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舒芬太尼联合右美托咪定在局麻下椎间孔镜手术治疗中对中老年患者睡眠质量的影响*

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摘要 目的：探讨舒芬太尼联合右美托咪定在局麻下椎间孔镜手术治疗中对中老年患者睡眠质量的影响。**方法：**选择 2018 年 12 月至 2019 年 10 月在本院诊治的老年腰椎间盘突出症患者 178 例，根据随机数字表法将其分为舒芬太尼右美托咪定联合组与生理盐水对照组，每组各 89 例。所有患者都给予椎间孔镜手术治疗与 0.5 %利多卡因 -0.25 %罗哌卡因局麻，联合组在此基础上给予舒芬太尼右美托咪定诱导睡眠，调查和比较患者术中及术后睡眠质量。**结果：**两组的术口大小、术中出血量与术后住院时间对比差异无统计学意义(P>0.05)，联合组的手术时间显著短于对照组 (P<0.05)，术后 14 d 感染、恶心呕吐等并发症的发生率(1.12 %)显著低于对照组(8.87 %，P<0.05)，术后 1 d、7 d 与 14 d 的疼痛视觉模拟评分法(Visual analogue scales，VAS)评分显著低于对照组(P<0.05)。两组术后 7 d 的匹茨堡睡眠质量指数量表(Pittsburgh Sleep Quality Index，PSQI)均低于术后 1 d(P<0.05)；且联合组术中、术后 1 d 与 7 d 的 PSQI 都显著低于对照组(P<0.05)。**结论：**舒芬太尼联合右美托咪定用于中老年腰椎间盘突出症局麻下椎间孔镜手术治疗的镇痛效果良好，患者术中及术后睡眠质量佳，血流动力学稳定、术后康复快，且安全性较高。

关键词：舒芬太尼；右美托咪定；局麻；椎间孔镜；睡眠质量
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Effects of Sufentanil Combined with Dexmedetomidine on the Sleep Quality of Middle-aged and Elderly Patients during Intervertebral Foraminal Surgery under Local Anesthesia*

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ABSTRACT Objective: To explore the effects of sufentanil combined with dexmedetomidine in the treatment of intervertebral foraminal surgery under local anesthesia on the sleep quality of middle-aged and elderly patients. **Methods:** 178 cases of middle-aged and elderly patients with lumbar disc herniation were selected for diagnosis and treatment in our hospital from December 2018 to October 2019, and were equally divided into the sufentanil dexmedetomidine combined group and the saline control group, with 89 cases each accorded to the random number table method. All patients were underwent intervertebral foramen surgery and were given 0.5 % lidocaine mixtured 0.25 % ropivacaine under local anesthesia. On the basis of this, the combination group was given sufentanil and dexmedetomidine to induce sleep, and investigated the sleep quality of patients during and after surgery. **Results:** There was no significant difference in surgical mouth size, intraoperative blood loss, and postoperative hospital stay between the two groups (P>0.05), and the operation time in the combined group was significantly shorter than that in the control group (P<0.05). The incidence of complications such as incision infection, nausea and vomiting at the 14 d in the combined group was 1.12%, which was significantly lower than the control group's 8.87 % (P<0.05). The visual analogue scales (VAS) scores of the combined group at 1 d, 7 d and 14 d after surgery were significantly lower than those of the control group (P<0.05). The PSQI at 7 days after surgery in both groups was lower than that at 1 day after surgery, and the difference was statistically significant (P<0.05). The Pittsburgh Sleep Quality Index (PSQI) of the combined group was significantly lower than that of the control group at intraoperative and postoperative 1 d and 7 d(P<0.05). **Conclusion:** It has good sleep quality, good analgesia, haemodynamically stable, fewer postoperative complications and faster recovery in the treatment of local subanaesthesia intervertebral foraminal endoscopic surgery for lumbar disc herniation in middle-aged and elderly patients by used of sufentanil combined with dexmedetomidine.

