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全身麻醉与腰麻对剖宫产产妇和新生儿的影响*

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摘要 目的:比较分析全身麻醉与腰麻对剖宫产产妇和新生儿的影响。**方法:**选择 2018 年 1 月~2018 年 12 月在我院进行剖宫产术的 81 例产妇,随机分为两组。对照组的 40 例产妇在剖宫产术中采用腰麻,观察组的 41 例产妇在剖宫产术中采用全身麻醉。记录两组的切皮至娩出时间、手术时间和新生儿体质量;比较两组新生儿的 Apgar 评分、动脉血气分析检测值和神经行为评分;并比较两组产妇的平均动脉压以及心率。**结果:**两组的切皮至娩出时间、手术时间和新生儿体质量没有明显的差异($P>0.05$);两组胎儿娩出之后 1 min 和 5 min 的 Apgar 评分没有明显的差异($P>0.05$);两组新生儿出生后 30 min 的二氧化碳分压、pH 值、氧分压、红细胞压积以及血氧饱和度没有明显的差异($P>0.05$);两组新生儿出生后 1 d、3 d 和 5 d 的神经行为评分没有明显的差异($P>0.05$);与麻醉前相比,两组产妇切皮时和取出胎儿时的平均动脉压以及心率均明显降低($P<0.05$),且观察组产妇切皮时和取出胎儿时的平均动脉压以及心率均明显高于对照组($P<0.05$)。**结论:**全身麻醉和腰麻都适用于剖宫产手术,全身麻醉不仅可以维持剖宫产产妇血流动力学稳定,而且对新生儿 Apgar 评分、动脉血气分析和神经行为评分无明显的影响,具有较高的临床价值。

关键词:全身麻醉;腰麻;剖宫产手术;产妇;血流动力学;新生儿结局

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Effects of General Anesthesia and Lumbar Anesthesia on Parturients and Newborns Undergoing Cesarean Section*

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ABSTRACT Objective: To study the effects of general anesthesia and lumbar anesthesia on Parturients and newborns undergoing cesarean section. **Methods:** Selected 81 cases of parturients undergoing cesarean section who were treated in our hospital from January 2018 to December 2018, divided into two groups randomly. 40 cases in the control group were given lumbar anesthesia during cesarean section, and 41 cases in the observation group were given general anesthesia during cesarean section. The time from skin incision to delivery, operation time and neonatal body mass were recorded; the Apgar score, arterial blood gas analysis and neurobehavioral score at different time after birth were compared between the two groups; and the average arterial pressure and heart rate before anesthesia, during skin incision and fetal removal were compared between the two groups. **Results:** There was no significant difference in the time from skin incision to delivery, operation time and neonatal body mass between the two groups ($P>0.05$). There was no significant difference in partial pressure of carbon dioxide, pH value, partial pressure of oxygen, hematocrit and oxygen saturation in group A and group B 30 minutes after birth ($P>0.05$), and no significant difference in neurobehavioral score between two groups at 1, 3 and 5 days after birth ($P>0.05$). Compared with before anesthesia, the mean arterial pressure and heart rate of the two groups were significantly lower ($P<0.05$), and the mean arterial pressure and heart rate of the observation group were significantly higher than those of the control group ($P<0.05$). **Conclusion:** General anesthesia and lumbar anesthesia are both suitable for cesarean section. General anesthesia can not only maintain the hemodynamic stability of cesarean section women, but also have no significant impact on Apgar score, arterial blood gas analysis and neurobehavioral score of newborns. It has high clinical value.

Key words: General anesthesia; Spinal anesthesia; Cesarean section; Maternal; Hemodynamics; Neonatal outcome

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前言

近年来,由于产科肥胖、并发症等国内外的剖宫产率均有升高^[1]。剖宫产的临床指征包括:妊娠合并内科疾病(如先天性心脏病,妊娠期糖尿病以及妊娠合并肾炎等),产程停滞,头盆不称,前置胎盘,臀位,瘢痕子宫,巨大儿,骨盆狭窄,胎儿窘迫,子痫前期^[2-4]。适宜的麻醉方法是保障手术顺利开展的前提。剖宫产术极易受到麻醉方法的影响,麻醉药物以及麻醉手段的选择常常决定剖宫产手术的临床效果^[5]。麻醉方式的选择必须首先以确保新生儿及产妇的安全为原则。全身麻醉具有效果确切、起效较快、用药量少、镇痛全、可以满足术后镇痛以及手术时间比较长的需求等多方面的优点,常常应用于剖宫产术麻醉^[6]。近10年来,我国每年大约有0.92%~1.98%的剖宫产产妇选择全身麻醉^[7]。但尚未大范围开展全身麻醉对产妇和娩出新生儿的安全性研究。本研究对比分析了全身麻醉与腰麻对剖宫产术产妇和新生儿的影响,现报告如下。

