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罗哌卡因复合舒芬太尼持续硬膜外麻醉对无痛分娩镇痛效果及母婴状况的影响*

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摘要 目的:探讨罗哌卡因复合舒芬太尼持续硬膜外麻醉对无痛分娩镇痛效果及母婴状况的影响。**方法:**选择我院产科2014年2月至2015年5月足月妊娠初产妇180例,按照随机数字表法分为治疗组(n=90)和对照组(n=90),治疗组采用4 μg舒芬太尼复合3 mg罗哌卡因持续硬膜外麻醉进行分娩镇痛，对照组按阴道分娩常规处理，未用任何止痛措施。观察镇痛5 min、10 min、30 min、60 min时VAS评分,比较两组产妇的阴道出血量、产程、顺产率、剖宫产率,观察两组镇痛显效时间、镇痛时间、新生儿Apgar评分。**结果:**镇痛5 min,两组患者VAS评分无统计学差异(P>0.05),随着时间的推移,两组VAS评分逐渐降低,与对照组相比,治疗组在镇痛后10 min、30 min及60 min时VAS评分均明显降低,差异有统计学意义(P<0.05)。治疗组产妇镇痛显效时间、阴道出血量明显低于对照组(P<0.05),两组产程、镇痛时间、新生儿Apgar评分差异无统计学意义(P>0.05)。治疗组的顺产率和剖宫产率与对照组比较,治疗组产妇的顺产率提高,差异均有统计学意义(P<0.05)。**结论:**罗哌卡因复合舒芬太尼持续硬膜外麻醉镇痛对于无痛分娩镇痛效果较好,减轻疼痛,减少出血量,安全性高,值得临床推广。

关键词:分娩镇痛;舒芬太尼;罗哌卡因;硬膜外麻醉;镇痛效果

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Effect of Continuous Epidural Anesthesia with Ropivacaine and Sufentanil on Analgesic Effect and Maternal and Infant Condition in Painless Labor*

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ABSTRACT Objective: To study the effect of continuous epidural anesthesia with ropivacaine and sufentanil on analgesic effect and maternal and infant condition in painless labor. **Methods:** 180 full term pregnant women, who were admitted to Dongfang Hospital from February 2014 to May 2015, were selected and randomly divided into treatment group (n=90) and control group (n=90). The treatment group was given 4 μg of sufentanil combined with 3mg ropivacaine for epidural analgesia, while the control group was given routine vaginal delivery without any pain relief measures. The VAS scores at analgesia 5 min, 10 min, 30 min and 60 min were observed. The vaginal bleeding, duration of labor, delivery rate and cesarean section rate were compared between the two groups. The analgesic effective time, analgesic time and Apgar scores of the newborns were observed between the two groups. **Results:** At analgesia 5 min, there was no significant difference in the VAS scores between the two groups (P>0.05). As time went on, the VAS scores in the two groups decreased gradually. Compared with the control group, the VAS scores in the treatment group were significantly lower at analgesia 10 min, 30 min and 60 min, the differences were statistically significant (P<0.05). The effective time and the amount of vaginal bleeding in the treatment group were significantly lower than those in the control group (P<0.05). There were no significant differences in the duration of labor,the time of analgesia and the Apgar scores of newborns between the two groups (P>0.05). Compared with the control group, the delivery rate in the treatment group was higher,the differences were statistically significant (P<0.05). **Conclusion:** Ropivacaine and sufentanil with continuous epidural analgesia for epidural analgesia has obviously analgesic effect and can reduce the pain and the amount of bleeding, with high safety, which is worthy of clinical promotion.

