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·出生缺陷、产前诊断专题·

胎儿心脏发育异常的染色体芯片检测及脐血心肌肌钙蛋白T (cTnT)水平研究

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【摘要】目的: ①探讨胎儿心脏发育异常与遗传学异常的相关性。②探讨孕中期脐血心肌肌钙蛋白T(cardiac troponin T, cTnT)水平预警心脏发育异常胎儿心肌损伤的可能性。**方法**: 选择40例孕中期心脏超声提示胎儿心脏发育异常的胎儿作为研究组, 另选择同期26例无心脏发育异常胎儿作为对照组。所有妊娠均为单胎妊娠。分别采集胎儿的脐静脉血, 一部分血样行染色体核型分析及染色体拷贝数微阵列芯片(micro-array)分析; 另一部分血样测定脐血血浆cTnT水平。**结果**: ①脐血染色体分析: 对照组26例胎儿样本核型均正常; 研究组40例中有4例染色体异常, 其中21-三体2例, 69,XXX 1例, 46,XX,-4,+der(4)(?::p14-qter) 1例; 4例为染色体多态性改变, 分别涉及1号、9号、13号染色体的可变区域。②研究组芯片检测共检出3例致病性拷贝数变异, 22号染色体微缺失导致的腭心面综合征1例: arr 22q11.21(18,919,942-21,440,514)X1; 4号染色体短臂末端大片段缺失1例: arr 4p25.3-p16.3(71, 552-16,833,303)X3; 10号染色体长臂末端片段缺失1例: arr 10q15.3(130,650,432-135,404,523)X1。③研究组中遗传学检测异常发生率为15%(6/40)。研究组脐血cTnT水平较对照组增高(488.572 ± 73.528 ng/L *vs* 315.841 ± 85.665 ng/L), 差异有统计学意义(P<0.01)。**结论**: ①心脏发育异常胎儿合并遗传学异常几率增加。②心脏结构异常胎儿脐血cTnT水平显著增加, 提示心肌组织在异常发育的胎儿心脏结构重塑过程中可能发生损伤, 脐血cTnT可作为潜在早期预警胎儿心脏功能异常的生物化学标志物。

关键词: 脐血; 心脏发育异常; 心肌肌钙蛋白T(cTnT); 染色体核型分析; 产前诊断

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Study of the cord blood cardiac troponin T level and chromosome karyotype chip status about the fetus with cardiac dysfunction patients

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【**ABSTRACT**】**Objective**: 1) To study the relationship between cardiac dysfunction fetal and genetic abnormalities. 2) To evaluate if it is possible to make early warning of fetal heart severe dysfunction through the change of cardiac troponin T (cTnT) level in the cord blood during the period of prenatal diagnosis. **Methods**: Forty fetuses with cardiac dysfunction which were found through ultrasound examination were collected as study group and 26 fetuses without cardiac dysfunction as control group, all were singleton pregnancy. The blood samples were divided into two testing groups, one for karyotype and chromosomal copy micro-array analysis, the other for serum cTnT concentration analysis. **Results**: 1) Karyotype analysis of cord blood: all the karyotype of 26 fetal samples in control group were normal; regarding the 40 cases in study group, 4 cases were abnormal, among which 2 cases were proved to be trisomy 21, and 1 case was 69,XXX and 1 case was 46,XX, -4,+der(4)(?::p14-qter), 4 cases were found to be chromosome polymorphism, which referred to the variable regions of chromosome No. 1, No. 9, and No. 13.2) Three cases were found with copy number variation of pathogenicity through chips testing: 1 case was DiGeorge Sydrome caused by the micro lack of No. 22 chromosome [arr 22q11.21(18,919, 942-21,440,514)X1]; 1 case had serious deletion at the end of the short arm of No. 4 chromosome [arr 4p25.3-p16.3(71,552-16,833,303)X3]; 1 case had fragment deletion at the end of the large arm of No. 10 chromosome [arr 10q15.3(130,650,432-135,404,523)X1]. About 3.15% of the genetics testing in study group was proved to be abnormal. The cTnT level of study group was significantly higher than that of control group (488.572 ± 73.528 ng/L *vs* 15.841 ± 85.665 ng/L, $P<0.01$). **Conclusion**: 1) The probability of fetal abnormal chromosome karyotype will increase among the cardiac dysfunctional fetuses. 2) Fetus cord blood cTnT level is increased significantly in cardiac dysfunctional fetuses. It indicates that the possible damage of myocardial tissue will happen in the process of remodeling heart structure. Cord blood cTnT can serve as a potential early warning of the fetal heart abnormal biochemical markers.

