 组[(5868 ± 1820)元]、C 组[(4484 ± 1678)元]($P=0.011$, $P=0.214$); 每获一枚可利用胚胎所需费用 A 组[(7276 ± 2329)元]低于 B 组[(7978 ± 2560)元]和 C 组[(7466 ± 2175)元]($P=0.001$, $P=0.012$), 每获一临床妊娠所需费用 A 组[($47\ 957\pm 22\ 388$)元]低于 B 组[($67\ 450\pm 35\ 210$)元]、C 组[($61\ 984\pm 33\ 463$)元], 组间比较差异均有统计学意义($P=0.012$, $P=0.021$)。结论 对于 35 周岁以上、刺激前卵巢储备功能低下患者, 从临床结局及费效比方面综合考虑, 拮抗剂方案优于微刺激、PPOS, 是比较理想的促排卵方案。

【关键词】 卵巢储备功能低下; 促性腺激素释放激素拮抗剂方案; 高孕激素状态下促排卵; 费效比

基金项目 : 宁波市医疗卫生品牌学科(PPXK2018-06)

Comparison of the clinical outcomes of three ovulation induction protocols in elderly patients with decline in ovarian reserve

Zheng Juan, Zhou Liming, Sun Yiting, Xia Aili, Li Mai, Liang Kun

Reproductive Center of Ningbo Women & Children Hospital, Ningbo 315000, China

Corresponding author: Zheng Juan, Email: zhengjuan0726@163.com, Tel: +86-15968933289

【Abstract】 Objective To analyze the clinical outcomes and cost-effectiveness ratio of the patients with ovarian reserve dysfunction in three different ovulation induction protocols during *in vitro* fertilization-embryo transfer (IVF-ET), and to explore a cost-effective ovulation induction protocol. **Methods** A retrospective analysis was made on the low prognosis in IVF-ET of elderly patients with low ovarian reserve function (according to POSEIDON criteria, group 4) in Reproductive Center of Ningbo Women & Children Hospital during January 2017 to October 2018. According to the different ovarian stimulation protocols used, they were divided into three groups: antagonist group (group A, 169 cycles), micro-stimulation group (group B, 57 cycles), and progestin-primed ovarian stimulation (PPOS) group (group C, 59 cycles). The clinical outcome and cost-effectiveness of three ovulation-promoting protocols were analyzed. **Results** In group A, compared with group B and group C, both the number of obtained eggs [4.46 ± 1.45 , 2.42 ± 1.12 , 3.28 ± 1.62 , respectively in the three groups ($P=0.013$, $P=0.021$)] and the cumulative clinical pregnancy rate were higher (35.50%, 21.43%, 23.73%, respectively in the three groups)($P=0.012$, $P=0.021$). In group A, the rate of cycle cancellation was the lowest in the three groups (0.95%, 21.05%, 15.24%, respectively). In group A, the average cost of each egg acquisition was the lowest [(3817±1450) yuan, (5868±1820) yuan, (4484±1678) yuan, respectively in the three groups)]($P=0.001$, $P=0.012$, $P=0.017$), and the cost of each available embryo was the lowest too [(7276±2329) yuan, (7978±2560) yuan, (7466±2175) yuan, respectively in the three groups)]($P=0.001$, $P=0.021$, $P=0.033$). The cost per clinical pregnancy was lower in group A than in group B and group C [(47 957±22 388) yuan, (67 450±35 210) yuan, (61 984±33 463) yuan, respectively in the three groups)]($P=0.012$, $P=0.021$). **Conclusion** For patients aged over 35 years with poor ovarian reserve before stimulation, antagonist protocol was superior to micro-stimulation and PPOS, considering the clinical outcome and cost-effectiveness ratio, and it was an ideal ovary stimulation protocol.

【Key words】 Ovarian reserve dysfunction ; Gonadotropin-releasing hormone antagonist protocol ; Progestin-primed ovarian stimulation ; Cost-effectiveness ratio

Fund program : Medical and Health Brand Discipline in Ningbo (PPXK2018-06)

DOI : 10.3760/cma.j.cn101441-20190320-00116

收稿日期 2019-05-05 本文编辑 王李艳

引用本文 : 李忆昆, 沈山梅, 杨佳苗, 等. 多囊卵巢综合征合并非酒精性脂肪性肝病相关风险因素探讨[J].

中华生殖与避孕杂志, 2020, 40(3): 201-206. DOI: 10.3760/cma.j.cn101441-20190320-00116.

·临床研究·

多囊卵巢综合征合并非酒精性脂肪性肝病相关风险因素探讨

李忆昆¹ 沈山梅¹ 杨佳苗² 乔程程² 邵飞² 张冰洁² 王静³ 毕艳²
朱大龙²

¹东南大学医学院南京鼓楼医院内分泌科 210008 ; ²南京大学医学院附属南京鼓楼医院内分泌科 210008 ; ³南京大学医学院附属南京鼓楼医院体重管理中心 210008
通信作者:沈山梅, Email: shanmeishen@126.com, 电话: +86-13813865765

【摘要】 目的 评估多囊卵巢综合征(PCOS)患者非酒精性脂肪性肝病(NAFLD)的患病率,并探究PCOS和NAFLD之间的关联。方法 本横断面研究选取2016年2月至2018年4月期间在南京大学医学院附属南京鼓楼医院内分泌科就诊的122例PCOS患者(PCOS组)及年龄、体质量指数(BMI)匹配的107例对照(对照组),收集所有受试者的一般资料并测定肝酶、血脂、糖耐量、性激素指标,同时行肝脏彩色超声检查,比较PCOS组和对照组的临床特征、实验室指标和NAFLD患病率,并对PCOS和NAFLD之间的相关因素以及胰岛素抵抗、高雄激素血症在其中的作用进行分析。结果 PCOS组的NAFLD患病率(62.6%)高于对照组(76.2%, $P=0.025$)。Logistic回归提示PCOS患者中稳态模型的胰岛素抵抗指数(HOMA-IR)和游离雄激素指数(FAI)水平与NAFLD的风险显著相关($OR=1.686$, 95% $CI=1.279\sim 2.223$; $OR=1.167$, 95% $CI=1.039\sim 1.311$),将HOMA-IR纳入模型后,FAI水平与NAFLD的相关性无统计学意义($P>0.05$)。结论 NAFLD在PCOS患者中非常普遍。PCOS患者的NAFLD与胰岛素抵抗和高雄激素血症有关,其中胰岛素抵抗是PCOS合并NAFLD的独立危险因素,而高雄激素血症通过介导胰岛素抵抗而影响NAFLD的发生。