Key words: Labor analgesia; Sufentanil; Ropivacaine; Epidural anesthesia; Analgesia effect

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前言

分娩过程中的疼痛感是一种常见的生理现象,分娩疼痛往往从第一产程开始一直持续至胎儿娩出，相比于其他疼痛,分娩疼痛一般持续时间较长。由于分娩疼痛是产妇遇到的最剧烈疼痛、胎儿对产道的压迫、初产妇的紧张焦虑及产道组织损伤

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等原因，使剖宫产率逐渐升高[1-3]。随着生活水平的提高，越来越多的产妇希望在分娩过程中减少痛苦，另外，分娩过程中产生大量的儿茶酚胺，阻碍宫缩，延长产程，使众多产妇因恐惧疼痛而放弃自然分娩[4,5]。无痛分娩又被称为分娩镇痛，无痛分娩的要求是分娩过程中充分镇痛和顺利分娩，并不影响母婴结局。因此，目前临床分娩的镇痛药物常用罗哌卡因联合舒芬太尼[6-8]。罗哌卡因具有阻滞感觉神经活动的作用，舒芬太尼因起效快，长时间持续镇痛等优点而选用[9,10]。其中应用的麻醉方式为硬膜外阻滞，运用广泛，技术成熟。在麻醉过程中，若麻醉剂量小，产妇依然可以感觉到宫缩，使产妇处于紧张状态，并且产生不良情绪，如焦虑和恐惧等，所以掌握好麻醉剂量也是至关重要的。本研究通过对 180 例足月妊娠初产妇临床指标的检测，探讨罗哌卡因联合舒芬太尼持续硬膜外阻滞麻醉镇痛效果及母婴结局情况，旨在为临床用药提供理论依据。

1 资料与方法

1.1 一般资料

选择我院产科 2014 年 2 月至 2015 年 5 月足月妊娠初产妇 180 例，按照随机数字表法分为治疗组（n=90）和对照组（n=90）。纳入标准：(1)均为足月产妇，均为单胎，且为第一次分娩；(2)孕周、宫高、腹围正常者；(3)资料完整积极配合者；(4)产妇及其家属同意并签署知情同意书；排除标准：(1)宫内发育缓慢、具有早产倾向、孕妇羊水量异常者；(2)合并患有高血压和糖尿病产妇；(3)神经意识障碍产妇。其中治疗组年龄 25-39 岁，平均(28.75± 10.32)岁，孕 38-41 周，平均(39.23± 1.82)周。对照组年龄 26-37 岁，平均(29.11± 9.93)岁，孕 37-41 周，平均(39.19± 1.95)周。两组一般资料比较无统计学差异(P>0.05)，均衡可比。本研究所有过程经我院伦理委员会批准同意。

1.2 方法

采用持续硬膜外阻滞麻醉给药后硬膜外留管产妇自控镇痛，治疗组产妇给予舒芬太尼(IDT Biologika GmBH，注册证号：H20150125，规格：5 mL: 375 μg)4 μg 复合罗哌卡因(AstraZeneca AB，注册证号：H20140763，规格：100 mg/10 mL/ 支)3 mg 镇痛。在产妇规律宫缩且宫口张开至 3 cm 时，送往分娩室，取产妇左侧卧位，在 L2-3 间隙处取穿刺点，待穿刺完成后，下腔穿刺方式采用硬膜外穿刺针，在硬膜外留置 3 cm 导管。将舒芬太尼复合罗哌卡因置于电子镇痛泵中（泵容量为 100 mL）。不设置背景量，单次 PCA 3 mL。分娩镇痛过程中，PCA 连续操作三次，如果宫缩时数值评定量表(numerical rating scale，NRS)评分仍高于 3 分，则需专业麻醉医师配合处理。当宫口全开时，不再给予麻药。分娩完成后，缝合会阴侧切伤口时再次给药。对照组阴道分娩后给予一般处理，期间未采用任何麻醉止痛治疗。

