

异丙酚和尼卡地平在眼科手术病人围拔管期应用的比较

陈红斌¹, 杨远霞², 叶荣花²

(中山大学中山眼科中心 1. 麻醉科, 2. 手术室, 广东 广州 510060)

摘要:【目的】观察气管拔管前静脉注射异丙酚和尼卡地平对眼科全麻手术病人拔管反应的影响。【方法】选择60例眼科手术全麻病人随机分为A、B、C 3组($n=20$),分别于气管拔管前静脉注射异丙酚1.5 mg/kg、尼卡地平20 $\mu\text{g}/\text{kg}$ 和生理盐水,分析比较各组拔管期间心血管反应、躁动、呛咳等并发症,眼压的变化以及苏醒时间的差异。【结果】A组吸痰、拔管时和拔管后心率、血压与诱导前比较无明显差异,与用药前相比均明显下降($P < 0.05$),与对照组同时点比较,明显下降($P < 0.05$);B组吸痰、拔管时血压与诱导前比较无明显升高,与用药前比较明显下降($P < 0.05$),与对照组同时点比较,明显下降($P < 0.05$);B组和C组同时点心率与用药前比较无明显下降,B组心率与诱导前比较明显升高;C组吸痰、拔管时及拔管后2 min 血压与用药前比较无明显下降。拔管期间以及拔管后A组呛咳及躁动的发生率明显低于B、C组($P < 0.05$);3组均无喉痉挛患者出现;舌后坠发生率A组略高于B、C组,但无明显差异。患者清醒时间3组无显著性差异($P > 0.05$);拔管时A组眼压与诱导前比较无明显升高,其他两组则有明显升高($P < 0.05$)。【结论】眼科手术病人气管拔管前应用镇静剂异丙酚预防拔管反应效果优于尼卡地平,且不影响患者苏醒时间。

关键词:异丙酚; 尼卡地平; 围拔管期; 全身麻醉

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Effects of Propofol versus Nicadipine on Inhibiting Hemodynamic and Stress during Emergence and Extubation for Ophthalmic Patients

CHEN Hong-bin, YANG Yuan-xia, YE Rong-hua

(Department of Anesthesiology, Zhongshan Ophthalmic Center, Zhongshan University, Guangzhou 510060, China)

Abstract: 【Objective】 To compare propofol versus nicadipine to control hemodynamic and stress responses to emergence and extubation for the ophthalmic patients. 【Methods】 Sixty ASA grade I - II patients scheduled for eye surgery under general anesthesia were randomly divided into 3 groups ($n=20$). The patients in each group were given intravenously different drug before extubation: group A with 1.5 mg/kg propofol, group B with 20 $\mu\text{g}/\text{kg}$ nicadipine and group C with 8 ml normal saline (NS). The blood pressure (BP), heart rate (HR) and the rates of bulking cough, laryngeal spasm, and agitation before and after extubation in 3 groups were recorded. The recovery time and IOP changes were also compared among 3 groups. 【Result】 In group A, the BP and HR during extubation and thereafter had no significant difference compared with those before induction, while they were significantly lower than those before giving propofol ($P < 0.05$), and had significant difference compared with group C ($P < 0.05$). Compared to preinduction, the BP of group B showed no obvious increase during aspiration and extubation, while it was significantly lower than that before giving nicadipine ($P < 0.05$), and it had significant difference compared with group C ($P < 0.05$). The HR of group B and C had little changes after giving nicadipine and NS, and the HR of group B showed obviously increase compared with that before induction. In group C, the high BP lasted until 5 minutes after extubation. The stimulation of aspiration and extubation caused less bulking cough, agitation in group A than group B and C ($P < 0.05$). There were no episodes of hypotension, laryngeal spasm, or severe respiratory depression happened. There was no statistic difference in recovery time among three groups ($P > 0.05$). The IOP of group A showed no obvious increase during extubation compared with that before induction, while in the other groups,

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作者简介: 陈红斌(1966-),女,广东阳江人,主治医师. E-mail: lzy1521@Tom.com

extubation caused IOP significant increase ($P < 0.05$). [Conclusions] Compared to nicadipine, propofol is superior for preventing the cardiovascular and stress responses and IOP increase during emergence and extubation for the ophthalmic patient, and have no effects on patient recovery.

Key words: propofol; nicadipine; ophthalmic surgery; extubation; general anesthesia

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全麻手术后拔管期病人清醒过程中会出现躁动不适, 心率增快、血压增高等应激反应, 气管拔管期间高血压病人可发生心肌缺氧、心率紊乱、以及心脑血管意外等, 眼科手术患者还会引起眼内压升高, 影响手术效果^[1]。临床上常用心血管药物减轻循环的波动, 但无镇静作用, 不能抑制病人躁动。本研究通过比较拔管前静脉注射异丙酚和尼卡地平后拔管期间循环的变化、眼压变化、镇静及苏醒的情况, 评价镇静麻醉药物对预防病人眼科手术拔管期间并发症的效果, 供临床麻醉参考。