1 资料与方法

1.1 一般资料

选择2018年1月~2018年12月在我院进行剖宫产术的81例产妇,纳入标准:均为单胎和足月产妇,孕周均为38~43周,均符合开展剖宫产手术的指征。排除标准:合并严重脏器功能不全者;合并严重产科和内科并发症者;剖宫产术前新生儿的体质量<2500 g和发生胎儿窘迫者。用抽签法随机分为两组。观察组41例,年龄20~37岁,平均(28.13±2.29)岁;体质量51~82 kg,平均(67.32±13.48) kg;孕周38~43周,平均(40.73±1.09)周。对照组40例,年龄20~37岁,平均(27.93±3.07)岁;体质量50~82 kg,平均(68.34±14.29) kg;孕周38~43周,平均(40.65±0.83)周。两组的基线资料具有可比性。

1.2 麻醉方法

观察组:在剖宫产术中采用全身麻醉。麻醉诱导采用:1%丙泊酚1.5 mg/kg,维库溴铵0.1 mg/kg,瑞芬太尼1 μg/kg,药物在一分钟内注射完毕。气管插管成功后即可开始手术,持续静脉泵入2%丙泊酚0.06 mg/kg/h。当胎儿娩出之后,静脉注射芬太尼4 μg/kg,咪达唑仑0.05 mg/kg。手术结束前再给与芬太尼4 μg/kg。麻醉诱导过程中采用环状软骨按压等方法避免产妇误吸。

对照组:在剖宫产术中采用腰麻。产妇采取右侧卧位,在其L2-3间隙部位行蛛网膜下腔穿刺,穿刺成功后,蛛网膜下腔内注射0.5%罗哌卡因3 ml。产妇平躺后将手术床向左侧倾斜大概20°。严密观察患者的血压和心率,调整麻醉平面至T6水平。

1.3 观察指标

(1)记录两组的切皮至娩出时间、手术时间和新生儿体质量。(2)分别在两组胎儿娩出之后1 min和5 min进行Apgar评分;分别在出生后1 d、3 d和5 d采用鲍秀兰的20项新生儿行为神经测定(NBNA)法评估两组新生儿的神经行为情况;在出生后30 min进行动脉血气分析,比较两组新生儿的二氧化碳分压、pH值、氧分压、红细胞压积以及血氧饱和度。(3)分别在麻醉前、切皮时和取出胎儿时记录两组产妇的平均动脉压以及心率。

1.4 统计学分析

采用SPSS 20.0,计量资料用对比用($\bar{x} \pm s$)表示,行t检验,计数资料用%表示,用 χ^2 检验, $P < 0.05$ 有统计学意义。

2 结果

2.1 切皮至娩出时间、手术时间和新生儿体质量比较

两组的切皮至娩出时间、手术时间和新生儿体质量无差异($P > 0.05$),见表1。

表1 切皮至娩出时间、手术时间和新生儿体质量比较($\bar{x} \pm s$)

Table 1 Comparison of skin incision to delivery time, operation time and neonatal body mass($\bar{x} \pm s$)

Groups	n	Skin Incision To Delivery Time (min)	Operation Time (min)	Neonatal Body Mass (g)
Control group	40	4.87±1.13	43.26±11.75	3392.67±145.38
Observation group	41	5.01±1.12	43.59±12.48	3399.42±163.45

2.2 新生儿的 Apgar 评分比较

两组胎儿娩出之后1 min和5 min的Apgar评分无差异

($P > 0.05$),见表2。

表2 新生儿的 Apgar 评分比较($\bar{x} \pm s$,分)

Table 2 Comparison of Apgar scores of newborns ($\bar{x} \pm s$, score)

Groups	n	1 minute after delivery	5 minutes after delivery
Control group	40	9.03±0.42	9.57±0.45
Observation group	41	8.97±0.36	9.51±0.43

2.3 新生儿出生后30 min的动脉血气分析检测值比较

两组新生儿出生后30 min的二氧化碳分压、pH值、氧分压、红细胞压积以及血氧饱和度无差异($P > 0.05$),见表3。

2.4 新生儿的神经行为评分比较

两组新生儿出生后1 d、3 d和5 d的神经行为评分没有明

显的差异($P > 0.05$),见表4。

2.5 产妇的平均动脉压以及心率比较

与麻醉前相比,两组产妇切皮时和取出胎儿时的平均动脉压以及心率均明显降低($P < 0.05$),且观察组产妇切皮时和取出胎儿时的平均动脉压以及心率均明显高于对照组($P < 0.05$),见表5。

表 3 两组新生儿出生后 30 min 的动脉血气分析检测值比较($\bar{x} \pm s$)Table 3 Comparison of arterial blood gas analysis values 30 minutes after birth($\bar{x} \pm s$)

