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妊娠期糖尿病孕妇产前体质量指数对分娩方式和新生儿体重的影响

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摘要 目的: 分析妊娠期糖尿病(GDM)孕妇产前体质量(BMI)指数对分娩方式及新生儿体重的影响。**方法:** 收集 2010 年 5 月至 2012 年 5 月于我院产科分娩的 GDM 孕妇资料,共 117 例,按照 BMI 分级标准将所有产妇分为低体重组(18 例)、正常体重组(65 例)、超体重组(21 例)、肥胖组(13 例),比较四组产妇分娩方式及新生儿出生体重。**结果:** 低体重组、正常体重组顺产率分别为 55.56%、61.54%,明显高于超体重组 38.10%、肥胖组 15.38%($\chi^2=11.035, P=0.012$);而肥胖组剖宫产率 85.62%又高于超体重组 61.90%,比较差异具有统计学意义($P<0.05$)。低体重组、正常体重组新生儿巨大儿发生率分别为 5.56%、9.23%,低于超体重组 33.33%、肥胖组 46.15%,差异具有统计学意义($P<0.05$)。**结论:** GDM 孕前 BMI 与孕妇妊娠结局密切相关,孕前积极检查,将 BMI 控制在 25 以下,可有效降低剖宫产率及巨大儿的发生率。

关键词: GDM; BMI; 分娩方式; 新生儿体重

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The Effect of Gestational Diabetes Mellitus Pregnant Women Pre-Delivery Body Mass Index for the Mode of Delivery and Neonatal Weight

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ABSTRACT Objective: To investigate the effect of gestational diabetes mellitus pregnant women pre-delivery body mass index on the mode of delivery and neonatal weight. **Methods:** 117 GDM women were collected who were in obstetric of our hospital from May 2010 to May 2012. According to the BMI classification standard, 117 GDM women were divided into the low-weight group (18 cases), the normal weight group (65 cases), the ultra-weight group (21 cases) and the observation group (13 patients). Maternal mode of delivery and neonatal birth weight in the four groups was compared. **Results:** The eutocia rate in the low-weight group, the normal weight group, were 55.56%, 61.54%, respectively, which was significantly higher than those in the ultra-weight group (38.10%) and the obese group (15.38%). Cesarean delivery rate was 85.62% in the obese group which was higher than that in the ultra weight group (61.90%). The difference was statistically significant ($P<0.05$). The newborn huge child incidence in the low-weight group, the normal weight group, was 5.56%, 9.23%, which was significantly lower than that in the ultra-weight group (33.33%) and the obese group (46.15%). The difference was statistically significant ($P<0.05$). **Conclusion:** The BMI of GDM pregnancy is closely related to pregnancy outcomes of pregnant women. The preconception well check and the BMI level was less than 25, which can effectively reduce the incidence of cesarean section rate and huge children.

Key words: GDM; BMI; Delivery mode; Neonatal weight

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前言

妊娠期糖尿病(GDM)是孕妇在妊娠期间发生或首次发现的糖代谢异常^[1]。GDM 一般发生于妊娠中期或晚期,并伴有明显的机体代谢的变化。GDM 是临床常见的产科疾病,近年来,其发病率呈现上升趋势,在我国孕妇中的发病率到达 3%~5%,有文章报道妊娠前肥胖及妊娠期体重增加过多会对妊娠结局产生不良影响^[2],对妊娠及其结局的影响正越来越被受到重视,

早期发现 GDM 并给予适当的治疗,正成为减少围生期母婴并发症,提高产科质量的重要措施之一^[3-4]。有研究表明治疗后 GDM 孕妇的体重增长明显低于正常孕妇^[5],因此 GDM 孕妇的体重指数(Ballistic Missile Interceptor, BMI)的增长对妊娠结局及新生儿体重的影响值得探讨。我院近年来研究分析 GDM 孕妇产前 BMI 水平对其分娩方式及新生儿体重的影响,以更好地指导临床,现报道如下。