【关键词】 多囊卵巢综合征; 非酒精性脂肪性肝病; 胰岛素抵抗; 高雄激素血症

基金项目:江苏省医学重点学科(XK201105)

Analysis of related factors for polycystic ovary syndrome patients complicated non-alcoholic fatty liver disease

Li Yikun¹, Shen Shanmei¹, Yang Jiamiao², Qiao Chengcheng², Shao Fei², Zhang Bingjie², Wang Jing³, Bi Yan², Zhu Dalong²

¹Department of Endocrinology, Medical School of Southeast University Nanjing Drum Tower Hospital, Nanjing 210008, China; ²Department of Endocrinology, Drum Tower Hospital Affiliated to Nanjing University Medical School, Nanjing 210008, China; ³Health Manager Center, Drum Tower Hospital Affiliated to Nanjing University Medical School, Nanjing 210008, China
Corresponding author: Shen Shanmei, Email: shanmeishen@126.com, Tel: +86-13813865765

【Abstract】 Objective To compare the prevalence of non-alcoholic fatty liver disease (NAFLD) in women with or without polycystic ovary syndrome (PCOS), and to evaluate association between PCOS and NAFLD. **Methods** A cross-sectional study was performed including 122 PCOS patients (PCOS group) and 107 age, and body mass index (BMI)-matched women (control group). Anthropometric parameters, liver enzyme, lipid profile, glucose and insulin levels, sex hormones and hepatic ultrasonography were measured in all subjects. The clinical features, laboratory parameters and prevalence of NAFLD were compared between PCOS group and control group. The related factors were evaluated between PCOS and NAFLD, finally the role of insulin resistance (IR) and hyperandrogenism (HA) was analysed. **Results** Women with PCOS had a significantly higher prevalence of NAFLD than those without PCOS (62.6% vs. 76.2%, $P=0.025$). Logistic regression

found that HOMA-IR and FAI were associated with NAFLD in PCOS women ($OR=1.686$, $95\% CI=1.279-2.223$; $OR=1.167$, $95\% CI=1.039-1.311$), however, there was no significant correlation between FAI and NAFLD after adjustment for HOMA-IR ($P>0.05$). **Conclusion** NAFLD is more prevalent in women with PCOS than in those without. Insulin resistance and HA drive risk of NAFLD in young female with PCOS. IR may be an independent risk factor for NAFLD, and the association between HA and NAFLD is not independent but is mediated by IR.

【Key words】 Polycystic ovary syndrome ; Non-alcoholic fatty liver disease ; Insulin resistance ; Hyperandrogenism

Fund program : Jiangsu Provincial Key Medical Discipline (XK201105)

DOI : 10.3760/cma.j.cn101441-20190411-00151

收稿日期 2019-05-11 本文编辑 李天琦

引用本文 : 郭静波, 胡俊平, 杨媛, 等. 女性不孕症患者体外受精-胚胎移植助孕周期用药依从性现状及影响因素研究[J]. 中华生殖与避孕杂志, 2020, 40(3): 207-213. DOI: 10.3760/cma.j.cn101441-20190411-00151.

·临床研究·

女性不孕症患者体外受精-胚胎移植助孕周期用药依从性现状及影响因素研究

郭静波¹ 胡俊平² 杨媛² 邵洁¹ 刘琳²

¹兰州大学护理学院 730000 ; ²兰州大学第一医院生殖医学专科医院, 甘肃省生殖医学与胚胎重点实验室 730000

通信作者 : 胡俊平, Email : szhl18hujp@163.com , 电话 : +86-13609326570

【摘要】 目的 分析不孕症患者体外受精-胚胎移植(*in vitro* fertilization and embryo transfer, IVF-ET)助孕周期用药依从性现状及其影响因素, 为今后提高其用药依从性相关干预措施提供依据和思路。方法 选取2018年11月至2019年2月期间在兰州大学第一医院生殖中心接受IVF-ET助孕的120例患者为研究对象。采用横断面调查研究, 应用一般资料调查表、Morisky用药依从性量表(MMAS-8)、一般自我效能感量表(GSES)、社会支持量表(SSRS)和医学应对方式问卷(MCMQ)对120例IVF-ET患者进行调查, 采用SPSS25.0软件进行分析。结果 IVF-ET患者周期用药依从性得分为(6.70±1.42)分, 69.6%的患者用药依从性不高。多因素回归分析结果显示, 影响IVF-ET患者用药依从性的主要因素有患者的自我效能及对疾病的医学应对方式。结论 IVF-ET患者用药依从性较低, 护理人员需要在加强

对患者相关用药知识的宣教等措施的基础上，加强 IVF-ET 周期患者的自我效能，引导其选择“面对”的积极应对方式。在其心理压力大，难以选择“面对”时引导患者采取“回避”应对方式来缓解压力，并制定有效的干预措施，提高其用药依从性。

【关键词】 不孕症； 受精，体外； 用药依从性； 影响因素

Study on the status quo and influencing factors of medication adherence in female infertility patients during *in vitro* fertilization and embryo transfer cycles

Guo Jingbo¹, Hu Junping², Yang Yuan², Shao Jie¹, Liu Lin²

¹School of Nursing, Lanzhou University, Lanzhou 730000, China ; ²The Reproductive Medicine Special Hospital of the 1st Hospital of Lanzhou University, Key Laboratory for Reproductive Medicine and Embryo, Lanzhou 730000, China
Corresponding author: Hu Junping, Email: szhl18hujp@163.com, Tel: +86-13609326570

【Abstract】 Objective To analyze the current status of medication adherence and its influencing factors in infertility patients during *in vitro* fertilization and embryo transfer (IVF-ET) cycles, and to provide evidence and ideas for improving medication adherence and formulating relevant intervention measures in the future. **Methods** A cross-sectional survey was conducted to investigate 120 patients who underwent IVF-ET using the patient's basic situation questionnaire, MMAS-8, general self-efficacy scale (GSES), social support rating scale (SSRS) and medical coping models questionnaire (MCMQ). And the SPSS25.0 software was used to analyze the results. **Results** The compliance score of IVF-ET patients was 6.70 ± 1.42 , and 69.6% patients had low medication adherence. Multivariate regression analysis showed that the main factors affecting patient compliance were patient self-efficacy and medical response to the disease. **Conclusion** The current status of IVF-ET assisted patient's medication adherence need to be further improved. Nursing staff need to not only build on traditional measures such as education, but also strengthen the self-efficacy, guide their choice to face. And when the psychological pressure is too great to be faced, the patient should be guided to adopt an "avoidance" coping style to alleviate the pressure brought by the disease. We should develop effective interventions to improve medication adherence.