Key words: cord blood; cardiac dysfunction; cardiac troponin T (cTnT); karyotype; prenatal diagnosis

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磁共振检查在脑室扩张胎儿产前诊断中的作用

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【摘要】目的: 探讨磁共振成像(MRI)在超声提示脑室扩张胎儿产前诊断中的作用。**方法**: 选择因超声提示单纯性脑室扩张而行MRI检查者, 对MRI结果进行分析并随访妊娠结局。**结果**: ①MRI结果的准确性: 入组病例MRI对超声的总补充诊断率为15.4%(38/247), 其中脑积水11例, 脑室扩张伴脑出血3例, 脑室扩张伴胼胝体发育不全(ACC)9例, 室管膜下囊肿(或蛛网膜囊肿)9例, Dandy-Walker等其他类型畸形6例。②胎儿脑室扩张的宫内转归及新生儿预后: 63.2%(24/38)有结构畸形者选择引产, 均未见染色体核型异常。正常分娩新生儿155例, 新生儿随访无异常神经系统表现。**结论**: 对于脑室扩张, 尤其是重度脑室扩张, MRI对于超声有极高的补充诊断价值。

关键词: 脑室扩张; 磁共振成像; 预后

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Role of magnetic resonance imaging in prenatal diagnosis of fetal ventriculomegaly

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【**ABSTRACT**】**Objective**: To investigate the role of magnetic resonance imaging (MRI) in prenatal diagnosis of fetal ventriculomegaly. **Methods**: A retrospective analysis was performed in 247 pregnant women with simple ventriculomegaly which were diagnosed by ultrasound underwent fetal MRI. **Results**: 1) The accuracy of MRI: MRI provided an additional diagnostic rate of 15.4% (38/247) including hydrocephalus (11 cases), ventriculomegaly with intracerebral hemorrhage (3 cases), ventriculomegaly with agenesis of the corpus callosum (ACC) 9 cases, subependymal cyst or arachnoid cyst (9 cases), Dandy-Walker malformation and other central nervous system (CNS) abnormalities (6 cases). 2) Intrauterine outcome and neonatal prognosis of ventriculomegaly: 27 CNS abnormalities cases (63.2%) selected termination of pregnancy. No case with aneuploidy malformation was found. Neurology follow-up in 155 babies of normal delivery were normal. **Conclusion**: MRI is an indispensable complementary diagnostic method for fetal ventriculomegaly diagnostic by prenatal ultrasound scan, especially for severe ventriculomegaly cases.

Key words: ventriculomegaly; magnetic resonance imaging; prognosis

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超声对胎儿颅内囊性改变的诊断价值

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【摘要】目的: 探讨超声对胎儿颅内囊性改变诊断中的应用价值。**方法**: 收集在本院超声检查中疑似为胎儿颅内囊性改变的92例患者的资料, 以核磁共振成像(MRI)检查结果或引产后尸体解剖确诊, 并与新生儿头颅超声结果对照。**结果**: 92例胎儿颅内囊性改变的患者中, 超声正确诊断单纯性脑室轻度扩张47例, 脑积水7例, 室管膜下囊肿6例, 颅后窝池增宽7例, 脉络膜囊肿6例, 蛛网膜囊肿3例, 胼胝体缺失8例, Dandy-Walker畸形2例, 颅内出血1例, 脑穿通畸形1例。**结论**: 超声检查是诊断胎儿颅内囊性改变较直观、可靠的影像学方法。

关键词: 超声检查; 胎儿; 囊性改变; 颅内

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Value of ultrasonic diagnosis for fetal intracranial cystic change

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【**ABSTRACT**】 **Objective**: To explore the application value of ultrasound in the diagnosis of fetal intracranial cystic lesions. **Methods**: A total of 92 fetuses with intracranial cystic lesions were encountered with ultrasound, combined with magnetic resonance imaging (MRI). **Results**: Among 92 fetuses with intracranial abnormalities, there were 48 cases of ventricular dilatation, 7 cases of hydrocephalus, 6 cases of subependymal cysts, 7 cases of widened cisteme magna, 6 cases of chorioid plexus cysts, 3 cases of arachnoid cysts, 8 cases of agenesis of corpus callosum, 2 cases of Dandy-Walker malformation, 2 cases of intracranial hemorrhage, 1 case of porencephalic cyst. **Conclusion**: Ultrasound is a direct and reliable measurement in diagnosis of fetal intracranial cystic lesions.

