

doi: 10.13241/j.cnki.pmb.2015.12.018

七氟烷联合利多卡因对全身麻醉患者心功能影响研究*

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摘要 目的:通过观察七氟烷联合利多卡因对全身麻醉患者心功能影响,探究七氟烷联合利多卡因诱导全身麻醉的临床价值。**方法:**选取我院外科收治的需行非心脏手术并进行全身麻醉诱导的患者70例,随机分为两组,其中对照组35例,予单纯七氟烷诱导全身麻醉行非心脏手术;实验组35例,予以七氟烷联合利多卡因进行全身麻醉诱导。分别于全身麻醉诱导前(T1)、诱导插管后30分钟(T2)、诱导插管后1小时(T3)3个时间点对患者心功能进行观察和监测,对比观察各个时间点的外周血管阻力(SVR)、每搏输出量(SV)、每分输出量(CO)、峰值速度(VpK)、心率(HR)、净射血时间百分比(ET%)等指标。**结果:**①实验组和对照组患者在T1时SVR、SV、CO、VpK、HR、ET%水平均无明显变化,差异无统计学意义($P < 0.05$);②与T1相比,实验组和对照组患者在T2和T3的SVR、SV、CO、VpK、HR水平均明显下降,差异有统计学意义($P < 0.05$),ET%升高明显,差异有统计学意义($P < 0.05$);③实验组在T2和T3时SVR、SV、CO、VpK、HR水平均明显高于对照组,差异有统计学意义($P < 0.05$),ET%较对照组明显下降,差异有统计学意义($P < 0.05$)。**结论:**单纯七氟烷诱导和七氟烷联合利多卡因诱导全身麻醉对心功能均有影响,但与单纯七氟烷组相比,七氟烷联合利多卡因组对心功能的影响更小,更适合于外科手术的全身麻醉诱导,对临床具有指导意义,值得临床推广。

关键词:心功能;七氟烷;利多卡因;全身麻醉

中图分类号:R614.2;R54 **文献标识码:**A **文章编号:**1673-6273(2015)12-2278-03

Effects of Sevoflurane Combined with Lidocaine on the Cardiac Function of Patients with General Anesthesia*

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ABSTRACT Objective: To investigate the effects of sevoflurane combined with lidocaine on the cardiac function of patients with general anesthesia. **Methods:** 70 cases of patients needed to carry on non cardiac surgery under the induction of general anesthesia were selected, and randomly divided into two groups, 35 cases in each group. The control group was treated with pure sevoflurane induction of general anesthesia for heart surgery; while the experimental group was treated with general anesthesia of sevoflurane joint lidocaine. The cardiac function was observed and monitored respectively before the systemic narcotic induction (T1), 30 minutes after intubation induction (T2), 1 hour after inducing intubation (T3) three time points. The peripheral vascular resistance (SVR), stroke volume (SV) output, per minute output (CO), peak velocity (VpK), heart rate (HR), and net percentage ejection time (ET) % were compared at each time point between the two groups. **Results:** ① The level of SVR, SV, CO, VpK, HR, ET % level had no obvious change at T1 in the experimental group and control group ($P < 0.05$); ② compared with T1, the level of SVR, SV, CO, VpK, HR at T2 and T3 were significantly lower in the two groups with statistical significance ($P < 0.05$), and ET % was increased significantly ($P < 0.05$); ③ compared with that in the control group, the level of SVR, SV, CO, VpK, HR in experimental group at T2 and T3 were significantly higher, and the difference was statistically significant ($P < 0.05$), while ET % was significantly decreased, and the difference was statistically significant ($P < 0.05$). **Conclusions:** The general anesthesia with pure sevoflurane induction or sevoflurane combined with lidocaine affected the cardiac function, but compared with the pure sevoflurane induction, sevoflurane combined with lidocaine had a minimal impact on cardiac function, indicating it is more suitable for induction of general anesthesia surgery.