【Key words】 Infertility ; Fertilization *in vitro* ; Medication adherence ; Influencing factors

DOI : 10.3760/cma.j.cn101441-20190318-00107

收稿日期 2019-03-19 本文编辑 宋培培

引用本文：吴斌，朱明江，纪红蕾，等. 贵州人群精浆中多不饱和脂肪酸代谢产物的初步研究[J]. 中华生殖与避孕杂志, 2020, 40(3): 214-218. DOI: 10.3760/cma.j.cn101441-20190318-00107.

·临床研究·

贵州人群精浆中多不饱和脂肪酸代谢产物的初步研究

吴斌¹ 朱明江² 纪红蕾³ 毛燕燕³ 吴峻³ 顾一骅³ 施惠娟³ 尹慧勇²
王磊¹ 郑菊芬³

¹ 复旦大学生命科学学院, 上海 200433; ² 中国科学院上海营养与健康研究所 200031; ³ 复旦大学生殖与发育研究院上海市计划生育科学研究所 国家卫生健康委员会计划生育药具重点实验室 200032

通信作者: 郑菊芬, Email: jf_zheng@sina.cn, 电话: +86-21-64046772

【摘要】 目的 探讨多不饱和脂肪酸代谢产物在精子活力正常人群和精子活力弱人群精浆中的差异, 以及与精子活力的关系。方法 将贵州采集的 581 例人精浆按照活力分为精子活力正常组和精子活力弱组, 使用液相二级质谱(LC-MS/MS)方法, 对 24 种多不饱和脂肪酸代谢产物进行检测。通过精子体外培养实验, 将上游筛选精子培养 24 h 期间收集培养上清液, 同样使用 LC-MS/MS 方法对不同分组的精浆中检测到存在差异的多不饱和脂肪酸产物进行检测验证。结果 在精浆中检测的多不饱和脂肪酸代谢产物中, 精子活力弱组精浆中的 9-羟基十八碳二烯酸 (9-HODE) 与 13-羟基十八碳二烯酸 (13-HODE) 浓度均比精子活力正常组高, 差异均有统计学意义($P=0.001$, $P=0.033$)。精子体外培养实验显示, 随着培养时间的延长和精子活力的下降, 培养液中的 9-HODE 与 13-HODE 浓度则显著上升 ($P=0.003$, $P=0.035$), 统计学分析显示 9-HODE 和 13-HODE 浓度与精子活力呈显著强负相关($r=-0.91$, $P=0.045$; $r=-0.95$, $P=0.026$)。将精子浓度因素考虑到人群精浆中多不饱和脂肪酸代谢产物与精子活力的分析中, 结果显示, 9-HODE 和 13-HODE 在精子活力弱组浓度显著高于精子活力正常组($P<0.0001$), 并且与精子活力存在同样负相关关系($r=-0.38$)($P<0.0001$)。结论 9-HODE 和 13-HODE 通过精子代谢释放到培养液与精浆中, 是精子膜损伤程度的潜在指标, 可能有助于判断和检测弱精子症。

【关键词】 精子; 多不饱和脂肪酸; 串联质谱法

基金项目: 上海市卫生和计划生育委员会科研项目(20174Y0078)

Preliminary study on metabolites of polyunsaturated fatty acids in seminal plasma of Guizhou Province population

Wu Bin¹, Zhu Mingjiang², Ji Honglei³, Mao Yanyan³, Wu Jun³, Gu Yihua³, Shi huijuan³, Yin Huiyong², Wang Lei¹, Zheng Jufen³

¹School of Life Science Fudan University, Shanghai 200433, China; ²Shanghai Institute of Nutrition and Health, Chinese Academy of Science, Shanghai 200031, China; ³NHC Key Lab. of Reproduction Regulation (Shanghai Institute of Planned Parenthood Research), Fudan University, Shanghai 200032, China
Corresponding author: Zheng Jufen, Email: jf_zheng@sina.cn, Tel: +86-21-64046772

【Abstract】 Objective To investigate the differences in polyunsaturated fatty acid metabolites in seminal plasma between normal group and low sperm motility group, and their relationship with sperm motility. **Methods** Totally 581 human seminal plasmas collected from Guizhou Province were divided into normal group and low sperm motility group according to the motility rate. The metabolite products of 24 kinds of polyunsaturated fatty acids were detected by liquid phase tandem mass spectrometry/mass spectrometry (LC-MS/MS). Through the *in vitro* culture experiment of sperm, the culture supernatant was collected during the culture of the upstream screening sperm for 24 h, and the polyunsaturated fatty acid products with different differences detected in the different groups of seminal plasma were also verified by LC-MS/MS method. **Results** Among the polyunsaturated fatty acid metabolites detected in seminal plasma, the concentrations of 9-hydroxyoctadecadienoic acid (9-HODE) and 13-

hydroxyoctadecadienoic acid (13-HODE) in the seminal plasma of the low sperm motility group were significantly different from those in the normal seminal plasma group ($P=0.001$, $P=0.033$). *In vitro* culture experiments showed that the concentration of 9-HODE and 13-HODE in the culture medium increased significantly with the prolongation of culture time and the decrease of sperm motility rate ($P=0.003$, $P=0.035$). Statistical analysis showed that the concentrations of 9-HODE and 13-HODE were significantly negatively correlated with sperm motility ($r=-0.91$, $P=0.045$; $r=-0.95$, $P=0.026$). Considering the sperm density factor in the analysis of polyunsaturated fatty acid metabolites and sperm motility in the seminal plasma of the population, the results showed that 9-HODE and 13-HODE were significantly higher in the low sperm motility group than in the normal group ($P<0.0001$). And there was a negative correlation ($r=-0.38$) with the sperm motility rate ($P<0.0001$). **Conclusion** 9-HODE and 13-HODE are released into the culture medium and seminal plasma by sperm cell metabolism, which is a potential indicator of the degree of sperm membrane damage, which may be helpful in judging and detecting the asthenospermia.