1 资料与方法

1.1 病例选择

选择2003年1月至2003年6月眼科中心附属医院拟在气管内全麻下行玻璃体切割术及开眶肿物切除手术病人60例(ASA I~II级), 年龄24~65岁, 男性38例, 女性22例, 术前各项常规及生化检查均无异常, 排除心脑血管疾病和其他脏器器质性病变。

1.2 方法

术前30 min皮下注射东莨菪碱0.3 mg, 肌肉注射苯巴比妥0.1 g。芬太尼4 $\mu\text{g}/\text{kg}$, 维库溴铵0.1 mg/kg, 异丙酚2mg/kg诱导后气管插管。采用局部神经阻滞+异氟醚1%~3%吸入、异丙酚1~2

mg/(kg·h) 静脉输注, 间断推注维库溴铵维持麻醉。缝睑结膜时停止吸入异氟醚, 术毕停用异丙酚。诱导自主呼吸恢复, 待有咳嗽吞咽反射, 潮气量 > 6 mL/kg, 呼气末异氟醚浓度 < 0.2%, 此时病人尚无明显的意识反应。60例随机分为分为A、B、C 3组($n=20$), 3组性别比例、年龄、体质量、手术时间及麻醉用药量均无显著性差异($P > 0.05$)。分别缓慢静脉注射异丙酚1.5 mg/kg、尼卡地平20 $\mu\text{g}/\text{kg}$ (生理盐水稀释到8mL)和生理盐水8mL, 用药毕立即吸痰, 拔除气管导管。拔管后面罩吸氧10 min。双盲观察记录诱导前、用药后、吸痰时、拔管时、拔管后2 min、5 min、10 min的血压(SBP和DBP)、心率(HR)、脉搏血氧饱和度(SpO_2)、围拔管期躁动及患者完全清醒时间(对指令均能睁眼和握手)。

1.3 统计学处理

计数资料采用 χ^2 检验; 计量资料以均数 \pm 标准差($\bar{x}\pm s$)表示, 组间比较用方差分析, 组内前后比较采用重复测量方差分析方法, 取 $\alpha=0.05$ 。

2 结果

2.1 血流动力学变化

A组吸痰、拔管时和拔管后2 min心率先与用药前比较, 明显减慢, 与诱导前相比, 无明显差异; B

表1 各组血流动力学变化

Table 1 Hemodynamic changes of each group

($\bar{x}\pm s$, $n=20$)

Groups	Preinduction	Before treatment	Aspiration	Extubation	After extubation			
					2 min	5 min	10 min	
SBP	A	124 \pm 9	141 \pm 10 ¹⁾	129 \pm 10 ^{3),5)}	130 \pm 9 ^{3),5)}	120 \pm 8 ^{3),6)}	121 \pm 8 ⁵⁾	124 \pm 9
	B	125 \pm 8	140 \pm 10 ¹⁾	124 \pm 10 ^{3),5)}	127 \pm 10 ^{1),5)}	120 \pm 8 ^{4),6)}	120 \pm 9 ⁵⁾	122 \pm 8
	C	122 \pm 8	139 \pm 10 ¹⁾	142 \pm 12 ²⁾	142 \pm 12 ²⁾	139 \pm 11 ¹⁾	128 \pm 9 ³⁾	121 \pm 8 ³⁾
DBP	A	72 \pm 8	85 \pm 10 ¹⁾	77 \pm 9 ^{3),5)}	78 \pm 9 ^{3),5)}	72 \pm 9 ^{3),5)}	72 \pm 8 ³⁾	73 \pm 8 ³⁾
	B	72 \pm 8	85 \pm 10 ¹⁾	75 \pm 8 ^{3),5)}	75 \pm 9 ^{3),5)}	71 \pm 8 ^{3),5)}	70 \pm 8 ³⁾	73 \pm 8 ³⁾
	C	70 \pm 9	84 \pm 9 ¹⁾	88 \pm 10 ¹⁾	90 \pm 10 ²⁾	84 \pm 9 ¹⁾	75 \pm 8 ³⁾	73 \pm 9 ³⁾
HR	A	78 \pm 7	88 \pm 9 ¹⁾	81 \pm 8 ^{3),5)}	81 \pm 8 ^{3),5)}	77 \pm 8 ^{3),5)}	75 \pm 8 ³⁾	75 \pm 8 ³⁾
	B	75 \pm 8	86 \pm 9 ¹⁾	93 \pm 10 ^{2),3)}	95 \pm 10 ^{2),3)}	90 \pm 10 ¹⁾	84 \pm 9 ¹⁾	76 \pm 8 ³⁾
	C	75 \pm 8	89 \pm 9 ¹⁾	90 \pm 9 ¹⁾	90 \pm 9 ¹⁾	88 \pm 9 ¹⁾	80 \pm 8 ³⁾	76 \pm 8 ³⁾

Compared with preinduction, 1) $P < 0.05$, 2) $P < 0.01$; Compared before treatment, 3) $P < 0.05$, 4) $P < 0.01$; Compared with group C, 5) $P < 0.05$, 6) $P < 0.01$