Key words: Cardiac function; Sevoflurane; Lidocaine; General anesthesia

Chinese Library Classification(CLC): R614.2; R54 **Document code:** A

Article ID: 1673-6273(2015)12-2278-03

前言

全身麻醉又称全麻,指麻药经静脉、呼吸道或者肌肉注射

等途径进入体内,对中枢系统产生抑制作用,表现为痛觉丧失、反射抑制以及肌肉松弛^[1]。研究证明^[2],麻醉药在诱导全身麻醉时对患者心功能产生一定的减退作用,这可能会给患者术后恢

* 基金项目:国家自然科学基金项目(30770892)

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(收稿日期:2014-11-26 接受日期:2014-12-19)

复或者机体各项机能带来消极的影响^[3]。随着医疗技术的发展,很多疾病须要通过手术治疗解决,进行手术和麻醉诱导的患者也将越来越多。因此,探究麻醉药诱导全身麻醉对患者心功能的影响,选择副作用最小的麻醉方式和麻醉药物,保证手术顺利进行,具有重要临床指导意义^[4]。七氟烷和利多卡因是临床常见的麻醉药物,本研究探讨七氟烷联合利多卡因对全身麻醉患者心功能影响,现报道如下。

1 资料与方法

1.1 一般资料

选取 2013 年 1 月至 2013 年 12 月与我院收入准备行外科手术(非心脏)患者 70 例,按患者就诊时间分为对照组与实验组,每组 35 例。实验组包括男 29 例,女 6 例,年龄 29-65 岁,平均(36.9±13.6)岁;对照组包括男 27 例,女 8 例,年龄 28-64 岁,平均(37.1±14.8)岁。患者性别比例、平均年龄等一般资料相仿,差异无统计学意义($P>0.05$)。患者自愿参与本实验,并签署知情同意书;经所在单位伦理学相关机构的批准。

1.2 治疗方法

1.2.1 对照组 术前 8-12 h 开始禁食,麻醉前 30 min 给予肌注苯巴妥钠 0.1 g、阿托品 0.5 mg。入手术室后常规监测生命体征、血氧饱和度和心电图。建立静脉通道,给予 0.9%氯化钠溶液持续静脉滴注,麻醉诱导前予以面罩吸氧,使血氧饱和度达到 98%以上。

1.2.2 实验组 实验组先于 L4-5 穿刺置管,以 1%利多卡因 5

mL 行硬膜外阻滞,将七氟烷浓度调到 5%,调节氧流量为 4 L/min,待患者进入浅麻醉状态时,调节七氟烷的浓度为 3%,并予以加压给氧,肌肉松弛后行气管插管进行机械通气,维持麻醉深度,两组保持相同的 BIS 值和 TOF 值。

1.3 检测指标

利用心输出量超声监测仪分别检测患者插管后 30 min 和 1 h 的外周血管阻力(SVR)、每搏输出量(SV)、每分输出量(CO)、峰值速度(VpK)、心率(HR)、净射血时间百分比(ET%)等各项心功能指标,并评价患者血流动力学。

1.4 统计学方法

应用 SPSS17.0 软件分析包进行分析,计量数据用均数±标准差($\bar{x} \pm s$)表示,组间进行 t 检验,组内进行单因素方差分析, $P<0.05$ 为差异有统计学意义。

2 结果

实验组和对照组患者在 T1 时 SVR、SV、CO、VpK、HR、ET%水平均无明显变化,差异无统计学意义($P<0.05$)。与 T1 相比,实验组和对照组患者在 T2 和 T3 的 SVR、SV、CO、VpK、HR 水平均明显下降,差异有统计学意义($P<0.05$),ET%升高明显,差异有统计学意义($P<0.05$)。实验组在 T2 和 T3 时 SVR、SV、CO、VpK、HR 水平均明显高于对照组,差异有统计学意义($P<0.05$),ET%较对照组明显下降,差异有统计学意义($P<0.05$)。如表 1。

表 1 两组麻醉前后各个时间点心功能指标比较情况($n=35, \bar{x} \pm s$)

Table 1 Comparison of cardiac function index at various time points before and after anesthesia

