

宫内发育迟缓影响因素的研究

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【摘要】 **目的** 探讨宫内发育迟缓的影响因素。**方法** 采用整群抽样方法收集2008年4月至2011年3月湖南省浏阳市14个乡镇所有孕妇的孕产妇保健手册和分娩病历,按照胎儿出生体重是否低于同孕龄胎儿体重的第10百分位数,将6 105例单胎活产儿分为病例组和对照组,采用单因素 χ^2 检验和多因素非条件logistic回归分析胎儿宫内发育迟缓的影响因素。**结果** 共获得6 105例单胎妊娠的有效数据,其中宫内发育迟缓528例(发生率为8.65%)。孕妇年龄 <25 岁($OR=1.268$)、初产妇($OR=1.706$)、初诊BMI <18.5 kg/m²($OR=1.709$)、孕期体重增加不足($OR=1.576$)以及患妊娠高血压综合征($OR=1.698$)是宫内发育迟缓的危险因素。**结论** 孕妇年龄、产次、初诊BMI、孕期体重和妊娠高血压综合征与宫内发育迟缓有关。实时监测与控制体重及其变化,加强妊娠高血压防治,可能是预防宫内发育迟缓的重要措施。

【关键词】 宫内发育迟缓;妊娠高血压综合征;体重指数;影响因素

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【Abstract】 Objective To investigate the intrauterine growth retardation (IUGR) and its determinants so as to provide evidence for maternal and child health care programs to be carried out.

Methods Fourteen townships were selected by cluster random sampling from 37 townships in Liuyang. A total of 6 105 pregnant women who had established their health care programs during April 2008 and March 2011, were recruited in this study. Records on pregnancy care manual and delivery were collected. 6 105 single live births were divided into two groups (IUGR group and control group). Those whose birth weight was below the 10th percentile for mean weight corrected for gestation age were grouped as IUGR group. Chi-square test and Multivariate logistic Regression method were used to estimate the determinants of IUGR.

Results A total of 6 105 women, pregnant with a singleton gestation were enrolled in the study; 528 of these pregnancies were complicated with IUGR (8.65%). Data from the multivariate logistic regression analysis showed that maternal age less than 25 ($OR=1.268$), prim parity ($OR=1.706$), BMI less than 18.5 kg/m² at first obstetrical examination ($OR=1.709$), deficiency in weight gain during pregnancy ($OR=1.576$) and pregnancy-induced hypertension syndrome ($OR=1.698$) were related risk factors to intrauterine growth retardation. **Conclusion** Maternal age, prim parity, BMI, weight gain during pregnancy and pregnancy-induced hypertension syndrome were factors associated to the intrauterine growth retardation. Effective measures in reducing the intrauterine growth retardation should include factors as monitoring maternal weight and the change of weight during pregnancy in order to maintain the weight at normal ranges. Prevention and therapy for pregnancy-induced hypertension syndrome, should also be strengthened.

【Key words】 Intrauterine growth retardation; Pregnancy-induced hypertension syndrome; Body mass index; Determinants

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宫内发育迟缓是导致新生儿发病和死亡的第二大主要原因,仅次于早产^[1]。并与多种新生儿合并症存在密切关系^[2-3],宫内发育迟缓与肥胖、心脑血管疾病、糖代谢异常等多种成年期代谢疾病也存在关联^[4-5]。本文回顾性分析了 2008 年 4 月至 2011 年 3 月湖南省浏阳市 14 个乡镇单胎妊娠孕妇的孕产妇保健手册和分娩病历资料,探讨母体因素对宫内发育迟缓的影响。

对象与方法

1. 研究对象:采用随机整群抽样方法,从浏阳市 37 个乡镇中随机抽取 14 个乡镇,收集所抽乡镇 2008 年 4 月 1 日至 2011 年 3 月 31 日所有产妇的孕期保健手册和分娩病历记录,内容包括姓名、年龄、职业、身高、初诊体重、孕产史等基本信息,以及孕周、新生儿出生体重和分娩情况。排除多胎妊娠、死胎、死产、新生儿出生缺陷和子宫畸形的孕产妇。浏阳市孕产妇系统管理率(95.98%)和孕产妇住院率(97.99%)均较高,保证了资料的代表性和可靠性。