Key words: ultrasonography; fetus; cystic lesion; brain

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无精子症和严重少/弱精子症ICSI子代与其他精子ICSI/IVF子代出生缺陷的比较研究

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【摘要】目的: 观察无精子症和严重少/弱精子症患者借助卵胞质内单精子注射(ICSI)技术出生的子代与其他精子ICSI/体外受精(IVF)子代的出生缺陷情况。**方法**: 将接受ICSI/IVF治疗的237对夫妇生育的300例子代按ICSI/IVF当日精液情况和受精方式分为附睾/睾丸精子ICSI组(A组, 患者92例, 子代118例)、严重少/弱精子ICSI组(B组, 患者84例, 子代106例)、非严重少/弱/畸形精子ICSI组(C组, 患者35例, 子代42例)、正常精子IVF组(D组, 患者26例, 子代34例)。对召回现场随访的子代进行出生缺陷病史询问、超声检查和无精子症因子(*AZF*)基因检测。**结果**: 受访子代平均年龄为33.1±20.3(4~84)个月, 新生儿出生缺陷率为1.7%(5/300), 总出生缺陷率为4.7%(14/300), 4组的出生缺陷率分别为5.1%(6/118)、3.8%(4/106)、2.4%(1/42)和8.8%(3/34), 组间无统计学差异(P>0.05)。112个家庭*AZF*基因检测显示B组有3对父子存在同样位点的*AZF*基因微缺失。**结论**: 无精子症和严重少/弱精子症等严重男性不育症患者ICSI子代的出生缺陷发生率与其他较好精子或正常精子IVF子代相比无明显增加, *AZF*基因检测没有新增缺失位点和新增缺失病例。

关键词: 出生缺陷; 无精子症因子(AZF); 卵胞质内单精子注射(ICSI); 男性不育症; 子代随访

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Incidence of congenital defects do not increase in cases of severe oligoasthenoteratozoospermia and azoospermia treated with ICSI

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【**ABSTRACT**】**Objective**: To evaluate the incidence of congenital defects from severe oligoasthenoteratozoospermia and azoospermia patients' offspring. **Methods**: Totally 300 offsprings from 237 infertile couples treated by intracytomic plasma sperm injection/*in vitro* fertilization (ICSI/IVF) accepted face-to-face followed up and physical examination. All 300 children were retrospectively divided into 4 groups according to the stratification of their fathers' sperm used for ICSI or IVF. Group A: epididymal or testicular sperm used for ICSI (including 118 children from 92 couples); group B: sperm from severe oligoasthenoteratozoospermia for ICSI (including 106 children from 84 couples); group C: other cases undergone ICSI (including 42 children from 35 couples); group D: normal sperm used for IVF (including 34 children from 26 couples). **Results**: All children aged 33.1 ± 20.3 (4–84) months. The incidence of newborn congenital defects was 1.7% (5/300) and total congenital defects was 4.3% (13/300). No significant difference was found among four groups regarding to the incidence of congenital defects [4.2% (5/118), 3.8% (4/106), 2.4% (1/42) and 8.8% (3/34)]. Only 3 pairs of father and son from group B were found sharing the same congenital defect — azoospermia factor (AZF) microdeletion. **Conclusion**: Incidence of congenital defects as well as AZF microdeletion in offsprings of ICSI using spermatozoa from severe oligoasthenoteratozoospermia or azoospermia are comparable to those showing better sperm quality.

Key words: congenital defects; azoospermia factor (AZF); intracytomic plasma sperm injection (ICSI); male infertility; offspring follow-up

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应用新一代测序技术进行Meckel-Gruber综合征家系突变分析研究

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【摘要】目的: 寻找一个两次临床拟诊为Meckel-Gruber妊娠家系的致病基因突变。**方法**: 采用目标序列捕获芯片结合高通量测序技术寻找可疑的致病基因突变位点, 利用经典的Sanger测序技术进行验证。**结果**: 发现了全世界未见报道的*CEP*290基因的2种新发突变。**结论**: 新一代测序技术适用于寻找遗传异质性较强的单基因遗传病的致病基因突变位点, 从而对某些表型相似的疾病进行鉴别诊断。

关键词: Meckel-Gruber综合征; 目标序列捕获; 新一代测序技术

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Mutation analysis for a Meckel-Gruber Pedigree with next-generation sequencing

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【**ABSTRACT**】**Objective**: To search disease-causing gene mutations for a Chinese Han nation non-consanguineous marriage couple with two adverse pregnancies. **Methods**: The next-generation sequencing technology combined with Sanger sequencing was used for genetic mutation. **Results**: Two unreported mutations involved in *CEP*290 were identified. **Conclusion**: Target sequence capture combined with high-throughput sequencing technology can be applied to find disease-causing gene mutations in order to do differential diagnosis for some diseases with same phenotype.