1 资料与方法

1.1 一般资料

收集 2010 年 5 月至 2012 年 5 月于我院产科分娩的 GDM

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孕妇资料,共 117 例,占此时期所有产妇的 2.01%。年龄为 22~35 岁,平均年龄为 28.5 岁。117 例孕妇均符合 WHO 关于 GDM 的诊断标准,并排除高血压、冠心病、糖尿病家族病史及其他慢性疾病^[9]。按照 BMI 指数分级标准将所有产妇分为低体重组(18 例)、正常体重组(65 例)、超体重组(21 例)、肥胖组(13 例)。各组相比较孕妇在年龄、孕周等方面差异无统计意义,具有可比性($P>0.05$)。

1.2 方法

BMI 计算方法:测孕妇分娩前体重, $BMI = \text{体重(kg)} / \text{身高}^2(\text{m}^2)$ ^[7]。BMI 指数分级标准^[9]:低体重组: $BMI < 18.5$;正常体重组: $18.5 \leq BMI < 23$;超体重组: $23 \leq BMI < 25$;肥胖组: $BMI \geq 25$ 。

GDM 诊断标准^[9]:所有孕妇于妊娠 24~28 周进行 50 g 葡萄糖负荷试验,如果孕妇血糖值低于 7.8 mmol/L,则排除 GDM;如果孕妇血糖值高于 7.8 mmol/L,需继续进行葡萄糖耐量试验,确诊是否为 GDM。于孕期内监测空腹血糖,2 次或 2 次以上 FPG 高于 5.8 mmol/L 可确诊为 GDM。口服葡萄糖 75 g,空腹及口服葡萄糖后 1 h、2 h、3 h 监测外周静脉血糖,如果 2 项或 2 项以上高于 5.6 mmol/L、10.3 mmol/L、8.6 mmol/L、6.7 mmol/L,则确诊为 GDM。

1.3 统计学方法

采用 SPSS17.0 统计学软件进行统计学分析,四组顺产率比较采用 χ^2 检验;四组新生儿体重结果比较采用多样本非参数 Kruskal-Wallis 秩和检验;各组率的两两比较用 Wilcoxon 秩

和检验。以 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 四组 GDM 孕妇孕前 BMI 指数对分娩方式影响比较

表明四组孕妇顺产率差异有统计学意义。进行组间两两比较,结果表明低体重组、正常体重组与肥胖组之间顺产率比较差异有统计学意义($P < 0.05$),其余两两之间比较,均无统计意义($P > 0.05$)。

2.2 四组 GDM 孕妇孕前 BMI 指数对新生儿体重影响比较

从表 3 两两比较可以看出,低体重组、正常体重组与超体重组、肥胖组的新生儿巨大儿发生率比较具有统计学意义,表明超体重组与肥胖组的新生儿巨大儿发生率高于低体重组与正常体重组。

表 1 四组 GDM 孕妇分娩方式比较

Table 1 Comparison of delivery mode in four groups of pregnant women with GDM

Groups	Cases	Eutocia(cases, %)	Caesarean (cases, %)
Low-weight	18	10(55.56)*	8(44.44)
Normal weight	65	40(61.54)*	25(38.46)
Overweight	21	8(38.10)	13(61.90)
Obesity	13	2(15.38)	11(85.62)

Note: $\chi^2=11.035$, $P=0.012$, * are comparison with the obese group, $P < 0.05$, the others are pairwise comparisons, $P > 0.05$

表 2 四组 GDM 孕妇分娩新生儿体重比较(例, %)

Table 2 Comparison of birth weight in four groups of pregnant women with GDM

Groups	Cases	giant baby	Normal weight baby	Low-weight baby
Low-weight	18	1(5.56)	16(88.89)	1(5.56)
Normal weight	65	6(9.23)	54(83.07)	5(7.69)
Overweight	21	7(33.33)	13(61.90)	1(4.76)
Obesity	13	6(46.15)	7(53.85)	0(0.00)

Note: $\chi^2=8.724$, $P=0.033$.