Key words: Sufentanil; Dexmedetomidine; Local anesthesia; Intervertebral foramen; Sleep quality
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前言

腰椎间盘突出症(LumbarDisk Herniation,LDH)是老年人腰腿痛的常见原因,也是骨科的常见病和多发病[1,2]。开放手术曾为该病的主要治疗方法,但是需要劈开和剥离椎旁肌肉并暴露椎板等,对于患者的创伤比较大[3,4]。椎间孔镜手术可通过先进的摄、录像系统可将操作视野放大,术野清晰,保证了手术操作的精确性, 术中能准确和清楚地辨认和保护好周围组织器官,可保留脊柱后方韧带复合结构的完整性,能有效解决神经根压迫症状,解除患者病痛[5,6],具有创伤小、出血少、术后恢复快等特点,在临床上多采用局麻就可完成手术[7]。但其在临床应用上也存在一定的不足,主要表现为患者术中操作疼痛,麻醉期间的生命体征波动幅度比较大,导致术后睡眠质量不佳[8]。

舒芬太尼是一种镇痛效率非常强大的阿片类镇痛药,镇痛起效快,药效持续时间长[9,10]。右美托咪定是一种新型α2 肾上腺素受体激动剂,可导致交感神经系统迟钝,也具有高选择性和高效性,可抑制去甲肾上腺素的释放,从而产生抗焦虑、镇静、镇痛等作用作用[11,12]。本研究主要探讨了舒芬太尼联合右美托咪定在局麻下椎间孔镜手术治疗对中老年患者睡眠质量的影响。现总结报道如下。

1 资料与方法

1.1 研究对象

经本院伦理委员会批准,选择 2018 年 12 月至 2019 年 10 月本院诊治的腰椎间盘突出症的中老年患者 178 例, 纳入标准:入院前未行腰椎手术;诊断为腰椎间盘突出症(CT 和 / 或 MRI)拟行择期手术治疗的患者;神志清醒;自愿签署麻醉知情同意书;年龄 45-70 岁,手术指征明确。排除标准:出现与药物有关的严重并发症及其他过敏反应者;精神类疾病者;依从性差者;严重心血管疾病及其他脏器功能不全者;药物成瘾史者;临床资料缺乏者;手术区域感染患者等。

根据随机数字表法将患者均分为联合组与对照组,每组各 89 例,两组一般资料对比差异无统计学意义(P>0.05),具有可比性。见表 1。

表 1 两组一般资料的对比

Table 1 Comparison of the general information between two groups

Groups	n	ASA classify (Ⅰ/Ⅱ)	Sex (male/ female)	Age (years)	BMI (kg/m^2)	Lesion (L4-L5/L5-S1)
Combined group	89	57/32	44/45	64.92± 4.20	22.18± 2.10	60/29
Control group	89	56/33	43/46	65.02± 3.33	22.87± 1.74	61/28

1.2 手术与麻醉方法

所有患者都给予椎间孔镜手术治疗, 使用德国 Joimax 公司生产的脊柱椎间孔镜手术系统。患者进入手术室后监测生命体征,建立静脉通道、面罩吸氧。联合组给予 1 μg/kg 的右美托咪定(江苏恩华药业股份有限公司,国药准字 H20110085)负荷剂量,在 20 min 内匀速输注完毕,随后静脉泵注 0.5 μg/(kg.h)维持至术毕;对照组给予相同容积的生理盐水。椎间孔镜目标定位开始,联合组静脉注射舒芬太尼(宜昌人福药业有限责任公司,国药准字 H42022076) 0.1 μg/Kg,0.5 %利多卡因 -0.25 %罗哌卡因混合液局麻时, 再次静脉注射舒芬太尼 0.15 μg/Kg,对照组均给予相同容积的生理盐水。所有患者术后卧床 4-6 h 后逐渐恢复活动。

1.3 观察指标

(1)在术后 1 d、7 d 与 14 d,采用疼痛视觉模拟评分法(Visual analogue scales,VAS)评定患者的疼痛状况,设 "0" 为 " 没有任何疼痛(或麻木)","10" 为 " 能想象到的最痛 "。(2)记录两组的术口大小、手术时间、术中出血量与术后住院时间。(3)记录两组术后 14 d 发生的并发症情况。(4)责任护士在术中、术后 1 d 与 7 d 进行匹茨堡睡眠质量指数量表 (Pittsburgh Sleep Quality Index,PSQI)评分,总分为 21 分,分数越高表示睡眠质量越差[13]。