Groups	n	Partial pressure of carbon dioxide(mmHg)	pH	Oxygen partial pressure(mmHg)	Hematocrit(%)	Blood oxygen saturation(%)
Control group	40	41.29± 10.73	7.34± 0.09	73.26± 11.84	55.38± 4.27	96.83± 1.25
Observation group	41	40.85± 11.26	7.35± 0.11	74.13± 10.25	54.92± 5.13	96.41± 1.17

表 4 新生儿的神经行为评分比较($\bar{x} \pm s$, 分)Table 4 Comparison of neurobehavioral scores of neonates($\bar{x} \pm s$, score)

Groups	n	1 days after delivery	3 days after delivery	5 days after delivery
Control group	40	35.79± 1.73	38.22± 1.94	38.47± 2.38
Observation group	41	35.84± 1.67	38.36± 2.07	39.16± 2.27

表 5 产妇的平均动脉压以及心率比较($\bar{x} \pm s$)Table 5 Comparison of mean arterial pressure and heart rate($\bar{x} \pm s$)

Groups	n		Mean arterial pressure(mmHg)	Heart rate(Times / minute)
Control group	40	Before anesthesia	105.37± 14.65	86.34± 11.57
		When skin is cut	83.41± 12.63 [#]	75.36± 10.28 [#]
		When fetus is removed	85.64± 10.29 [#]	74.63± 10.26 [#]
Observation group	41	Before anesthesia	105.29± 13.27	87.13± 12.64
		When skin is cut	97.34± 11.58 ^{#*}	79.36± 11.34 ^{#*}
		When fetus is removed	100.07± 12.45 ^{#*}	80.32± 12.31 ^{#*}

Note: Compared with the control group, [#] $P < 0.05$; compared with before anesthesia, ^{*} $P < 0.05$.

3 讨论

随着剖宫产技术和麻醉技术的成熟,妇产科剖宫产术的产妇逐渐增多^[8]。剖宫产术不但能有效挽救母婴的生命,而且可以使母体保持正常的生产能力^[9,10]。在剖宫产手术过程中,良好的麻醉方法会直接影响母体以及胎儿的安全性,而且手术后不会对胎儿和母体产生麻醉残留作用,对胎儿安全等特点,以保障母体的生命安全^[11-13]。

我国剖宫产手术均选择使用椎管内麻醉,对新生儿循环系统和呼吸系统的抑制作用较小,肌松效果以及镇痛效果更佳,而且容易控制麻醉平面^[14-16]。但是对于不适合采用椎管麻醉的产妇,全身麻醉是最佳的选择^[17]。全身麻醉可快速诱导,镇痛效果、麻醉效果更佳,对机体循环系统的影响比较轻微^[18-20];而且能有效控制产妇的呼吸,为胎儿提供稳定的内环境。全身麻醉比较适用于患有凝血功能异常、重度妊娠高血压综合征合并心力衰竭、意识不清无法有效配合、子痫发作合并气道梗阻等的产妇^[21-23]。特别是对于妊娠高血压综合征产妇,全身麻醉更加有利于管理产妇循环以及气道,具有比较理想的肌松效果^[22,24,25]。观察组产妇切皮时和取出胎儿时的平均动脉压以及心率均明显高于对照组。表明全身麻醉可以有效维持产妇血流动力学的相对稳定,保证剖宫产术的顺利进行。

神经行为评分法能比较全面地评分新生儿中枢神经的功能状态,鉴别出生后中枢神经功能受到抑制的原因。两组新生儿出生后 1 d、3 d 和 5 d 的神经行为评分没有明显的差异;表明全身麻醉和腰麻对新生儿的安全性相似,不会明显影响神经

行为。两组胎儿娩出之后 1 min 和 5 min 的 Apgar 评分没有明显的差异;表明全身麻醉不会对娩出新生儿造成影响,安全性高。因而,产妇若合并有不适合椎管麻醉的疾病或者存在椎管内麻醉的禁忌证,在行剖宫产时可采取全身麻醉。在剖宫产术麻醉过程中,麻醉药物容易经胎盘进到胎儿体内,可通过改变麻醉药的种类及剂量降低麻醉对胎儿的影响^[26-29]。动脉血气分析是公认的可以有效反映新生儿氧合指数以及酸碱状况的可靠指标,结合 Apgar 评分可以更加客观地评估麻醉对新生儿的影响。两组新生儿出生后 30 min 的二氧化碳分压、pH 值、氧分压、红细胞压积以及血氧饱和度没有明显的差异;表明全身麻醉和腰麻对新生儿血气分析的影响大致相当,不会增加明显的负性作用。

综上所述,全身麻醉和腰麻都适用于剖宫产手术,全身麻醉不仅可以维持剖宫产产妇血流动力学稳定,而且对新生儿 Apgar 评分、动脉血气分析和神经行为评分无明显的影响,具有较高的临床价值。

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