Key words: Meckel-Gruber syndrome; target sequence capture; the next-generation sequencing

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高通量测序和常规孕中期产前筛查的效率分析

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【摘要】目的: 评估高通量测序(HTS)和常规孕中期产前筛查检出异常染色体胎儿的效率。**方法**: 分别应用孕妇血游离DNA行HTS和母血甲胎蛋白(AFP)、游离β-hCG结合超声、高龄孕妇常规的孕中期产前筛查方法进行胎儿非整倍体筛查, 高风险者行羊水/脐血穿刺进行胎儿染色体核型分析, 比较分析2种方法检出胎儿染色体异常效率。**结果**: 常规产前筛查高风险者4 614例, 诊断胎儿染色体异常131例(2.84%), 其中常染色体数目异常88例, 性染色体数目异常17例, 平衡结构异常18例, 不平衡结构异常7例, 三倍体1例。HTS筛查高风险者55例, 诊断胎儿染色体异常33例(60%), 其中常染色体数目异常26例, 性染色体数目异常4例, 平衡结构异常1例, 不平衡结构异常2例。2种筛查方法检出高风险病例的胎儿染色体异常率差异有显著统计学意义($P<0.01$), 但2种方法检出染色体异常类型构成无统计学差异($P>0.05$)。**结论**: 与常规产前筛查相比, HTS产前筛查的高风险病例胎儿染色体异常率可升高数十倍之多, 可显著降低因假阳性导致的羊水穿刺病例数, 明显提高产前胎儿染色体异常病例的筛查效率。

关键词: 常规产前筛查; 高通量测序(HTS); 筛查效率

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Efficiency of high-throughput sequencing and standard prenatal screening for mid-term pregnancy

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【**ABSTRACT**】**Objective**: To analyze the efficiency of the high-throughput sequencing (HTS) and standard prenatal screening on fetuses' chromosome abnormalities. **Methods**: Standard prenatal screening was based on a combination of maternal age, maternal serum biomarkers and fetal ultrasonographic findings. HTS was based on analysis of cell-DNA (cfDNA) in maternal plasma. The cases who had a high risk of aneuploidy were detected by the karyotype analysis to compare the efficiency of two prenatal screening methods. **Results**: Totally 131 cases with fetal chromosomal abnormalities were detected from 4 614 cases with a high risk of aneuploidy by standard prenatal screening, including 88 cases with euchromosome number abnormalities, 17 cases with sex chromosome number abnormalities, 18 cases with balanced chromosome structural abnormalities, 7 cases with unbalanced chromosome structural abnormalities, 1 case with triploid. Thirty-three (60%) cases with fetal chromosomal abnormalities were detected in 55 cases with a high risk of aneuploidy by HTS, including 26 cases with euchromosome number abnormalities, 4 cases with sex chromosome number abnormalities, 1 case with balanced chromosome structural abnormalities, 2 cases with unbalanced chromosome structural abnormalities. The ratio difference of detected chromosome abnormality cases to high-risk cases which were screened by two methods had a statistical significance, but the ratio differences of various type cases of chromosome abnormality to all cases of chromosome abnormality had no statistical significance. Twenty-six results of fetal chromosomal abnormalities used both methods, including 21 cases of screening results were of high risk. **Conclusion**: Compared with standard prenatal screening, HTS is more effective. The screening rate of fetal chromosomal abnormalities can be increased several times. HTS will reduce the amniocentesis cases caused by false positives and improve the efficiency of prenatal screening for fetal chromosomal abnormality cases.

Key words: standard prenatal screening; high-throughput sequencing (HTS); screening efficiency

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t(11;22)(q23;q11)复发性染色体平衡易位——4例病案报道及文献复习

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【摘要】目的: 初步探讨非罗伯逊型复发性t(11;22)(q23;q11)染色体平衡易位的发生机制。**方法**: 外周血染色体核型分析检测有不孕不育或不良生育史的4例患者的染色体核型。**结果**: 4例t(11;22)(q23;q11)易位患者, 染色体断裂位点一致, 患者间无亲缘关系, 均有不良生育史, 其中2例女性表现为反复流产, 2例男性患者表现为精子数目减少和活力下降的。**结论**: t(11;22)(q23;q11)是一种较为少见的非罗伯逊易位型复发性平衡易位, 对t(11;22)(q23;q11)深入研究有助于进一步完善染色体畸变的理论基础。

关键词: 复发性染色体易位; 富含AT碱基的回文重复序列; 染色体核型分析

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Recurrent chromosomal translocation of t(11;22)(q23;q11): 4 case report and literature review

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【**ABSTRACT**】**Objective**: To discuss the mechanism of recurrent non-Robertsonian balanced chromosomal translocation of t(11;22)(q23;q11). **Methods**: Chromosome karyotype for peripheral blood was performed on patients with infertility or abnormal pregnancy histories. **Results**: Four unrelated patients were shown to carry t(11;22)(q23; q11) translocation with almost identical breakpoints. The two females presented with repeated abortions and the two males had low level of sperm count and activities. **Conclusion**: t(11;22)(q23;q11) is a less common type of recurrent non-Robertsonian balanced translocation. Intensive studies of t(11;22)(q23;q11) are helpful to further improve and complete our knowledge in understanding the theoretical basis of chromosomal aberrations.