【Key words】 Sperm ; Polyunsaturated fatty acid ; Tandem mass spectrometry

Fund program : Shanghai Municipal Health and Family Planning Commission Research Project (20174Y0078)

DOI : 10.3760/cma.j.cn101441-20190622-00269

收稿日期 2019-07-01 本文编辑 孙敏

引用本文 : 王静静, 赵华, 王兴玲, 等. 邻苯二甲酸(2-乙基己基)酯对小鼠卵母细胞发育潜能的影响[J]. 中华生殖与避孕杂志, 2020, 40(3): 219-224. DOI: 10.3760/cma.j.cn101441-20190622-00269.

·实验研究·

邻苯二甲酸(2-乙基己基)酯对小鼠卵母细胞发育潜能的影响

王静静¹ 赵华² 王兴玲¹ 崔趁趁² 刘慧¹ 高亚谊¹ 张琍钧¹

¹郑州大学第三附属医院 450052 ; ²郑州大学人民医院 450003

通信作者 : 王兴玲, Email : wangxl208@126.com , 电话 : +86-18637108281

【摘要】 目的 探讨邻苯二甲酸(2-乙基己基)酯(DEHP)对小鼠卵母细胞发育潜能的影响及其可能的机制。方法 将40只3周龄清洁级昆明雌性小鼠随机分为4组,分别为对照(玉米油)组和低、中、高剂量DEHP染毒组(300 mg/kg、600 mg/kg、1200 mg/kg),每组10只。采用灌胃方式进行染毒,染毒容量为5 mL/kg, qd,每周5 d,连续染毒6周。染毒结束后,将各组雌鼠促排卵后与雄鼠合笼,取受精卵,观察卵裂率及囊胚形成率。同时用Ca²⁺荧光探针(Fluo-4 AM)、活性氧(ROS)检测试剂盒检测各组卵母细胞Ca²⁺、ROS水平,比较各组卵母细胞Ca²⁺及ROS水平差异。结果 与对照组比,低、中、高剂量DEHP染毒组卵裂

率、囊胚形成率降低，差异均有统计学意义(P 均 <0.05)。与对照组和低剂量 DEHP 染毒组比较，中、高剂量 DEHP 染毒组卵母细胞 Ca^{2+} 、ROS 水平显著升高，差异均有统计学意义(P 均 <0.05)。结论 DEHP 可升高小鼠卵母细胞内 Ca^{2+} 、ROS 水平，降低卵母细胞质量，进而影响早期胚胎发育。

【关键词】 卵母细胞；邻苯二甲酸(2-乙基己基)酯； Ca^{2+} ；活性氧

基金项目：国家自然科学基金青年项目(81701444)

Effect of di-2-ethylhexyl phthalate on oocyte development potential

Wang Jingjing¹, Zhao Hua², Wang Xingling¹, Cui Chenchen², Liu Hui¹, Gao Yayi¹, Zhang Lijun¹

¹The Third Affiliated Hospital of Zhengzhou University, Zhengzhou 450052, China ;

²People's Hospital of Zhengzhou University, Zhengzhou 450003, China

Corresponding author: Wang Xingling, Email: wangxl208@126.com, Tel: +86-18637108281

【Abstract】 Objective To investigate the effect of di-2-ethylhexyl phthalate (DEHP) on oocyte development potential and its mechanism. **Methods** Forty 3-week old female KM mice were randomly divided into 4 groups ($n=10$, each), including control group (corn oil), the low-, medium-, and high-dose DEHP groups (300 mg/kg, 600 mg/kg, 1200 mg/kg). Mice of 4 groups were orally administered with corn oil (control) or DEHP daily for 6 weeks (5 d per week), respectively. After the treatment, female mice in each group were given ovulation induction and cooped up with male mice. The fertilized eggs were collected to observe the cleavage rate and blastocyst formation rate. Meanwhile, the levels of Ca^{2+} and reactive oxygen species (ROS) of oocytes in each group were detected with the Ca^{2+} fluorescence probe (Fluo-4 AM) and ROS assay kit, then the differences were compared. **Results** Compared with control group, the cleavage rate and blastocyst formation rate of the low-, medium- and high-dose DEHP groups decreased, and the differences were statistically significant (P all <0.05). The levels of Ca^{2+} and ROS in oocytes increased with the increase of DEHP dosage. Compared with control group and the low-dose DEHP group, the levels of Ca^{2+} and ROS in oocytes of the medium- and high-dose DEHP groups were significantly higher, and the differences were statistically significant (P all <0.05). **Conclusion** DEHP can increase the levels of Ca^{2+} and ROS in mouse oocytes, reduce the quality of oocytes, and affect the early embryonic development.

【Key words】 Oocyte ; di-2-ethylhexyl phthalate ; Calcium ion ; Reactive oxygen species

Fund program : Youth Program of National Natural Science Foundation of China (81701444)

DOI : 10.3760/cma.j.cn101441-20190212-00046

收稿日期 2019-03-18 本文编辑 王李艳

引用本文：王磊，任敏，洪向丽，等. 宫颈机能不全合并胰岛素抵抗对妊娠结局的影响[J]. 中华生殖与避孕杂志, 2020, 40(3): 225-229. DOI: 10.3760/cma.j.cn101441-20190212-00046.