1.3 观察指标

NRS 评分标准：将 10 cm 长的直线等分为 10 份，每 1 cm 表示 1 级，1-3 分：轻度，产妇正常睡眠；4-6 分：中度，轻微影响产妇正常睡眠；7-10 分：重度，产妇由于疼痛难以入睡。从给药结束到宫缩时 NRS 评分低于 3 分以下时定义为镇痛显效时间。疼痛评分采用视觉模拟量表(visual analogue scale，VAS)进行评估，其分值为 0 分(无痛)-10 分(剧痛)，评定镇痛 5 min、10 min、30 min、60 min 时产妇的疼痛程度。阴道出血量的检测方法按照《中华医学会妇产科学分会第十一次全国妇产科学术会议纪要》中的相关描述进行，所得重量除 1.05 即得出血量[11]。新生儿 Apgar 评分标准：在新生儿出生 1 min 和 5 min 时进行评定，评定内容包括新生儿肤色、心率、呼吸及反射体征，共 10 分，低于 8 分则为窒息，其中轻度为 5-7 分，重度为小于 4 分[12]。

1.4 统计学方法

所有研究数据均在 SPSS19.0 软件上运行处理，VAS 评分、出血量、产程和新生儿 Apgar 评分用($\bar{x}$± s)表示，组间及组内比较采用配对 t 检验和独立 t 检验；分娩方式用百分数(%)表示，采用 x^2 检验，以 P<0.05 为检验标准。

2 结果

2.1 两组患者疼痛 VAS 评分比较

镇痛 5 min，两组患者 VAS 评分无统计学差异(P>0.05)，随着时间的推移，两组 VAS 评分逐渐降低，与对照组相比，治疗组在镇痛后 10 min、30 min 及 60 min 时 VAS 评分均明显降低，差异有统计学意义(P<0.05)。见表 1。

表 1 两组患者不同时间点疼痛 VAS 评分($\bar{x}$± s)

Table 1 The VAS scores between two groups of patients at different time point($\bar{x}$± s)

Groups	n	Analgesia 5 min	Analgesia 10 min	Analgesia 30 min	Analgesia 60 min
Control group	90	7.53± 1.41	5.51± 1.32	3.63± 0.81	3.12± 1.15
Treatment group	90	7.21± 1.36	1.96± 0.32	1.52± 0.27	1.08± 0.22
t		-1.550	-24.796	-23.444	-16.529
P		0.123	0.000	0.000	0.000

2.2 两组患者临床指标和新生儿 Apgar 评分比较

治疗组产妇阴道出血量、镇痛显效时间明显低于对照组，差异均有统计学意义(P<0.05)，两组产程、镇痛时间、新生儿 Apgar 评分差异无统计学意义(P>0.05)。见表 2。

2.3 两组患者分娩方式比较

治疗组的顺产率和剖宫产率与对照组比较，治疗组产妇的顺产率提高，差异均有统计学意义(P<0.05)。见表 3。

3 讨论

分娩过程中的疼痛感会使产妇产生紧张、焦虑等不良情绪，影响母婴结局，对母婴安全造成威胁，无痛分娩可提高分娩期的母婴安全[13-15]。持续硬膜外阻滞麻醉优点较多，可直接作用于脊髓和脊神经，见效快、麻醉效果持久，相比于蛛网膜下腔阻滞，副作用少[16,17]。分娩过程中镇痛药物的选择应尽可能避免影

表 2 两组患者临床指标和新生儿 Apgar 评分比较($\bar{x}\pm s$)

Table 2 Comparison of clinical indicators and neonatal Apgar scores between the two groups($\bar{x}\pm s$)

Groups	n	Vaginal bleeding (mL)	Duration of labor (h)	Analgesic effective time (s)	Analgesic time (min)	Apgar scores (scores)
Control group	90	271.67± 41.46	11.13± 3.63	68.19± 12.56	156.37± 25.18	8.97± 0.86
Treatment group	90	242.53± 31.71	10.52± 3.25	136.27± 21.43	153.28± 24.39	9.12± 0.95
t		-5.296	-1.188	-26.002	0.836	1.110
P		0.000	0.237	0.000	0.404	0.268

表 3 两组患者的分娩方式比较[n (%)]

Table 3 Comparison of delivery methods between the two groups[n (%)]