表 3 四组 GDM 孕妇分娩新生儿体重差异的两两比较

Table 3 Differences in weight of birth weight in four groups of pregnant women with GDM

Comparison groups	Z values	P values
Low-weight and normal weight	-0.603	0.546
Low-weight and Overweight	-1.997	0.046
Low-weight and Obesity	-2.312	0.021
Normal weight and Overweight	-2.209	0.027
Normal weight and Obesity	-2.580	0.010
Overweight and Obesity	-0.576	0.564

3 讨论

近年来,随着社会的进步及经济的发展,生活水平得到不

断提高,与此相应的母婴保健工作也逐步完善^[10]。家庭对孕妇产前的各项保健工作的意识水平不断提高,但是,对孕妇孕期的营养支持出现部分误读,导致许多孕妇在孕期出现营养过剩,孕妇孕期体重增加过快,出现超重,甚至肥胖等,引起代谢紊乱,出现高血糖、高血脂等指标异常。增加了妊娠期相关并发症的发病率,尤其是妊娠期糖代谢异常的发生,严重威胁孕妇和新生儿的健康。孕妇身高或体质量作为单一的指标无法准确预判妊娠结局,但身高与体质量指标的比值可有效评价妊娠预后,也是目前临床常用的方法。研究显示, BMI 指数与身体内脂肪的含量呈现正相关的关系,能够反映个体的肥胖程度,也进一步反映了孕妇的基础营养及在孕期内的的营养状况^[11,12]。

国内外很多研究表明,孕前 BMI 指数升高可作为 GDM 的独立高危因素。孕前 BMI 的升高对非糖尿病孕妇妊娠结局会导致不利影响,这在医学领域达成共识^[13]。但 BMI 指数的变化与 GDM 孕妇妊娠结局的关系还有待于进一步的验证。本次

研究显示,低体重组、正常体重组孕妇顺产率分别为 55.56%、61.54%明显高于超体重组 38.10%及肥胖组 15.38%,而肥胖组剖宫产率又明显高于超体重组,比较差异具有统计学意义($P < 0.05$)。低体重组、正常体重组新生儿巨大儿发生率分别为 5.56%、9.23%,明显低于肥胖组 46.15%、超体重组 33.33%,比较差异具有统计学意义($P < 0.05$)。这表明妊娠前肥胖不但能够增加 GDM 的发生率,而且可影响围产预后结局。其机理可能为,机体在肥胖之前一定程度上具有慢性高胰岛素血症,在肥胖之后机体会发生胰岛素抵抗。GDM 发病在人体代谢中主要表现为妊娠前期的“慢性胰岛素抵抗”和晚期“生理性胰岛素抵抗”的相加,也可能妊娠期孕妇的胰岛功能不能够改变胰岛抵抗的状态。因此肥胖的孕妇一定程度增加 GDM 的发病率,而肥胖的 GDM 孕妇胰岛素抵抗相对更加严重,血糖控制相对困难^[14,15]。大量多余的营养通过胎盘提供给胎儿,使其营养增加,使得胎儿的体重增加,导致巨大儿的发生率升高。巨大儿可引起产程进展缓慢,子宫收缩无力,只能通过剖宫产生产。同时,肥胖孕妇盆腔内大量脂肪堆积,空间减小,由此引起妊娠期相关并发症的发病率升高,也使得剖宫产发生率增高。

超体重与肥胖孕妇胎儿窘迫的发生率高于正常体重孕妇,胎儿窘迫极易引起剖宫产的增加^[16,17]。本次研究显示,低体重组、正常体重组之间顺产率、剖宫产率两两比较差异无统计学意义($P > 0.05$);低体重组、正常体重组之间巨大儿发生率两两比较差异无统计学意义($P > 0.05$)。四组低体重儿发生率两两比较差异无统计学意义($P > 0.05$)。可能为本次研究样本量较少所致。新生儿出生时体质量可影响以后身体发展,肥胖可引起很多疾病已得到大家公认。

综上所述,GDM 孕前 BMI 水平与孕妇妊娠结局密切相关,孕前积极检查,将 BMI 水平控制在 25 以下,可有效降低剖宫产率及巨大儿的发生率。控制孕妇体重,可有效降低孕妇及新生儿并发症的发病率的。其主要预防方法是严格执行孕前身体检查。通过实验室相关检查评估孕妇的健康状况,以消除引起不良妊娠结局的各种危险因素。内容主要为合理膳食,严格控制体质量^[18]。

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