·临床报道·

宫颈机能不全合并胰岛素抵抗对妊娠结局的影响

王磊 任敏 洪向丽 孔慧敏

同济大学附属第一妇婴保健院超声科, 上海 200040

通信作者: 孔慧敏, Email: guiyin4166@126.com, 电话: +86-21-54035206

【摘要】 目的 探讨宫颈机能不全患者中胰岛素抵抗 (IR) 对妊娠结局的影响。方法 采用回顾性队列研究设计, 分析 2015 年 9 月至 2018 年 9 月期间同济大学附属第一妇婴保健院生殖免疫科(原复发性流产门诊)和宫颈相关的流产早产门诊诊断为宫颈机能不全的患者临床资料, 随访妊娠结局。分析 IR 发生情况以及 IR 对宫颈机能不全患者妊娠结局的影响。结果 入选 212 例单胎妊娠宫颈机能不全患者, 发病孕周为(22.0±3.2)周, 终止孕周为(33.0±4.5)周。其中, 41 例 (19.3%) 以流产告终, 104 例 (49.5%) 早产, 67 例 (31.6%) 足月产。合并 IR 共 92 例 (43.4%), 发病孕周为 (20.7±2.4) 周, 终止妊娠孕周为 (30.5±4.2) 周, 非 IR 组共 120 例, 发病孕周为 (23.8±3.3) 周, 终止妊娠孕周为 (34.9±3.6) 周, 组间比较差异均有统计学意义 (P 均 <0.001)。与 120 例非 IR 组 (7.5% 流产, 50.8% 早产, 41.7% 足月产) 相比, IR 组妊娠结局较差, 34.8% 流产, 47.7% 早产, 18.5% 足月产 ($P=0.001$, $P=0.269$, $P=0.001$)。多因素 logistic 回归模型显示宫颈机能不全合并有 IR 患者较非 IR 患者流产发生风险增加 3.24 倍 ($OR=3.240$, 95% $CI=2.569\sim4.089$, $P=0.001$), 此外体质指数(BMI)和多囊卵巢综合征 (PCOS) 也是宫颈机能不全患者发生流产的危险因素 ($OR=1.108$, 95% $CI=1.11\sim1.22$, $P=0.001$; $OR=1.507$, 95% $CI=1.191\sim1.906$, $P=0.001$)。结论 宫颈机能不全合并 IR 患者起病孕周早, 终止妊娠孕周早, 流产风险增加。

【关键词】 宫颈机能不全; 胰岛素抵抗; 早产; 多囊卵巢综合征

Effects of cervical insufficiency combined with insulin resistance on pregnancy prognosis

Wang Lei, Ren Min, Hong Xiangli, Kong Huimin

Department of Ultrasound Diagnostics, Shanghai First Maternity and Infant Hospital, Tongji University School of Medicine, Shanghai 200040, China

Corresponding author: Kong Huimin, Email: guiyin4166@126.com, Tel: +86-21-54035206

【Abstract】 Objective To investigate the incidence of insulin resistance (IR) in patients with cervical insufficiency and the risk factors of cervical incompetence. **Methods** The clinical data of patients from Reproductive Immunology Department (former Recurrent Spontaneous Abortion Clinic) and the department of cervical miscarriage and preterm delivery with cervical insufficiency in Shanghai First Maternal and Infant Hospital, Tongji University School of Medicine from September 2015 to September 2018 were retrospectively analyzed. The general conditions of the patients were compared, and the pregnancy outcomes of patients with IR were observed. **Results** A total of 212 single pregnancy patients with cervical insufficiency were collected, the onset gestational age was (22.0±3.21) weeks, the termination gestational age was (32.62±4.36)

weeks. Among them, 41 cases (19.3%) were ended in miscarriage, 104 cases (49.1%) were ended in preterm birth, and 67 cases (31.6%) were ended in term birth. In 92 patients (43.4%) with IR, the onset gestational age was (20.7±2.4) weeks and the termination gestational age was (30.5±4.2) weeks, which were significantly different from non-IR group [the onset gestational age was (23.8±3.3) weeks and the termination gestational age was (34.9±3.6) weeks ($P<0.001$, $P<0.001$)]. Compared with 120 cases in non-IR group (7.5% abortion, 50.8% preterm birth, 41.7% preterm birth), the pregnancy outcome in IR group was worse (34.8% abortion, 47.7% preterm birth, 18.5% preterm birth) ($P=0.001$, $P=0.269$, $P=0.001$). Multivariate logistic regression model showed that IR was significantly correlated with abortion ($OR=3.240$, 95% $CI=2.569-4.089$, $P=0.001$). In addition, body mass index (BMI) and polycystic ovary syndrome (PCOS) were also risk factors for miscarriage in patients with cervical insufficiency ($OR=1.108$, 95% $CI=1.11-1.22$, $P=0.001$; $OR=1.507$, 95% $CI=1.191-1.906$, $P=0.001$). **Conclusion** Patients with cervical incompetence combined with IR had earlier onset gestational ages, earlier termination gestational ages and the risk of miscarriage is increased.

【Key words】 Cervical incompetence ; Insulin resistance ; Preterm birth ; Polycystic ovary syndrome

DOI : 10.3760/cma.j.cn101441-20190528-00212

收稿日期 2019-06-07 本文编辑 李天琦

引用本文 : 朱晓博, 张祥生, 张士龙, 等. 改良双针缝线显微输精管附睾吻合术与疗效评价[J]. 中华生殖与避孕杂志, 2020, 40(3): 230-233. DOI: 10.3760/cma.j.cn101441-20190528-00212.

·临床报道·

改良双针缝线显微输精管附睾吻合术与疗效评价

朱晓博 张祥生 张士龙 陈鑫 陈国晓

河南省人民医院男科与能量医学科, 郑州大学人民医院, 河南大学人民医院 450003

通信作者 : 张祥生, Email : zxs9818@126.com, 电话 : +86-13608698515

【摘要】 目的 探讨应用改良双针缝线显微输精管附睾吻合术治疗附睾梗阻性无精子症的临床疗效。方法 回顾性分析 2013 年 11 月至 2017 年 11 月期间河南省人民医院应用改良双针缝线显微输精管附睾吻合术治疗附睾梗阻性无精子症患者 118 例的临床资料, 分析其围手术期情况、术后复通情况和配偶妊娠情况。结果 手术时间为 (217±56) min, 研究期内未见切口感染、精液瘘、精液囊肿等并发症。术后 3、6、9、12、18 个月行精液常规检查, 术后 18 个月时精子浓度为 (25.1±11.5) ×10⁶/mL、前向运动精子百分率为(38.2±16.4)%, 手术临床复通率