Key words: recurrent chromosomal translocation; palindromic AT-rich repeats; chromosome karyotype

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先天性心脏病与染色体异常的关系研究进展

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【摘要】先天性心脏病(CHD)是人类最常见的出生缺陷, 也是婴幼儿死亡的首要原因。其具体的发病机制至今仍未完全清楚, 但已证实其病因主要为环境因素、遗传因素以及两者的共同作用。CHD患者较普通人群更易出现染色体异常, 其中最常见的是21-三体综合征, 18-三体综合征, 少部分的CHD患者的染色体异常为结构异常, 主要表现为缺失、重复。本文就CHD与染色体异常的关系作一综述。

关键词: 先天性心脏病(CHD); 遗传学; 染色体

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Development of relationship between congenital heart disease and chromosome abnormality

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【**ABSTRACT**】 Congenital heart disease (CHD) is the most common birth defect, which is the leading cause of death in infants and young children. Its specific pathogenesis is still not entirely clear, but has been confirmed that the main causes were environmental factors, genetic factors, as well as a combination of both. CHD is more frequent in patients with congenital heart defects than in the general population. Down syndrome, trisomy 18 syndrome are common ones. A few chromosome abnormality in patients with CHD are structural abnormalities, such as deletion, duplication. We reviewed the relationship between the CHD and chromosome abnormality.

Key words: congenital heart disease (CHD); genetics; chromosome

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环境内分泌干扰物对子代健康影响的研究进展

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【摘要】环境内分泌干扰物(environmental endocrine disruptors, EEDs)是一类存在于环境中能改变机体内分泌功能并对机体、子代或亚群引起有害效应的化学物质。包括拟雌激素类、拟睾酮类、拟甲状腺素类、拟其他内分泌功能类。这些化合物广泛存在于日常生活和工作的环境中, 可通过多种途径和方式主动或被动进入动物和人体内, 而有些EEDs还可通过脐带血进入胎儿体内。大量实验及流行病学资料表明EEDs可引起子代早产、低出生体质量、肥胖、代谢紊乱、泌尿生殖系统异常等方面异常。

关键词: 环境内分泌干扰物(EEDs); 早产; 低出生体质量(LBW); 肥胖; 泌尿生殖系统; 表观遗传学

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Research progress in the effect of environmental endocrine disruptors on the health of the offspring

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【**ABSTRACT**】Environmental endocrine disruptors (EEDs) is a kind of chemical substances in the environment that can alter endocrine function and therefore do harm to body, offspring or subgroup. It consists of estrogen-like EEDs, testosterone-like EEDs, thyroxin-like EEDs, and other endocrine-like activity EEDs. These compounds widely exist in normal life and work environment. They can enter the body through various channels either in a active or passive way. A large number of experimental and epidemiological data show that EEDs are a cause of offspring health such as the premature birth, low birth weight, obesity, metabolic disorders, genitourinary anomaly and epigenetic changes.

Key words: environmental endocrine disruptors (EEDs); premature birth; low birth weight (LBW); obesity; urogenital system; epigenetic changes

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· 临 床 研 究 ·

应用粒细胞集落刺激因子(G-CSF)宫腔灌注治疗复发性流产的临床研究

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【摘要】目的: 探讨应用人重组粒细胞集落刺激因子(rhG-CSF)宫腔灌注治疗复发性流产(RSA)患者妊娠结局的影响。**方法**: 早期RSA患者100例, 随机分为rhG-CSF研究组(n=56)和生理盐水对照组(n=44), 于围排卵期行宫腔灌注治疗3 d, 连续2个周期, 前瞻性比较研究组和对照组患者继续妊娠率和流产率, 子宫内膜厚度、基底回声等血流动力学指标。**结果**: 与对照组相比, 研究组继续妊娠率高于对照组(88.87% *vs* 60.60%, P<0.05), 流产率低于对照组(11.11% *vs* 39.39%, P<0.05); 围排卵期内膜厚度组间无统计学差异(P>0.05), 研究组宫腔灌注治疗后内膜基底区回声优于对照组, 差异有统计学意义(P<0.05); 内膜下血流分支呈增加趋势(P>0.05)。**结论**: rhG-CSF宫腔灌注改善RSA患者的子宫内膜容受性, 降低流产率。