Groups	n	Natural birth	Cesarean delivery
Treatment group	90	79(87.78)	11(12.22)
Control group	90	65(72.22)	25(27.78)
x^2		6.806	
P		0.009	

响胎儿和产程,此次研究中选用的罗哌卡因复合舒芬太尼持续硬膜外阻滞麻醉镇痛基本上可以满足上述需求。舒芬太尼是由人工合成的强效拟吗啡类镇痛药,对患者的血液动力学影响较小,效价是芬太尼的 10 倍,具有易通过血脑屏障,镇痛效果较好,镇痛强度大,不良反应少等优点,广泛用于产科镇痛,而罗哌卡因是长效局麻药, 对心血管和神经中枢系统的毒性作用小,低浓度的罗哌卡因能够分离感觉运动神经,特别适合分娩镇痛[18]。药物浓度与运动神经阻滞作用具有密不可分的关系,当药物浓度为 0.2%左右时,阻滞作用体现在感觉神经部位,运动神经无明显作用,当药物浓度在 0.75%左右时,则有较好的运动神经阻滞作用,由于高剂量罗哌卡不利于患者安全,较低剂量会引起患者术中不适感以及术后疼痛程度增加,而舒芬太尼的半衰期较短,临床上往往二者联合应用[19,20]。

本研究结果显示,镇痛 5 min,两组患者 VAS 评分无统计学差异(P>0.05),随着时间的推移,两组 VAS 评分逐渐降低,与对照组相比, 治疗组在镇痛后 10 min、30 min 及 60 min 时 VAS 评分均明显降低(P<0.05)。说明罗哌卡因复合舒芬太尼持续硬膜外麻醉具有较好的镇痛作用,可能与罗哌卡因和舒芬太尼联合用于硬膜外麻醉时两药的协同增效作用密切相关。此外, 治疗组产妇阴道出血量、镇痛显效时间明显低于对照组(P<0.05),两组产程、新生儿 Apgar 评分、镇痛时间比较无统计学差异(P>0.05)。硬膜外阻滞麻醉在分娩过程中一方面消除产妇的不良情绪,下调儿茶酚胺和肾上腺素的分泌量,阻断交感神经,促进宫口张开,松弛盆底肌肉,降低胎头位置;另一方面,减轻分娩过程中的疼痛,恢复肺通气,更加配合医护人员,保留体力加速分娩过程,缩短产程[21-23]。舒芬太尼通过直接作用于脊髓前角神经阿片受体, 抑制神经冲动而快速发挥镇痛作用,还可以选择性阻断痛觉传入神经递质 P 物质的释放过程,抑制痛觉传入神经活动,另外,舒芬太尼激活脊髓内啡肽受体和受体,降低运动神经阻滞作用[24-26]。罗哌卡因的化学结构为单一对映结构体(S 形),结构类似于布比卡因,脂溶性低,可阻断神经细胞的钠离子通道,抑制神经兴奋、传导,减轻运动神经阻滞作用,从而为产妇分娩提供良好的麻醉效果,局部麻醉药物和阿片类药物合用具有协同作用, 同时降低局部麻醉药物的浓度,降低对运动神经的抑制作用[27,28]。本研究结果还显示,治疗组的顺产率和剖宫产率与对照组比较, 治疗组产妇的顺产率提高(P<0.05)。提示罗哌卡因复合舒芬太尼持续硬膜外麻醉对母婴的健康无影响,可提高孕妇顺产率。罗哌卡因的长效作用和舒芬太尼速效作用,达到快速持久镇痛的效果,由于孕妇的疼痛减轻,可以坚持自然分娩。说明舒芬太尼复合罗哌卡因持续硬膜外麻醉镇痛,镇痛起效快,维持时间长,降低疼痛程度,镇痛效果较佳[29,30]。

综上所述,对于无痛分娩产妇,罗哌卡因复合舒芬太尼持续硬膜外麻醉镇痛效果显著,母婴结局良好,安全有效,值得在临床上进一步推广应用。

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