

doi: 10.13241/j.cnki.pmb.2021.03.017

## 个体化饮食控制联合参芪降糖颗粒对妊娠期糖尿病的疗效\*

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**摘要 目的:**研究个体化饮食控制联合参芪降糖颗粒对妊娠期糖尿病的疗效。**方法:**选择 2016 年 1 月~2018 年 12 月我院收治的 201 例妊娠期糖尿病患者,将其随机分为两组。对照组采用个体化饮食控制,观察组在个体化饮食控制的基础上加用参芪降糖颗粒,每次口服 1 g,每天 3 次。比较两组治疗前后的餐后 2 h 血糖、胰岛  $\beta$  细胞功能指数(homeostasis model assessment- $\beta$ , HOMA- $\beta$ )及空腹血糖的变化,妊娠不良结局和围产期并发症的发生情况。**结果:**治疗后,观察组的降糖有效率为 95.00%,明显高于对照组(75.24%, $P<0.05$ );两组的 HOMA- $\beta$  较治疗前明显升高( $P<0.05$ ),餐后 2 h 血糖及空腹血糖均较治疗前明显降低( $P<0.05$ ),且观察组上述指标变化优于对照组( $P<0.05$ )。观察组的早产率为 2.00% (2/100)、剖宫产率为 29.00% (29/100)、晚期流产率为 3.00% (3/100),均明显低于对照组( $P<0.05$ )。观察组的新生儿低血糖、胎儿窘迫、羊水过多、产褥期感染以及产后出血发生率为 7.00%,明显低于对照组(21.78%, $P<0.05$ )。**结论:**个体化饮食控制联合参芪降糖颗粒对妊娠期糖尿病疗效明显优于单用个体化饮食控制,其能有效改善妊娠结局,减少围产期的并发症。

**关键词:**个体化饮食控制;参芪降糖颗粒;妊娠期糖尿病

**中图分类号:**R714.256 **文献标识码:**A **文章编号:**1673-6273(2021)03-485-04

## Effect of Individualized Diet Control Combined with Shenqi Jiangtang Granule on the Gestational Diabetes Mellitus\*

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**ABSTRACT Objective:** To investigate the effect of individualized diet control combined with Shenqi Jiangtang Granule on the gestational diabetes mellitus. **Methods:** 201 patients with gestational diabetes mellitus who admitted to our hospital from January 2016 to December 2018 were selected and randomly divided into two groups. The control group was treated with individualized diet control, while the observation group was treated with Shenqi Jiangtang granules on the basis of individualized diet control, 1g every time, 3 times a day. The changes in postprandial blood glucose, homeostasis model assessment- $\beta$  (HOMA- $\beta$ ), fasting blood glucose, adverse pregnancy outcomes, and perinatal complications were compared between the two groups before and after treatment. **Results:** After treatment, the effective rate of reducing blood glucose in the observation group was 95.00%, which was significantly higher than in the control group (75.24%,  $P<0.05$ ). The HOMA- $\beta$  of both groups were significantly higher than those before treatment ( $P<0.05$ ), and the blood glucose at 2 h after meal and fasting blood glucose were significantly lower than before treatment ( $P<0.05$ ), and the above indicators in the observation group were better than those in the control group ( $P<0.05$ ). The preterm delivery rate in the observation group was 2.00% (2/100), the cesarean section rate was 29.00% (29/100), the late flow rate was 3.00% (3/100), which were significantly lower than those in the control group ( $P<0.05$ ). The incidence rate of neonatal hypoglycemia, fetal distress, polyhydramnios, postpartum infection and postpartum hemorrhage in the observation group was 7.00%, which were significantly lower than those in the control group (21.78%,  $P<0.05$ ). **Conclusion:** Individualized diet control combined with Shenqi Jiangtang granules is significantly better than individualized diet control alone for the on gestational diabetes, which can effectively improve the pregnancy outcomes and reduce the perinatal complications.