2. 诊断标准和定义:①孕周:按末次月经的第一日算起计算孕周。②宫内发育迟缓:胎儿出生体重低于同孕周正常体重的第 10 百分位数^[6]。③妊娠高血压综合征:包括妊娠期高血压和子痫前期,即妊娠期首次出现血压 $\geq 140/90$ mmHg (1 mm Hg = 0.133 kPa)并于产后 12 周恢复正常且尿蛋白阴性,或 20 周后首次出现血压 $\geq 140/90$ mmHg 且尿蛋白 ≥ 300 mg/24 h 或尿蛋白(+),可伴有上腹部不适、头痛、视力模糊等症状。④孕产妇贫血:妊娠末期检测血常规 Hb ≥ 100 g/L 为正常, 90 g/L \leq Hb < 100 g/L 为轻度贫血, Hb < 90 g/L 为中重度贫血。⑤孕期增重:根据美国医学研究院(IOM)2009 年推荐的孕期体重总增重范围^[7],孕妇孕前 BMI(kg/m²) < 18.5 、 $18.5 \sim 24.9$ 、 $25.0 \sim 29.9$ 和 ≥ 30 推荐的孕期总增重范围分别为 $12.6 \sim 18.0$ kg、 $11.2 \sim 15.8$ kg、 $6.8 \sim 11.2$ kg 和 $5.0 \sim 9.0$ kg,在孕前 BMI(本研究用初诊 BMI 值代替孕前 BMI 值)的基础上根据其孕期总增重的水平是否低于或超出该范围,分为增重不足、正常和过高。

3. 统计学分析:采用 EpiData 3.0 软件建立数据库,采用统一标准录入研究对象的孕期保健手册和分娩病历记录。采用 SPSS 19.0 软件进行统计学分析,单因素采用 χ^2 检验,检验水准 $\alpha = 0.05$,多因素分析采用非条件 logistic 回归分析 ($\alpha_{入} = 0.05$, $\alpha_{出} = 0.10$)。

结果

1. 一般情况:共收集 6 237 名分娩孕妇完整的孕产妇孕期保健手册和分娩病历记录,剔除 132 名多胎妊娠、死胎死产、新生儿出生缺陷和子宫畸形的孕产妇,最后得到 6 105 人的有效数据(有效率为 97.88%)。孕妇年龄 17 ~ 42 岁,平均(24.43 \pm 3.82)岁。6 105 例单胎活产新生儿中,男性 3 261 例(53.4%),女性 2844 例(46.6%),其中宫内发育迟缓患儿 528 例,发生率为 8.65%。

2. 影响因素分析:

(1)单因素分析:将孕妇年龄等 9 个可疑因素纳入分析,进行单因素 χ^2 检验(表 1)。结果显示,孕妇年龄、是否初产妇、初诊 BMI、孕期增重和妊娠高血压综合征与宫内发育迟缓的关联有统计学意义 ($P < 0.05$)。未发现流产次数、产检次数、HBsAg 阳性以及贫血与宫内发育迟缓的发生存在统计学关联 ($P > 0.05$)。

表 1 宫内发育迟缓影响因素的单因素分析

影响因素	调查人数	病例数	发生率 (%)	χ^2 值	P 值
孕妇年龄(岁)				24.775	0.000
<25	2 953	309	10.5		
25 ~	2 939	208	7.1		
≥ 35	213	11	5.2		
初产妇				34.577	0.000
否	1 906	105	5.5		
是	4 199	423	10.1		
流产次数				3.773	0.052
≤ 1	5 430	483	8.9		
≥ 2	675	45	6.7		
产检次数				0.021	0.885
< 5	1 234	108	8.8		
≥ 5	4 871	420	8.6		
HBsAg 阳性				2.096	0.148
否	5 650	497	8.8		
是	455	31	6.8		
初诊 BMI(kg/m ²)				29.662	0.000
< 18.5	1 310	161	12.3		
$18.5 \sim$	4 147	326	7.9		
≥ 25.0	648	41	6.3		
孕期增重				26.445	0.000
正常	2 213	172	7.8		
过高	1 416	89	6.3		
不足	2 476	267	10.8		
贫血				1.241	0.538
正常	5 198	444	8.5		
轻度	690	67	9.7		
中重度	217	17	7.8		
妊娠高血压综合征				6.372	0.012
否	5 659	475	8.4		
是	446	53	11.9		

(2)非条件 logistic 分析:以宫内发育迟缓为应变量,以单因素分析中与宫内发育迟缓有统计学意义或 P 值接近 0.05 的 6 个变量为自变量,进行非条件 logistic 回归分析。结果显示,孕妇年龄、是否初产妇、初诊 BMI、孕期增重和妊娠高血压综合征与宫内发育迟缓存在统计学关联,其中孕妇年龄 < 25 岁、初产妇、初诊 BMI < 18.5 kg/m²、孕期增重不足以及患妊娠高血压综合征是宫内发育迟缓的危险因素,而孕期增重过高是宫内发育迟缓的保护因素(表 2)。