关键词: 粒细胞集落刺激因子(G-CSF); 复发性流产(RSA); 宫腔灌注; 内膜容受性

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Evaluation of intrauterine administration of granulocyte colony-stimulating factor for the treatment of recurrent miscarriage

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【**ABSTRACT**】**Objective**: To investigate the effectiveness of intrauterine administration of recombinant human granulocyte colony-stimulating factor (rhG-CSF) for women who diagnosed with recurrent spontaneous abortion (RSA). **Methods**: One hundred women diagnosed with primary RSA, all with at least three consecutive miscarriages and negative for all clinical investigations, were selected in a prospective study. Patients were randomized into treatment with rhG-CSF (study group, n=56) (300 μg/d) received intrauterine perfusion starting on the day of preovulation for 3 d, or with placebo (control group, n=44), similarly a second infusion was given following the first cycle. Pregnancy rate and miscarriage rate were the primary outcome measure, respectively, endometrial thickness and echo of endometrial-myometrial interface (EMI) were assessed. **Results**: In study group, the ongoing clinical pregnancy rate was higher than that in the control (88.87% *vs* 60.60%, P=0.003), the miscarriage rate was lower than that in the control (11.11% *vs* 39.39%, P<0.05). There was no significance of endometrial thickness, but EMI was better than that in the control (P<0.05). **Conclusion**: Intrauterine administration of rhG-CSF may improve the endometrial receptivety of RSA patients and reduce the miscarriage rate.

Key words: granulocyte colony-stimulating factor (G-CSF); recurrent spontaneous abortion (RSA); intrauterine administration; endometrial receptivity

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诱骗受体3(DcR3)在复发性流产患者血清及蜕膜组织中的表达

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【摘要】目的: 初步探讨诱骗受体3(DcR3)在复发性流产(RSA)中可能的作用机制。**方法**: ELISA方法检测55例复发性流产(RSA)患者(研究组)及35例非意愿妊娠正常妊娠、自愿要求人工流产孕妇(对照组)血清中DcR3、白介素(IL)-2、IL-10水平; 免疫组织化学方法检测19例研究组及16例对照组患者流产蜕膜组织中DcR3的表达。**结果**: 研究组血清中DcR3、IL-10水平显著低于对照组(P<0.05); IL-2水平显著高于对照组(P<0.05)。蜕膜中DcR3免疫阳性产物定位于细胞质和细胞膜, DcR3在研究组中的表达显著低于对照组(P<0.05)。**结论**: DcR3在RSA患者中低表达, 可能是打破母-胎免疫耐受平衡的原因之一。

关键词: 复发性流产(RSA); 诱骗受体3(DcR3); 蜕膜

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Expression of decoy receptor 3 (DcR3) in serum and decidua of recurrent spontaneous abortion patients

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【**ABSTRACT**】**Objective**: To explore the mechanism of decoy receptor 3 (DcR3) in serum and decidua tissue. **Methods**: The ELISA and immunohistochemical methods were used to determine the expressions of DcR3, interleukin-2 (IL-2), IL-10 in serum and decidua tissue of recurrent spontaneous abortion (RSA) (study group, n=55) and normal pregnancy patients (control group, n=35). **Results**: The concentration of DcR3 and IL-10 in serum of RSA was significantly lower than that in the control (P<0.05), whereas the IL-2 was significantly higher than that in the control (P<0.05). The expression of DcR3 was found in the cell membrane and cytoplasm and the expression of DcR3 in decidua tissue of RSA was significantly lower than that in control group (P<0.01). **Conclusion**: The low expression of DcR3 in the serum and decidua tissue of RSA may be the reason for broken balance of materno-fetal immune tolerance.

Key words: recurrent spontaneous abortion (RSA); decoy receptor 3 (DcR3); decidua

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• 综 述 •

三种干细胞向雌性生殖细胞诱导的可行性探讨

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【摘要】雌性生殖细胞缺乏所致的不孕症目前尚无根本的治疗方法, 干细胞的研究为这类患者带来了希望。随着胚胎干细胞(ESCs)/诱导性多能干细胞(iPSCs)建系技术的日趋成熟, 体外诱导ESCs/iPSCs生成雌性生殖细胞的研究也取得了一定进展, 目前已经有卵母细胞样细胞的形成, 但所生成细胞的生殖生物学功能还有待进一步证实。近年来雌性生殖干细胞的发现及对其进一步的了解使获取更接近生理状态的卵子成为可能。本文对近年几种干细胞及其在生殖领域的研究进行综述, 以探讨其临床应用的可行性。