**Key words:** Individualized diet control; Shenqi Jiangtang granules; Gestational diabetes mellitus

**Chinese Library Classification(CLC):** R714.256 **Document code:** A

**Article ID:** 1673-6273(2021)03-485-04

\* 基金项目:国家自然科学基金项目(81200418)

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(收稿日期:2020-03-07 接受日期:2020-03-31)

## 前言

妊娠期糖尿病好发于妊娠的中晚期,常合并不同程度的代谢障碍,不利于母婴安全<sup>[1]</sup>。妊娠合并糖尿病有两种情况,一是本身有糖尿病的病人怀孕,二是孕产妇在妊娠期间发生了糖尿病。研究显示每年有1%~15%的孕妇会发生妊娠糖尿病<sup>[2]</sup>。受到妊娠期的影响,女性的内分泌系统和免疫系统都会明显改变,使糖尿病的发生几率升高,而糖尿病是引起不良妊娠结局的高危因素。与健康的孕产妇相比较,合并糖尿病患者更容易发生难产、剖宫产、早产等<sup>[3,4]</sup>。因而,为了保证新生儿和产妇的健康,需加大对治疗方法的重视程度<sup>[5]</sup>。

临床上,西医治疗妊娠期糖尿病主要通过控制饮食、运动、对于无效者采取降糖药物治疗,但效果不佳。且孕妇本身身体较为虚弱,易引发低血糖<sup>[6,7]</sup>。近年来,中药应用于妊娠期糖尿病的治疗已获得了满意的效果,其中参芪降糖颗粒被广泛应用于糖尿病的治疗,但是在妊娠期糖尿病患者中的尚未见报道。因此,本研究主要探讨了个体化饮食控制以及参芪降糖颗粒联合使用对妊娠期糖尿病的疗效,结果报道如下。

## 1 资料与方法

### 1.1 一般资料

选择2016年1月~2018年12月我院收治的201例妊娠期糖尿病患者,纳入标准:(1)符合相关的诊断标准<sup>[8]</sup>;(2)首次确诊,之前没有进行过任何的血糖控制治疗;(3)孕前没有糖尿病史;(4)知情同意;(5)孕妇无内科疾病或肿瘤史。排除标准:(1)孕妇双胎妊娠或者多胎妊娠;(2)胎盘前置患者;(3)有不良妊娠史、巨大儿分娩史、早产分娩史、新生儿呼吸窘迫综合征分娩史;(4)B超检查结果显示胎儿畸形;(5)孕妇的胎儿为巨大儿;(6)患者有多囊卵巢综合征史;(7)孕妇有吸毒以及抽烟等不良的嗜好;(8)患有严重感染、甲亢、恶性肿瘤者。

用抽签法将患者随机分为两组。观察组100例,年龄20~34岁,平均(27.13±4.36)岁;孕周21~30周,平均(27.13±1.34)周;初产妇61例,经产妇39例;孕次1~4次,平均(1.45±0.39)次;体重57~82 kg,平均(67.13±5.29) kg。对照组101例,年龄20~34岁,平均(26.95±5.72)岁;孕周21~30周,平均(27.24±1.57)周;初产妇62例,经产妇39例;孕次1~4次,平均(1.52±0.34)次;体重57~82 kg,平均(67.38±5.44) kg。两组的基线资料具有可比性( $P>0.05$ )。

### 1.2 治疗方法

对照组采用个体化饮食控制,方法为:根据患者具体的平日饮食营养分析结果、血糖水平、体质量、身高、劳动强度、孕周制定出相应的饮食建议,认真指导和严格控制每天摄入的食物总热量,由孕妇按主食、蔬菜、副食、肉类、水果、油脂、奶类、孕妇的饮食喜好和烹饪方法自由选择食物,以控制血糖;根据患者的偏好口味和饮食习惯,选择可以食用的食物种类,定量定餐,并且可以留出一定的自由度,在规定的范围内使其选择喜欢的食物,以尽可能提高遵医行为,但是禁止随意减少或者增加食物的份量。应当多食用高纤维素的食物,适量补充微量元素以及新鲜的瓜果,保持每天清淡的饮食,禁忌辛辣生冷、纯糖、油腻的食物。妊娠期糖尿病的日常饮食应当注意既要避免饥饿性质的酮体出现,还要控制餐后发生高血糖,多食用高纤维素食物、豆制品、新鲜果蔬等。观察组:加用参芪降糖颗粒(国药准字Z10950075,鲁南厚普制药),每次口服1 g,每天3次。患者均从服药开始到分娩胎儿后结束用药。