讨 论

宫内发育迟缓的发生受到母体与胎儿多方面因素的影响^[8],本文主要探讨来自母体方面的因素,包括孕妇社会人口学因素、孕期营养状况、健康状况以及孕期保健水平等。结果显示:孕妇年龄、初产、初诊 BMI、孕期增重和妊娠高血压综合征与宫内发育迟缓的发生有关。

以往研究显示,孕妇年龄过小是宫内发育迟缓的危险因素^[9],本研究也得到类似结果。由于该年龄人群生殖系统发育不够成熟完善,且生活状态不稳定,甚至有一部分属于未婚或者未成年,往往无法得到很好的孕期保健服务,发生宫内发育迟缓、早产和死胎等的风险高于适龄孕产妇^[10]。此外,初产妇发生宫内发育迟缓的危险高于经产妇($OR=1.709$),与先前一些研究结果相似^[11-12]。

孕产妇体重一直被认为是影响各种妊娠结局和母婴健康的重要因素^[13-15]。研究显示,孕妇消瘦(初诊 BMI < 18.5 kg/m²)和孕期增重不足是宫内发育迟

缓的危险因素,可能与蛋白质-能量不足、某些重要营养物质缺乏以及血容量不足有关^[16]。虽然孕期增重超出 IOM 推荐范围的孕妇发生宫内发育迟缓的风险略低于增重正常的孕妇($OR=0.75$),但是由于孕期增重过度与巨大儿、妊娠期高血压、糖尿病等多种母婴并发症有关^[17-18],因此并不推荐孕期过度增重。

妊娠高血压综合征是孕产妇和围生儿发病和死亡的主要原因^[19-21]。本研究发现合并有妊娠高血压综合征孕妇发生宫内发育迟缓的风险是正常孕妇的 1.7 倍。Geyl 等^[22]最近发现,宫内发育迟缓与先兆子痫关系密切。因此,及早发现患有妊娠高血压综合征的孕妇,并加强监测管理,对于降低宫内发育迟缓的发生、改善妊娠结局具有重要意义。

目前关于贫血与宫内发育迟缓的关系尚无定论,多数研究认为中重度贫血可通过影响子宫-胎盘供血等导致宫内发育迟缓的发生^[23]。本研究结果显示贫血与宫内发育迟缓并无关联,可能有两方面的原因。一方面,本文贫血诊断是依据妊娠末期 Hb 浓度,而有研究者认为妊娠晚期贫血与不良妊娠结局并没有关系,主要是孕早期贫血影响胎儿体重^[24];另一方面,多种生理、病理原因均可引起 Hb 浓度下降,不同机制引起的贫血与宫内发育迟缓的关系可能不同。在以后的研究中应区分不同时期与不同类型贫血,分析其与宫内发育迟缓的关系及其机制。

本研究由于资料限制,未考虑孕妇的遗传因素、家庭情况、经济条件、文化程度、社会地位等对宫内发育迟缓的影响。但本文结果仍然为宫内发育迟缓的预防提供了合理可行的建议,即通过孕前或孕早

表 2 宫内发育迟缓影响因素的 logistic 回归分析

影响因素	β	s_e	Wald χ^2 值	P 值	OR值(95%CI)
孕妇年龄(岁)					1
25 ~					1
<25	0.237	0.101	5.524	0.019	1.268(1.040 ~ 1.546)
≥ 35	-0.220	0.326	0.455	0.500	0.803(0.424 ~ 1.520)
初产妇(是)	0.534	0.124	18.558	0.000	1.706(1.338 ~ 2.175)
初诊 BMI(kg/m ²)					1
18.5 ~					1
<18.5	0.536	0.104	26.641	0.000	1.709(1.394 ~ 2.094)
≥ 25.0	-0.275	0.174	2.507	0.113	0.759(0.540 ~ 1.068)
孕期增重					1
正常					1
不足	0.455	0.104	19.048	0.000	1.576(1.285 ~ 1.933)
过高	-0.288	0.136	4.470	0.034	0.750(0.574 ~ 0.979)
妊娠高血压综合征(是)	0.529	0.158	11.173	0.001	1.698(1.245 ~ 2.315)

注:年龄、初诊 BMI 和孕期增重均按哑变量处理,以第一类做参照组

期筛查 BMI、监测孕期体重变化并控制体重在适当范围,加强防治妊娠高血压综合征,以减少宫内发育迟缓的发生。

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