为 70.9%(73/103)，患者配偶自然妊娠率为 38.8%(40/103)，10 例患者夫妇经自然妊娠出生健康婴儿。结论 改良双针缝线显微输精管附睾吻合术临床疗效良好，是无双针缝线时的合适选择。

【关键词】 输精管附睾吻合术； 梗阻性无精子症； 显微外科

Modified double-armed suture technique for microsurgical vasoepididymostomy and its clinical efficacy

Zhu Xiaobo , Zhang Xiangsheng , Zhang Shilong , Chen Xin , Chen Guoxiao
Department of Andrology and Energetic Medicine, Henan Provincial People's Hospital; Zhengzhou University People's Hospital; Henan University People's Hospital, Zhengzhou 450003, China

Corresponding author : Zhang Xiangsheng, Email: zxs9818@126.com, Tel: +86-13608698515

【Abstract】 Objective To explore the clinical efficacy of modified double-armed suture technique for microsurgical vasoepididymostomy in patients with epididymal obstructive azoospermia (EOA). **Methods** The retrospective study included 118 cases with EOA who underwent microsurgical vasoepididymostomy by using modified double-armed suture technique from November 2013 to November 2017, the perioperative complication, the patency rate and the pregnancy rate were analyzed. **Results** The operating time was (217±56) min. No severe adverse events or complications like spermatocele were observed. Semen analyses were performed 3 months, 6 months, 9 months, 12 months and 18 months after operation. The density of sperm was (25.1±11.5) ×10⁶/mL on 18 months after operation, the sperm motility was (38.2±16.4)%, the patency rate was 70.9% (73/103), the pregnancy rate was 38.8% (40/103). Ten couples had healthy babies birth by natural pregnancy. **Conclusion** Modified double-armed suture technique is an efficacy and safety technique in treating EOA. It's a practical alternative in the areas without the specialized double-armed sutures.

【Key words】 Vasoepididymostomy ; Obstructive azoospermia ; Microsurgery

DOI : 10.3760/cma.j.cn101441-20190130-00036

收稿日期 2019-03-30 本文编辑 王李艳

引用本文：冯宗刚，魏磊，程兰兰，等. 5 例精子鞭毛多发形态异常患者的非整倍体率与卵胞质内单精子注射的临床结局研究[J]. 中华生殖与避孕杂志, 2020, 40(3): 234-240. DOI: 10.3760/cma.j.cn101441-20190130-00036.

·个案报道·

5 例精子鞭毛多发形态异常患者的非整倍体率与卵胞质内单精子注射的临床结局研究

冯宗刚 魏磊 程兰兰 谭丽

郑州大学第二附属医院生殖中心 450014

通信作者：谭丽，Email：litan668@126.com，电话：+86-15838171296

【摘要】 目的 评估精子鞭毛多发形态异常(multiple morphological abnormalities of the sperm flagella, MMAF)患者的精子非整倍体率与卵胞质内单精子注射(intracytoplasmic sperm injection, ICSI)的临床结局关系。方法 本研究在2017年1月至2018年6月期间共收集到来自郑州大学第二附属医院生殖中心的5例MMAF患者及10例精液参数正常的可育对照，通过巴氏染色和电子显微镜观察患者精子的形态及超微结构特征，采用荧光原位杂交技术(FISH)检测患者精子非整倍体率，最后对患者行ICSI助孕并观察其临床结局。结果 患者精液中存在大量缺失的、短的、弯的、卷曲的和不规则的精子鞭毛，且鞭毛轴丝中央微管缺失；患者精子非整倍体率与正常相比差异无统计学意义($P>0.05$)；5对MMAF患者夫妇经过7个ICSI周期，均实现临床妊娠，其中活产3例，自然流产2例。结论 MMAF患者精子鞭毛存在严重形态和超微结构异常，但患者较低的精子非整倍体率提示MMAF患者进行ICSI治疗具有较好的临床结局。

【关键词】 男性不育； 精子非整倍体率； 精子鞭毛多发形态异常； 卵胞质内单精子注射

基金项目：河南省科技厅资助项目(162102310207)

Sperm aneuploidy rate and intracytoplasmic sperm injection outcomes in five Chinese patients with multiple morphological abnormalities of sperm flagella

Feng Zonggang, Wei Lei, Cheng Lanlan, Tan Li

Reproductive Center, the Second Affiliated Hospital of Zhengzhou University, Zhengzhou 450014, China

Corresponding author: Tan Li, Email: litan668@126.com, Tel: +86-15838171296

【Abstract】 Objective To evaluate the relationship between sperm aneuploidy rate and clinical outcome of intracytoplasmic sperm injection (ICSI) in multiple morphological abnormalities of the sperm flagella (MMAF) patients. **Methods** A total of 5 MMAF patients and 10 normal fertile individuals with normal parameters from Reproductive Center of the Second Affiliated Hospital of Zhengzhou University were collected from January 2017 to June 2018. Papanicolaou staining, scanning electron microscopy and transmission electron microscopy were performed to observe the morphological characteristics of sperm. Fluorescence *in situ* hybridization (FISH) was used to detect the patients' sperm aneuploidy rate. Finally, ICSI was performed to observe the clinical outcome. **Results** The results of the light microscope and scanning electron microscope showed morphologically abnormal spermatozoa in the ejaculated semen of patients, including absent, short, bent, coiled, and irregular flagella, and the central pair complex was absent in flagellum axoneme using transmission electron microscopy. There was no significant increase in patients' sperm aneuploidy rate compared with normal control. Furthermore, in 7 ICSI cycles of 5 MMAF couples, all of them achieved clinical pregnancy, including 3 cases of live birth and 2 cases of spontaneous abortion. **Conclusion** There are serious morphological and ultrastructural abnormalities in the sperm flagella of MMAF patients. The low aneuploidy rates suggest that ICSI of MMAF patients will likely be of good prognosis for future pregnancies.

【Key words】 Male infertility ; Sperm aneuploidy rate ; Multiple morphological abnormalities of the flagella ; Intracytoplasmic sperm injection

Fund program : Funded by Science and Technology Department of Henan Province (162102310207)

DOI : 10.3760/cma.j.cn101441-20190315-00099

收稿日期 2019-03-25 本文编辑 孙敏

引用本文 : 邬晓琳, 黄玲玲, 梁蕾, 等. 重组人生长激素在人类辅助生殖技术助孕中的应用进展[J]. 中华生殖与避孕杂志, 2020, 40(3): 241-245. DOI: 10.3760/cma.j.cn101441-20190315-00099.