### 1.3 观察指标

疗效<sup>[9]</sup>:(1)显效:餐后2 h血糖降低至正常范围,或与治疗前相比空腹血糖和餐后2 h血糖降低的幅度 $>40\%$ ;糖化血红蛋白降低至 $<6.2\%$ ,或与治疗前相比降低的幅度 $>30\%$ ;(2)有效:与治疗前相比,空腹血糖和餐后2 h血糖降低幅度 $>20\%$ ,糖化血红蛋白降低的幅度 $>10\%$ ,但是还没有达到显效的标准;(3)无效:血糖没有任何的改善。

治疗前后,使用稳态模型公式计算HOMA- $\beta$ , $HOMA-\beta=20 \times FINS/FBG - 3.5$ 。比较两组的餐后2 h血糖、HOMA- $\beta$ 以及空腹血糖。

记录两组的早产、剖宫产、晚期流产、新生儿低血糖、胎儿窘迫、羊水过多、产褥期感染以及产后出血等的发生情况。

### 1.4 统计学分析

采用SPSS 21.0进行数据分析,计量资料以 $(\bar{x} \pm s)$ 示,组间比较行t检验,计数资料以%示,组间比较行 $\chi^2$ 检验, $P<0.05$ 为差异有统计学意义。

## 2 结果

### 2.1 两组的降糖效果比较

观察组治疗的降糖总有效率为95.00%,显著高于对照组(75.24%, $P=0.000$ ),见表1。

表1 两组的疗效比较[例(%)]

Table 1 Comparison of the clinical effect between two groups[n(%)]

Groups	n	Effective	Valid	Invalid	The total effect rate
Control group	101	34(33.66)	42(41.58)	25(24.75)	76(75.24)
Observation group	100	41(41.00)	54(54.00)	5(5.00)	95(95.00)*

Note: Compared with the control group, \* $P<0.05$ .

### 2.2 两组餐后2 h血糖、HOMA- $\beta$ 以及空腹血糖水平比较

治疗前,两组的餐后2 h血糖、HOMA- $\beta$ 以及空腹血糖对比差异无统计学意义( $P>0.05$ ),治疗后,两组的HOMA- $\beta$ 明显升高,血糖水平明显降低( $P<0.05$ ),且观察组上述指标变化优于

对照组( $P<0.05$ ),见表2。

### 2.3 两组早产、剖宫产、晚期流产的发生率比较

观察组的早产率为2.00%(2/100)、剖宫产率为29.00%(29/100)、晚期流率为3.00%(3/100),均明显低于对照组(11.88%

(12/101)、48.51%(49/101)、14.85%(15/101), 对比差异有统计学意义 ( $\chi^2=7.571, P=0.006; \chi^2=8.058, P=0.005; \chi^2=8.656, P=0.003, P<0.05$ ), 见表 3。

表 2 两组餐后 2 h 血糖、HOMA-β 以及空腹血糖比较( $\bar{x} \pm s$ )

Table 2 Comparison of the postprandial 2 h blood glucose, HOMA - β and fasting blood glucose between two groups( $\bar{x} \pm s$ )

Groups	n		Postprandial 2 h blood glucose (mmol/L)	HOMA-β	Fasting blood glucose (mmol/L)
Control group	101	Before treatment	20.29± 3.45	2.42± 0.59	15.24± 3.27
		After treatment	15.63± 2.45 <sup>#</sup>	3.65± 0.73 <sup>#</sup>	10.38± 2.64 <sup>#</sup>
Observation group	100	Before treatment	20.46± 3.27	2.41± 0.57	15.32± 3.54
		After treatment	10.31± 1.64* <sup>#</sup>	4.82± 0.76* <sup>#</sup>	6.93± 1.57* <sup>#</sup>

Note: Compared with the control group, \* $P<0.05$ ; compared with before treatment, <sup>#</sup> $P<0.05$ .

表 3 早产、剖宫产、晚期流产发生率比较[例(%)]

Table 3 Comparison of the incidence of premature delivery, cesarean section and late abortion [n(%)]

Groups	n	Premature delivery	Cesarean section	Late abortion
Control group	101	12(11.88)	49(48.51)	15(14.85)
Observation group	100	2(2.00)*	29(29.00)*	3(3.00)*

Note: Compared with the control group, \* $P<0.05$ .