Index	Group	T1	T2	T3
SVR (kPa·s/L)	Experimental group	156.10±23.10	141.30±21.60▲△	142.10±20.60▲△
	Control group	149.60±22.90	97.60±26.80▲	96.50±21.70▲
SV (mL)	Experimental group	78.60±5.70	63.50±6.20▲△	65.70±5.90▲△
	Control group	79.10±5.60	59.30±5.30▲	59.40±5.70▲
CO (L/min)	Experimental group	5.63±0.42	4.37±0.49▲△	4.46±0.37▲△
	Control group	5.36±0.38	3.78±0.54▲	3.98±0.64▲
VpK (m/s)	Experimental group	1.63±0.36	1.37±0.21▲△	1.46±0.31▲△
	Control group	1.54±0.41	1.07±0.27▲	1.01±0.24▲
HR (t/min)	Experimental group	73.34±6.38	68.81±6.59▲△	68.78±6.69▲△
	Control group	72.98±6.34	65.31±6.26▲	65.13±6.78▲
ET (%)	Experimental group	38.34±5.01	45.39±5.72▲△	43.78±5.12▲△
	Control group	38.97±5.68	49.64±5.57▲	50.03±5.75▲

Note: ▲ $P<0.05$, compared with the group T1; △ $P<0.05$, compared with the control group at the same time.

3 讨论

随着医疗技术的发展,麻醉手段是临床中不可缺少的辅助和治疗方法,外科手术、一些创伤检查、恶性肿瘤晚期、外伤等等都离不开麻醉的作用^[6,7]。在麻醉过程中,减少患者疼痛已经不是麻醉工作者的全部任务,麻醉已经在慢性疼痛、急救复苏

以及重症监护等方面都有着非常重要的作用^[8,9]。但麻醉药物给患者的心功能带来一定的影响,直接影响患者术后恢复。因此,选择合适的麻醉药物,减少对患者心功能的抑制,对降低麻醉意外的发生率,保证手术的顺利进行有着重要临床意义^[10,11]。

七氟烷是一种吸入全麻药,具有较强的麻醉作用,成人的麻醉剂量中,肺泡内有效浓度大于 2%,可引起中枢抑制作用,

若剂量继续增大,则对脑血管产生舒张作用,进而引起颅内压升高^[12-14]。七氟烷对心脏的肌力有抑制作用,能够降低周围血管阻力,降低心排出量,但是对心肌电传导无影响,不会引起心律失常,以及心肌对外源性儿茶酚胺的敏感性^[15,16]。利多卡因为临床常用的局麻药,能够影响心肌细胞膜 Na^+ 通道活性,常作为抗心律失常药物^[17,18]。相关研究表明^[19,20],利多卡因通过心室肌细胞和希-浦纤维系统,抑制 Na^+ 的内流和促进 K^+ 外流,具有保护心肌的作用。

结合本研究,实验组和对照组患者在 T1 时 SVR、SV、CO、VpK、HR、ET % 水平均无明显变化($P < 0.05$)。与 T1 相比,实验组和对照组患者在 T2 和 T3 的 SVR、SV、CO、VpK、HR 水平均明显下降($P < 0.05$),ET % 升高明显($P < 0.05$)。实验组在 T2 和 T3 时 SVR、SV、CO、VpK、HR 水平均明显高于对照组 ($P < 0.05$),ET % 较对照组明显下降($P < 0.05$)。结果说明,单纯的七氟烷和七氟烷联合利多卡因诱导的全身麻醉对患者心功能都有一定的影响,但是七氟烷联合利多卡因对患者心功能的影响更小。结果提示,这可能与七氟烷能够使患者快速进入麻醉状态、对心肌抑制较轻,以及利多卡因通过改变 Na^+ 通道活性对心肌的保护作用有关。

综上所述,七氟烷联合利多卡因对观察指标的影响较小,在全身麻醉诱导中联合利多卡因是理想的麻醉方法,可根据患者实际和临床特征进行合理的选择。

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