· 综 述 ·

重组人生长激素在人类辅助生殖技术助孕中的应用进展

邬晓琳 黄玲玲 梁蕾 李萍

厦门大学附属妇女儿童医院(厦门市妇幼保健院) 361000

通信作者 : 李萍, Email : saarc2001@sina.com, 电话 : +86-18046427900

【摘要】 为了改善体外受精-胚胎移植(*in vitro* fertilization-embryo transfer, IVF-ET)治疗的结局, 重组人生长激素(recombinant human growth hormone, rhGH)在辅助生殖技术中被广泛应用, 特别是对于卵巢储备功能减退(diminished ovarian reserve, DOR)、卵巢低反应(poor ovarian response, POR)、多囊卵巢综合征(polycystic ovarian syndrome, PCOS)等卵巢功能异常患者, 以及胚胎反复种植失败(repeated implantation failed, RIF)、薄型子宫内膜、宫腔粘连(intrauterine adhesion, IUA)等异常子宫内膜患者有较明显的改善作用, 但目前对于 rhGH 的适用人群及使用方法尚无统一标准。本文就 rhGH 在以上人群中的具体应用及作用机制作一综述。

【关键词】 受精, 体外; 胚胎移植; 生殖技术, 辅助; 重组人生长激素; 卵巢功能异常; 异常子宫内膜

Application progress of recombinant human growth hormone in assisted reproductive technology

Wu Xiaolin, Huang Lingling, Liang Lei, Li Ping

Women and Children's Hospital Affiliated to Xiamen University (Xiamen Maternal and Child Care Hospital), Xiamen 361003, China

Corresponding author: Li Ping, Email: saarc2001@sina.com, Tel: +86-18046427900

【Abstract】 In order to improve the outcome of *in vitro* fertilization-embryo transfer (IVF-ET) treatment, recombinant human growth hormone (rhGH) has been widely used in assisted reproductive technology (ART), and has obvious improvement in patients with ovarian dysfunction, such as diminished ovarian reserve (DOR), poor ovarian response (POR), polycystic ovary syndrome (PCOS), and abnormal endometrium patients such as repeated implantation failed

(RIF), thin endometrium and intrauterine adhesions (IUA). But there is no unified standard about the target patients and application protocol of rhGH. This paper summarizes the mechanism and usage of rhGH in the above patients.

【Key words】 Fertilization *in vitro* ; Embryo transfer ; Reproductive techniques, assisted ; Recombinant human growth hormone ; Ovarian dysfunction ; Abnormal endometrium

DOI : 10.3760/cma.j.cn101441-20190414-00153

收稿日期 2019-05-07 本文编辑 李天琦

引用本文 : 朱靓雯, 薛晴. 子宫内膜容受性与子宫内膜异位症相关性不孕[J]. 中华生殖与避孕杂志, 2020, 40(3): 246-249. DOI: 10.3760/cma.j.cn101441-20190414-00153.

· 综 述 ·

子宫内膜容受性与子宫内膜异位症相关性不孕

朱靓雯 薛晴

北京大学第一医院妇产科 100034

通信作者 : 薛晴 , Email : Xueqingqq@hotmail.com , 电话 : +86-10-83573319

【摘要】 子宫内膜异位症(EMS)是一种常见的妇科疾病,也是女性不孕的常见原因之一。EMS所致不孕受多种因素的影响,其中子宫内膜容受性下降导致胚胎着床障碍是EMS患者不孕的重要原因之一。本文从子宫内膜形态改变、容受性相关因子表达紊乱、非编码RNA表达异常等方面对EMS患者内膜容受性改变进行综述,旨在为EMS相关性不孕的治疗提供新思路。

【关键词】 子宫内膜异位症 ; 子宫内膜容受性 ; 不孕

基金项目 : 国家重点研发计划(2017YFC1001203)

Endometrial receptivity and endometriosis-associated infertility

Zhu Jingwen , Xue Qing

Department of Gynecology and Obstetrics, Peking University First Hospital, Beijing 100034, China

Corresponding author: Xue Qing, Email: Xueqingqq@hotmail.com, Tel: +86-10-83573319

【Abstract】 Endometriosis (EMS) is a common disease in women of reproductive age and one of the causes of female infertility. Infertility in women caused by EMS is affected by many factors, among which the loss of endometrial receptivity leads to embryo implantation disorder is an important reason. This article reviews the endometrial receptivity changes in patients with EMS from the aspects of endometrial morphological changes, aberrant expression of receptivity-related factors, and abnormal expression of non-coding RNA. It aims at providing evidence for facilitating clinical therapy of EMS-related infertility.

【Key words】 Endometriosis ; Endometrial receptivity ; Infertility

Fund program : National Key Research and Development Program of China (2017YFC1001203)

DOI : 10.3760/cma.j.cn101441-20190404-00137

收稿日期 2019-04-17 本文编辑 宋培培

引用本文 : 张于念, 田海清, 腊晓琳. 调节性 T 细胞在女性生殖过程中的研究进展[J]. 中华生殖与避孕杂志, 2020, 40(3): 250-254. DOI: 10.3760/cma.j.cn101441-20190404-00137.

·综述·

调节性 T 细胞在女性生殖过程中的研究进展

张于念 田海清 腊晓琳

新疆医科大学第一附属医院生殖医学中心, 乌鲁木齐 830054

通信作者: 腊晓琳, Email: 909232905@qq.com, 电话: +86-18099186828

【摘要】 调节性 T(Treg)细胞是一群负调节机体免疫反应的淋巴细胞, 在卵巢组织和子宫内膜上表达丰富, 在生殖过程中具有调节卵泡发育、抑制免疫反应、诱导母-胎界面免疫耐受及早期妊娠维持的功能, 其表达异常与女性生殖相关疾病的发生、发展密切相关, 有望成为生殖医学中的新型诊断标记和治疗靶点。本文对 Treg 细胞在女性生殖生理和病理过程中的研究进展作出综述。

【关键词】 调节性 T 细胞; 不孕症; 卵泡发育; 免疫耐受

Research progress of regulatory T cells in female reproductive process

Zhang Yunian, Tian Haiqing, La Xiaolin

The Reproductive Medicine Center of the First Affiliated Hospital of Xinjing Medical University, Urumqi 830054, China

Corresponding author: La Xiaolin, Email: 909232905@qq.com, Tel: +86-18099186828

【Abstract】 Regulatory T (Treg) cells are a subtype of lymphocytes with immune suppressive function, and are abundantly expressed on ovarian and endometrium. They have the functions of regulating follicular development, suppressing immune response, promoting maternal-fetal immune tolerance and maintaining early pregnancy during reproduction. The abnormal expressing of Tregs is closely related to the occurrence and development of female reproductive diseases, and it is expected to become a new diagnostic marker and therapeutic target in reproductive medicine.