1.4 统计学分析

应用 SPSS 22.00 统计学软件进行数据统计、分析处理,计数数据与计量数据分别以百分比、($\bar{x}$± s)等表示,对比方法为卡方 x^2 检验与 t 检验等,以 P<0.05 为差异有统计学意义。

2 结果

2.1 两组围手术指标对比

两组的术口大小、术中出血量与术后住院时间对比差异无统计学意义(P>0.05),联合组的手术时间显著短于对照组(P=0.000)。见表 2。

表 2 两组围手术指标对比($\bar{x}$± s)

Table 2 Comparison of the perioperative indicators between the two groups ($\bar{x}$± s)

Groups	n	Surgical mouth size (cm)	Operation time (min)	Intraoperative bleeding volume (mL)	Post-operative hospital stay (d)
Combined group	89	4.92± 0.24	67.02± 11.03*	25.09± 3.33	3.09± 0.22
Control group	89	4.89± 0.33	88.72± 8.91	25.88± 5.02	4.78± 0.31

Note: Compared to the control group, *P<0.05.

2.2 两组并发症发生情况对比

联合组术后 14 d 的术口感染、恶心呕吐等并发症发生率为

1.12 %(1/89),显著低于对照组[8.87 %(7/89)](*P*=0.0,3),见表 3。

2.3 两组术后疼痛评分对比

联合组术后 1 d、7 d 与 14 d 的疼痛 VAS 评分都显著低于对照组(t=24.124,*P*=0.000;t=52.628,*P*=0.000;t=28.904,*P*=0.000),见表 4。

表 3 两组术后并发症发生情况对比(例,%)

Table 3 Comparison of the incidence of postoperative complications between the two groups (n,%)

Groups	n	Infection of incisional wound	Feel sick and vomit	Total
Combined group	89	0	1	1 (1.12)*
Control group	89	3	4	7 (7.87)

表 4 两组术后疼痛评分对比(分,$\bar{x}\pm s$)

Table 4 Comparison of the postoperative pain scores between the two groups (scores, $\bar{x}\pm s$)

Groups	n	At 1 d after operation	At 7 d after operation	At 14 d after operation
Combined group	89	1.89± 0.32*	1.87± 0.11*	1.53± 0.21*
Control group	89	3.22± 0.41	0.92± 0.13	0.83± 0.09

2.4 两组术后 PSQI 评分变化对比

两组术后 7 d 的 PSQI 均低于术后 1 d(*P*<0.05);且联合组术中、术后 1 d 与 7 d 的 PSQI 都显著低于对照组(t=32.937,*P*=0.000;t=17.045,*P*=0.000;t=45.802,*P*=0.000),见表 5。

表 5 两组术后不同时间点的 PSQI 评分变化对比(分,$\bar{x}\pm s$)

Table 5 Comparison of the PSQI score at different time points between the two groups (scores, $\bar{x}\pm s$)

Groups	n	During operation	At 1 d after operation	At 7 d after operation
Combined group	89	5.32± 0.34*	9.82± 0.63*	6.76± 0.50*#
Control group	89	7.46± 0.51	12.91± 1.59	9.25± 0.18#

Note: Compared with the control group at the same time, *P<0.05; compared with the same group 1 d after the operation, #P<0.05.