关键词: 雌性生殖细胞; 胚胎干细胞(ESCs); 诱导性多能干细胞(iPSCs); 雌性生殖干细胞; 分化

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A review of three kinds of stem cells and their ability of differentiation to female germ cells

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【**ABSTRACT**】 So far, there is no fundamental method to treat infertility which caused by the lack of female germ cells. However, researches on stem cells bring hope for such patients. With the maturing of technology on embryonic stem cells (ESCs)/induced pluripotent stem cells (iPSCs), induction of female germ cells *in vitro* also has made a certain progress, and some oocytes-like cells have been produced. But reproductive function of those oocytes-like cells remains to be further confirmed. Studies of female germline stem cells may give us better eggs which have better physiological state. In this paper, several kinds of stem cells and recent researches of them in the field of reproduction will be described comprehensively, so we can investigate possibility of their application in clinic.

Key words: female germ cells; embryonic stem cells (ESCs); induced pluripotent stem cells (iPSCs); female germline stem cells; differentiation

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二噁英在子宫内膜异位症发病中的作用

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【摘要】尽管子宫内膜异位症(EMs)的病因不明确, 其普遍可接受的病理生理学理论是经血逆流。但经血逆流只发生于部分EMs患者中, 这提示EMs的发生还有其他因素。二噁英是指那些能与芳香烃受体结合、结构和性质相似的同类物或异构体的两大类有机化合物。二噁英能够增强雌激素作用, 降低孕激素抑制子宫内膜异位的作用, 促进T细胞表达、分泌CCL趋化因子(regulated on activation, normal T-cell expressed and secreted, Rantes)、子宫基质细胞金属蛋白酶(matrix metalloproteinase, MMP)、 MMP-2、肿瘤坏死因子-α(TNF-α)。许多实验室和基于人群的研究表明, 暴露于环境毒物也许是子宫内膜异位的诱因之一。

关键词: 二噁英; 多氯二苯-对-二噁英(TCDD); 子宫内膜异位症(EMs); 血清

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Effects of dioxin in the pathogenesis of endometriosis

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【ABSTRACT】 Although the etiology of endometriosis (EMs) is uncertain, it is widely accepted that the pathophysiology of EMs is retrograde menstruation. However, not all retrograde menstruation contributes to EMs, which suggests that other factors may be related to the occurrence of EMs. Dioxins are those which can be combined with the aromatic hydrocarbon receptor and it is of two kinds of organic compounds whose structure and properties are analogous or isomers. Dioxins can enhance the pathogenic role of estrogen and reduce the inhibitory effect of progesterone in EMs. It can promote the serection of regulated on activation, normal T-cell expressed and secreted (Rantes), matrix metalloproteinase-2 (MMP-2) and tumor necrosis factor-α (TNF-α). Many laboratory and population-based studies suggest that exposure to environmental toxicants may be one of several etiologies of EMs.

Key words: dioxin; polyehlorinated dibenzo-p-dioxins (PCDDs); endometriosis (EMs); serum

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·临床报道·

既往自然流产次数与患者第3日胚胎质量的关系研究

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【摘要】目的: 探讨既往自然流产次数与患者第3日胚胎质量的关系。**方法**: 回顾性分析因单纯输卵管因素或盆腔粘连原因行第1周期体外受精-胚胎移植(*in vitro* fertilization and embryo transfer, IVF-ET)治疗的患者资料, 排除已知的影响流产和胚胎发育疾病的患者, 将患者按流产次数分为4组, 分别为既往自然流产次数0次组(n=1 252)、1次组(n=385)、2次组(n=77)和≥3次组(n=36)。**结果**: 第3日的优质胚胎率和受精率各组间比较均有统计学差异(P<0.05); 既往自然流产0次、1次、2次组的优质胚胎率随流产次数增加呈下降趋势(P=0.005); 但既往自然流产≥3次组的优质胚胎率和受精率较2次自然流产组均有升高趋势, 进一步分析患者临床资料显示, 既往自然流产≥3次的患者在IVF-ET前进行全面的自然流产原因筛查和治疗的比例显著高于2次自然流产组, 差异具有统计学意义(P=0.011)。**结论**: 既往2次自然流产患者的胚胎质量下降; 经系统、全面的自然流产原因筛查, 并接受相应治疗后再行IVF-ET, 自然流产次数≥3次的患者其受精率和优质胚胎率可有所提高。

关键词: 体外受精-胚胎移植(IVF-ET); 自然流产; 优质胚胎率

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Relationship between previous spontaneous abortion and day 3 embryo quality