【Key words】 Regulatory T cell; Infertility; Follicular development; Immunological tolerance

DOI : 10.3760/cma.j.cn101441-20190418-00160

收稿日期 2019-04-23 本文编辑 孙敏

引用本文 : 杨颖琼, 黄勤瑾. 曼月乐治疗妇科常见疾病的研究进展[J]. 中华生殖与避孕杂志, 2020, 40(3): 255-258. DOI: 10.3760/cma.j.cn101441-20190418-00160.

·综述·

曼月乐治疗妇科常见疾病的研究进展

杨颖琼¹ 黄勤瑾²

¹上海市浦东新区妇幼保健所 201399 ; ²复旦大学附属静安区中心医院, 上海 200040

通信作者: 黄勤瑾, Email: qjhuang326@163.com, 电话: +86-18916165621

【摘要】 近年来, 子宫肌瘤、子宫内膜异位症、子宫腺肌症、子宫内膜增生等常见妇科疾病发病率不断上升, 且患者逐渐年轻化, 严重影响女性的生活质量。研究表明, 这些疾病与雌激素、孕激素等激素水平调节异常有关。国内外诸多研究报道曼月乐(levonorgestrel-releasing intrauterine system, LNG-IUS)可改善子宫肌瘤引起的月经过多等症状; 对于子宫内膜异位症的临床疗效与促性腺激素释放激素激动剂(GnRH-a)或孕激素相当, 且能有效改善子宫腺肌症的痛经症状; 另外在治疗子宫内膜增生时, LNG-IUS 与全身孕激素治疗相当或优于后者。因此近年来, LNG-IUS 被广泛应用于临床, 并取得了一定的疗效。本文就目前国内外有关 LNG-IUS 治疗妇科常见疾病的文献作一综述。

【关键词】 曼月乐; 妇科常见疾病; 疗效

基金项目: 上海市浦东新区卫生系统优秀青年医学人才培养项目 (PWRq2016-36)

Research progress of the levonorgestrel-releasing intrauterine system for the treatment of common gynecological diseases

Yang Yingqiong¹, Huang Qinjin²

¹Shanghai Pudong Maternal and Child Health Care Institution, Shanghai 201399, China; ²Central Hospital of Jingan District, Fudan University, Shanghai 200040, China
Corresponding author: Huang Qinjin, Email: qjhuang326@163.com, Tel: +86-18916165621

【Abstract】 In recent years, the incidence of uterine fibroids, endometriosis, adenomyosis, endometrial hyperplasia and other common gynecological diseases is increasing, and the patients are getting younger, which seriously affects patients' quality of life. Medical research shows that these diseases are associated with abnormal regulation of estrogen, progesterone and other hormones. Many domestic and foreign studies found that levonorgestrel-releasing intrauterine system (LNG-IUS) could improve the menstrual bleeding and other symptoms of uterine fibroids. The clinical efficacy of endometriosis is similar to that of gonadotropin-releasing hormone agonist (GnRH-a) or progesterone, and can effectively improve the dysmenorrhea symptoms of adenomyosis. In addition, in the treatment of endometrial hyperplasia, LNG-IUS and progesterone treatment is equal to or better than the latter. Therefore, in recent years, LNG-IUS has been widely used in clinical practice and has achieved certain curative effect. This paper reviews the literatures about LNG-IUS in the treatment of common gynecological diseases at home and abroad.

【Key words】 Levonorgestrel-releasing intrauterine system ; Gynecological diseases ; Curative effect

Fund program : Project of Excellent Young Medicine Talents of Pudong Newarea (PWRq2016-36)

DOI : 10.3760/cma.j.cn101441-20190401-00131

收稿日期 2019-04-29 本文编辑 李天琦

引用本文：王丹妮，徐千花，张勤，等. 社会资本视角下辅助生殖服务质量提升研究进展[J]. 中华生殖与避孕杂志, 2020, 40(3): 259-263. DOI: 10.3760/cma.j.cn101441-20190401-00131.

· 综 述 ·

社会资本视角下辅助生殖服务质量提升研究进展

王丹妮 徐千花 张勤 李杰

安徽医科大学公共卫生学院，合肥 230032

通信作者：王丹妮，Email：287830554@qq.com，电话：+86-13866760827

【摘要】 辅助生殖技术作为不孕不育的重要治疗手段，治疗成功率和服务满意度均低于患者需求，生殖服务优势远未激发。本研究从社会资本视角出发，回顾了辅助生殖技术服务质量提升的国内外研究进展，并指出了后续服务提升的思路及方向。

【关键词】 辅助生殖服务； 社会资本； 医疗服务质量
基金项目：安徽医科大学博士科研资助基金(XJ201702)

Overview of promoting strategy of assisted reproductive technology service in the perspective of social capital

Wang Danni , Xu Qianhua , Zhang Qin , Li Jie

School of Public Health, Anhui Medical University, Hefei 230032, China

Corresponding author: Wang Danni, Email: 287830554@qq.com, Tel: +86-13866760827

【Abstract】 As an important treatment method of infertility, assisted reproductive technology (ART) has lower treatment success rate and service satisfaction. The advantage of ART service is far from being activated. From the perspective of social capital, this study reviewed the research progress of quality improvement of ART and pointed out the ideas and directions of follow-up service improvement.

【Key words】 Assisted reproductive service ; Social capital ; Medical service quality

Fund program : Grants for Scientific Research of BSKY from Anhui Medical University (XJ201702)