3 讨论

腰椎椎间盘突出症是在外力作用下纤维环遭到破坏、髓核突出会压迫神经组织引发坐骨神经痛、腰痛的临床病症[14,15],是疼痛科中老年患者临床上最为常见的病症之一,也是腰腿痛最主要的病因。开放手术为该病的主要治疗方法,但是创伤较大、脊柱稳定性结构破坏严重,导致患者术后恢复时间比较长[16,17]。椎间孔镜手术的优点包括术口小、手术视野清晰、对脊柱稳定性结构破坏小、操作简单、对组织的损伤有限等,能避免伤及神经根和硬膜囊,可有效解决神经根压迫症状,减轻局部水肿,促进患者康复[18,19]。局麻下椎间孔镜手术治疗过程既要有满意的镇静、镇痛和良好的睡眠,又要求患者保持适度清醒状态,随叫随应,配合手术操作以免脊神经的损伤和导致脊麻,因此对于麻醉的要求显得苛刻[20,21]。

舒芬太尼是一种长效的强阿片类镇痛药,可引起及恶心、呕吐等不良反应情况,且与药物的应用剂量成正比。右美托咪定是一种新型高选择性的α2- 肾上腺素受体激动剂,其然能够致交感神经系统迟钝,从而产生相应的镇静、抗焦虑、镇吐和微弱镇痛作用,与舒芬太尼起到睡眠协同作用,拮抗舒芬太尼的呕吐作用,起效迅速,药效清除快而彻底,对呼吸影响较小[22,23]。研究显示右美托咪定能抑制自主神经反射,患者血流动力学稳定和麻醉药用量减少,安全性高[24,25]。两组的术口大小、术中出血量与术后住院时间对比差异无统计学意义,联合组的手术时间显著短于对照组;联合组术后 14 d 的术口感染、恶心呕吐等并发症发生率为 1.12 %,显著低于对照组的 8.87 %,表明舒芬太尼联合右美托咪定的应用既保证了患者完善的镇痛和良好的睡眠,又保证了患者良好的配合,避免了脊神经的损伤和脊麻的发生,术中恶心呕吐等不良反应少,使患者在安全舒适的状态下完成手术[26]。

腰椎椎间盘突出症为退变或损伤的纤维环破裂、髓核组织由纤维环薄弱突出压迫神经根导致的组织变性、水肿等局部炎症反应,可给患者带来严重的痛苦,影响患者的生活质量[10]。局麻的应用有利于加快手术流程,减轻疼痛,术中辅助镇痛镇静,诱导睡眠,可使患者在安全舒适的状态下完成手术;右美托咪定能抑制腺苷酸环化酶活性和环磷腺苷的合成,导致突触活动减少,产生突触前抑制,从而产生一定的肌肉松弛,消除肌卫,有利于手术操作[27]。本研究显示联合组术后 1 d、7 d 与 14 d 的疼痛 VAS 评分都显著低于对照组。从机制上分析,右美托咪定与肾上腺受体结合的比例为 1620:1,对呼吸功能的抑制较轻,对海马神经元具有保护作用,能减轻大鼠脑神经细胞凋亡,降低大鼠脑缺血再灌注损伤后脑组织内谷氨酸含量,因此不影响患者术后的认知功能状况[28]。

椎间孔镜下椎间盘摘除术是微创通道与成像图像处理系统共同完成的手术类型,具有创伤小、安全性高等特点[29]。舒芬太尼虽然起效快,镇痛效力强,但给药过快、过多会引起呛咳、呼吸抑制,对患者术中的配合有绝对的负面影响。右美托咪定

可激活中枢及外周神经系统 α2 肾上腺受体，降低机体应激反应，减少体内蛋白质的分解代谢，对交感神经的活性起到抑制，使应激反应降低，并且副交感神经的张力得到提升，继而降低机体炎症反应，发挥神经保护作用，也可提高患者细胞免疫功能，但是注射速度过快，应该警惕严重的心动过缓和高血压[30,31]。本研究显示两组术后 7 d 的 PSQI 均低于术后 1 d，术中、术后 1 d 与 7 d 的 PSQI 都显著低于对照组，表明右美托咪定的应用能改善患者的术后睡眠质量。

总之，舒芬太尼联合右美托咪定用于中老年腰椎间盘突出症局麻下椎间孔镜手术治疗的镇痛效果良好，患者术中及术后睡眠质量佳，血流动力学稳定、术后康复快，且安全性较高。本研究也存在一定的不足，观察时间比较短，病例有限，研究结论还有待进一步研究以明确。

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