### 2.4 围产期并发症发生情况比较

观察组的新生儿低血糖、胎儿窘迫、羊水过多、产褥期感染以

及产后出血发生率为 7.00%，明显低于对照组(21.78%， $P<0.05$ )，见表 4。

表 4 两组围产期并发症发生情况比较[例(%)]

Table 4 Comparison of the incidence of perinatal complications between two groups [n(%)]

Groups	n	Neonatal hypoglycemia	Fetal distress	Amniotic fluid	Puerperal infection	Postpartum hemorrhage	Total incidence rate
Control group	101	6(5.94)	3(2.97)	5(4.95)	5(4.95)	3(2.97)	22(21.78)
Observation group	100	2(2.00)	1(1.00)	2(2.00)	2(2.00)	0(0.00)	7(7.00)*

Note: Compared with the control group, \* $P<0.05$ .

## 3 讨论

目前普遍认为妊娠期糖尿病与孕激素、糖皮质激素和胎盘催乳素等的影响有关<sup>[9]</sup>。该病是一种比较特殊的糖尿病, 大多数的孕妇在妊娠前并没有糖尿病, 其会严重影响到妊娠的结局, 引起如羊水过多、妊高症、剖宫产、胎儿宫内窘迫和新生儿低血糖等的出现, 使妊娠期的风险大大增加<sup>[10-14]</sup>。妊娠期糖尿病在中国的发病率高达 17.5%，增加了胎儿畸形及产后出血的风险, 不利母婴健康<sup>[15-18]</sup>。研究表明肥胖、年龄、糖尿病家族史以及不良生育史是影响妊娠期糖尿病发生的重要因素<sup>[19-23]</sup>。孕妇在妊娠阶段会发生比较显著的雌孕激素分泌量升高的情况, 造成胰岛素的分泌量增加, 因胎盘激素所引起的拮抗效应, 最终会引起胰岛素抵抗表现, 导致孕妇的血糖水平出现异常<sup>[24-28]</sup>。

中医学认为治疗妊娠期糖尿病需从气血、健脾养胃以及益气养阴方面的治疗出发<sup>[29]</sup>。参芪降糖颗粒中的黄酮、黄芪多糖和皂苷类物质能使免疫细胞的活性增强, 促进血液循环和血管扩张, 有效减轻心血管损伤程度, 改善机体的功能。参芪地黄降糖颗粒的组成中, 黄芪为升阳和补气之要药, 能补肺、脾之气, 升清阳, 补精微; 红参为益气生津之良药, 能助运化, 益脾气, 化阴液, 输精微; 怀牛膝补益肝肾、引血下行和活血; 生地黄

生津润燥、清热育阴, 补脾、肺、肝肾之阴, 与黄芪以及红参相伍, 益气养阴, 不温不燥, 清热润燥; 酒大黄活血, 诸药合用, 有补阴补气, 滋补肝肾、活血泻浊的功效。现代的药理学研究表明参芪降糖颗粒所包含的中药成分能产生不同程度的降血脂、降血糖、改善胰岛素抵抗、保护肝功能等效果<sup>[30]</sup>。本研究结果表明在个体化饮食控制的基础上, 辅助参芪降糖颗粒后可以更有效的控制血糖水平, 提高总体疗效。其原因可能为黄芪、麦冬、人参皂苷、枸杞子、生地黄、山药和五味子等中药成分可以在一定程度上控制血糖水平。其中, 黄芪、生地黄以及人参皂苷局域促进胰岛β细胞的修复、增强胰岛素的敏感性、对抗胰岛素抵抗的效果, 从而降低患者的血压及心血管损伤, 改善机体功能。由个体化饮食控制联合参芪降糖颗粒能预防围生期并发症以及妊娠不良结局的发生, 改善母婴预后。在个体化饮食控制的基础上辅助参芪降糖颗粒能标本兼治, 在一定程度上促进妊娠期糖尿病患者自身内分泌功能的恢复, 增强其抵抗能力, 这可能是其改善妊娠结局的机制<sup>[31]</sup>。

综上所述, 个体化饮食控制联合参芪降糖颗粒对妊娠期糖尿病疗效明显优于单用个体化饮食控制, 其能有效改善妊娠结局, 减少围产期的并发症。

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