组和C组同时点心率则明显高于诱导前及用药前 ($P < 0.05$)。A组和B组吸痰、拔管时和拔管后血压(SBP和DBP)与诱导前比较,无明显升高,与用药前相比明显下降;C组同时点血压与用药前相比,无明显变化,与诱导前比较,明显升高 ($P < 0.05$)。3组病人拔管前后血流动力学变化见表1。舌后坠者提颌面罩吸氧后改善,所有患者5 min左右舌后坠均消失,拔管前后3组SpO₂无显著性差异 ($P > 0.05$)。

2.2 呛咳与躁动的发生率

拔管后,A、B、C组呛咳发生率(病例数)分别为0.5%(1例)、30%(6例)、35%(7例);躁动发生率(病例数)分别为0%(0例)、25%(5例)、30%(6例);舌后坠发生率(病例数)分别为25%(5例)、15%(3例)、20%(4例);A组呛咳及躁动的发生率与B、C组相比有显著性差异 ($P < 0.05$);3组均无喉痉挛病例出现。

2.3 患者清醒时间

A组为(14.5±3.4)min,B组为(13.8±4.7)min,C组(14.1±4.4)min;组间比较无显著性差异 ($P > 0.05$)。

2.4 眼压的变化

A组拔管时眼压无明显变化,B组和C组此时眼压明显升高。3组患者眼压变化见表2。

表2 3组患者眼压的变化

Groups	Preinduction	Extubation	After extubation for 5 min
A	14.4±3.4	16.4±3.9	14.1±3.3
B	13.9±3.5	26.1±3.7 ¹⁾	16.3±3.9
C	13.9±3.8	27.1±4.0 ¹⁾	17.2±3.7

1) Compared with group A, $P < 0.05$

3 讨论

全身麻醉苏醒期间,麻醉减浅,呼吸恢复,气道反射逐渐活跃,病人难以耐受气管导管的刺激。吸痰及拔除导管对气管和咽喉部的刺激,引起反射性交感-肾上腺系统兴奋;加上手术部位不适,病人常出现血压高、心率快等心血管反应,严重者易导致心肌耗氧量增加、心输出量降低,使术后发生并发症的危险性增加^[1]。拔管前局部表麻、应用心血管活性药、肾上腺素能神经阻滞药可阻断和抑制这种

心血管反应,拔管前应用镇静镇痛药加深麻醉也是有效手段之一,但可能出现呼吸抑制和拔管后苏醒等^[1,2]。

尼卡地平是一种具有高度特异性作用的短效钙通道阻断药,能扩张冠状动脉,直接松弛血管平滑肌,常用于控制高血压和冠心病病人血压,也有报道尼卡地平用于抑制拔管心血管反应^[3,4]。Kovac等^[2]研究表明拔管前静脉注射尼卡地平可有效预防气管插管和拔管所引起的高血压反应,但不能防止心率增快。本研究中B组采用尼卡地平20 μg/kg能有效防止拔管血压升高反应,但血压下降后心率出现反射性增加,此研究结果与Kovac等^[2]的研究结果相似。但从本质上来看尼卡地平自身并不能抑制患者的应激反应,因此患者的拔管心血管反应虽有一定程度的抑制,但拔管刺激引起的并发症如眼压升高、呛咳及躁动与生理盐水组相比并无明显下降,对于没有确诊的青光眼患者,可诱发急性青光眼,并产生严重并发症。

异丙酚是一种短效静脉全麻药,广泛应用于临床麻醉和清醒镇静。异丙酚代谢快,作用短暂,恢复快,可控性强,且遗忘作用强,药物作用过后有舒适感。异丙酚拔管前应用一方面由于心血管抑制作用从而减少拔管心血管反应,另一方面有短暂的镇静作用,能充分抑制应激反应,提高患者苏醒期对不良刺激的耐受性^[5]从而减少了引起呛咳及躁动等并发症。本研究中A组在异丙酚1.5 mg/kg剂量下气管拔管,患者未出现明显呛咳和躁动,心血管反应也得到有效控制。由于异丙酚作用时间非常短暂,A组患者苏醒时间与另两组相比并无显著差异。

为了保证眼科手术的效果,保持眼压的稳定很重要,必须使眼压保持接近正常,即10~21 mmHg范围,因此尽量避免麻醉期间咳嗽、躁动、恶心、呕吐,不使眼内容从切口处逸出。异丙酚可降低眼内压。有不少资料显示异丙酚可降低因全身麻醉插管和拔管引起的眼内压升高,这对异丙酚在眼科手术应用具有独特的优势^[6-8]。本文显示,应用异丙酚可使拔管时眼压维持病人诱导前水平,整个围拔管期安全平稳。

本研究结果认为对于眼科手术患者,围拔管期使用镇静剂,能够抑制围拔管期不良反应及维持眼压稳定。应用异丙酚比尼卡地平更适宜,效果更好。

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缩短哌醋甲酯的疗程, 控制其剂量, 以减少生长抑制的副作用。

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