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【**ABSTRACT**】**Objective**: To explore whether the previous spontaneous abortion correlated with their day 3 embryo quality or not during the *in vitro* fertilization and embryo transfer (IVF-ET). **Methods**: A retrospective analysis was performed in the first IVF-ET cycle patients due to tubal factor or pelvic adhesions. After excluding the patients with known factor for abortion or embryo development, there were 1 252, 385, 77 and 36 patients who had 0, 1, 2, and 3 or more times previous spontaneous abortions (PSA) respectively. **Results**: Both the rate of high-quality embryos and fertilization rate were significantly different in any group of previous spontaneous abortion patients (P<0.05). Furthermore, downward trend of the high-quality embryo rate was significant in 0, 1, 2 times previous spontaneous abortion patients (P=0.005). As both the high-quality embryo rate and the fertilization rate in more than 3 times PSA were higher than those in patients with 2 times previous abortion, then the comprehensive screening and treatment was further analyzed on the 2 and 3 or more times previous abortion patients. The rates of patients with comprehensive screening and treatment on abortion causes were significantly higher in patients with 3 or more times abortion than those in patients with 2 times previous abortion. **Conclusion**: The poor embryo quality was detected in patients with 2 times previous spontaneous abortions. However, the fertilization rate and the high-quality embryo rate were recovered after comprehensive screening and treatment for the causes of recurrent spontaneous abortion before IVF-ET.

Key words: *in vitro* fertilization and embryo transfer (IVF-ET); spontaneous abortion; high-quality embryo rate

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·个案报道·

子宫全切术后迟发异位妊娠临床特点及诊治——1例病案报道及文献复习

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【摘要】目的: 探讨子宫全切术后异位妊娠临床特点, 为减少发病率和误诊率提供参考资料。**方法**: 报道1例子宫全切除术后异位妊娠并搜集国内外有关资料的文献报道, 汇总分析子宫切除术手术方式、术后异位妊娠发生的时间、临床表现和转归等临床资料。**结果**: 共搜集到33篇相关文献, 涉及34个病例, 被纳入分析, 其中33例是文献报道, 1例为本文报道。发病时间从子宫全切术后22 d到12年不等, 无特异临床表现, 常见为腹痛、盆腔痛、恶心、呕吐, 部分患者可有少量阴道流血、流液, 术前确诊率低, 大多为术中探查确诊, 67.6%(23/34)就诊时已发生异位妊娠破裂, 经阴道子宫全切术后异位妊娠发生率高于经腹子宫切除术。**结论**: 育龄期妇女即使子宫切除术后也有异位妊娠可能, 易误诊和延误治疗, 可出现危及生命的异位妊娠破裂, 患者出现腹痛、盆腔痛, 阴道流血、流液, 恶心、呕吐等症状时, 应排除是否有异位妊娠可能, 子宫切除术同时行双侧输卵管切除术可减少术后异位妊娠发生的可能。

关键词: 子宫全切术后; 异位妊娠; 诊断; 治疗

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Clinical characteristics and treatment of late post-hysterectomy ectopic pregnancy: a case report and literature review

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【**ABSTRACT**】**Objective**: To discuss the clinical feature, diagnosis, treatment and prognosis of late post-hysterectomy ectopic pregnancy. **Methods**: A case was reported, 6 cases of domestic and 27 cases of abroad of late post-hysterectomy ectopic pregnancy were collected, the clinical datum of surgical method, post-operative ectopic pregnancy occurrence time, clinical manifestation and outcome were retrospectively analyzed. **Results**: Totally 34 cases were included in the analysis. The presentation was 22 d to 12 years after hysterectomy. There was no specific clinical manifestations. The most common complain was abdominal or pelvic pain, nausea, vomiting, some patients may have a small amount of vaginal bleeding or flow fluid. The pre-operative confirmed diagnosis rate was low, 67.6% (23/34) cases had ruptured occurred during treatment. The incidence of ectopic pregnancy after transvaginal hysterectomy was higher than that of through abdominal hysterectomy. **Conclusion**: Even after hysterectomy without oophorectomy there still has been the possibility of ectopic pregnancy in childbearing women, it was easily misdiagnozed and treatment may be delayed. Ectopic pregnancy rupture is life-threatening, ectopic pregnancy should be ruled out when the symptoms such as abdominal pain, pelvic pain, vaginal bleeding, fluid flow, nausea and vomiting in childbearing women with post-hysterectomy occurred, hysterectomy and bilateral salpingectomy may reduce post-operative ectopic pregnancy.

Key words: post-hysterectomy; ectopic pregnancy; diagnosis; treatment

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