

高初始浓度七氟烷吸入在全麻诱导中应用的前瞻性研究

陈祖涛, 彭会丽, 王 鹏

作者单位: 467000 平顶山, 中国平煤神马医疗集团总医院麻醉科

作者简介: 陈祖涛(1979-), 男, 大学本科, 医学学士, 主治医师, 研究方向: 麻醉学。E-mail: wangyong9850916@sina.com

[摘要] 目的 探讨高初始浓度七氟烷吸入诱导全身麻醉的安全性和有效性。方法 选取择期手术全麻的成年患者 300 例, ASA I ~ II 级, 按手术日期单双号半随机分为两组, 均予七氟烷麻醉诱导。低初始浓度组 179 例, 最初给予低的初始浓度(0.5%), 然后逐渐增加剂量, 直到病人被麻醉。高初始浓度组 121 例, 开始即给予高浓度(4% ~ 8%), 直到病人被麻醉。两种方法均可使用不同呼吸模式, 记录睫毛反射消失时间和不良反应发生例数。结果 高初始浓度组睫毛反射消失时间明显短于低初始浓度组, 差异有统计学意义($P < 0.01$)。两组的各种不良反应的发生率差异均无统计学意义($P > 0.05$)。结论 高初始七氟烷浓度与低初始浓度相比诱导时间更短, 并发症发生率差异均无统计学意义, 值得推广应用。

[关键词] 七氟烷; 麻醉诱导; 不良反应

[中图分类号] R 614.1 **[文献标识码]** A **[文章编号]** 1674-3806(2014)02-0144-03

doi:10.3969/j.issn.1674-3806.2014.02.17

High initial concentration sevoflurane for inhalational induction of general anaesthesia: a prospective research

CHEN Zu-tao, PENG Hui-li, WANG Peng. Department of Anesthesia, Pingmei Shenma Medical Group General Hospital, Pingdingshan 467000, China

[Abstract] **Objective** To investigate the safety and efficacy of the high initial concentration sevoflurane for inhalational induction of general anaesthesia. **Methods** Three hundred adult patients undergoing elective surgery anaesthesia, ASA I ~ II, were randomly divided into two groups according to odd or even number of operative date. The low initial concentration group(179 cases) was initially administered a low concentration of sevoflurane then the concentration was gradually increased until the patient was anaesthetized. The high initial concentration group(121 cases) was administered high concentrations of sevoflurane(from 4% to 8%) from the beginning, continuing until the patients was anaesthetized. Both techniques can be carried out using different breathing patterns. Time to loss of eyelash reflex(LOER)(seconds), complication rates in the two groups were recorded. **Results** Time to LOER in high initial concentration group was obviously shorter than the lower initial concentration groups, the differences were statistically significant ($P < 0.01$). There was no difference in the incidence of adverse effects between the two groups($P > 0.05$). **Conclusion** Compared with low initial concentration of sevoflurane a high initial concentration sevoflurane probably offers more rapid induction of anaesthesia and a similar rate of complications, especially worth promoting.

[Key words] Sevoflurane; Anesthetic induction; Adverse effects

全麻诱导有静脉注射诱导和吸入诱导(通过面罩吸入混合有氧气的麻醉蒸汽)两种方法。吸入麻醉诱导适用于儿童、部分拒绝静脉麻醉的成年人及静脉通路较差或气道条件较差者^[1]。常用的吸入性麻醉诱导剂为七氟烷。七氟烷诱导存在低和高的初始浓度两种方法。国外研究显示,高的初始浓度诱导时间更短,但不良反应增加。国内缺乏相关研究。本文旨在探讨高初始浓度七氟烷吸入诱导麻醉

的安全性和有效性,现将结果报告如下。

1 资料与方法

1.1 一般资料 选取我院 2013-02 ~ 2013-07 择期手术全麻成年患者 300 例, 年龄 18 ~ 60 (45 ± 6.2) 岁, 体重 40 ~ 110 (68 ± 4.3) kg; 麻醉分级按美国麻醉医师学会(ASA)分为 I ~ II 级。所有患者术前检查均未发现心肺功能异常, 肝肾功能良好, 且无不良嗜药史。根据手术日期的单双号半随机分为两组。

单号为低初始浓度组 179 例,双号为高初始浓度组 121 例。两组患者的年龄、体重、麻醉分级比较差异均无统计学意义($P>0.05$),具有可比性。见表 1。

表 1 两组一般临床资料比较($\bar{x}\pm s$)

组 别	例数	年龄(岁)	体重(kg)	麻醉分级(n)	
				I 级	II 级
高初始浓度组	121	45.1 $\pm$ 5.3	67.8 $\pm$ 4.1	52	69
低初始浓度组	179	45.9 $\pm$ 7.8	68.4 $\pm$ 7.2	60	119
χ^2	-	0.391	0.04	2.37	
P	-	0.534	0.842	0.124	

1.2 方法 术前禁食水,入室后常规监测心率、血压、脉搏血氧饱和度(SpO_2)及心电图,常规开放静脉输液通道,采用面罩吸入七氟烷(江苏恒瑞医药有限公司生产)120 ml 诱导。低初始浓度组最初给

表 2 两组患者麻醉诱导时间和并发症发生率比较[($\bar{x}\pm s$),n]

组 别	例数	睫毛反射消失时间(s)	呛咳	喉痉挛	屏气发作	躁动	心动过缓
高初始浓度组	121	72 $\pm$ 8.4	4	1	4	28	3
低初始浓度组	179	170 $\pm$ 11	6	1	6	34	5
u/χ^2	-	87.336	0.000	0.077	0.000	0.757	0.028
P	-	0.000	0.626	0.645	0.626	0.348	0.587

3 讨论

3.1 七氟烷诱导麻醉最早(1990 年)在日本进行临床实践,其报道是安全可靠的,病人易于接受^[2]。它的特点是具有较好的稳定性、低可燃性,没有刺激味道,对气道刺激小,血液和气体麻醉溶解度低,能够快速诱导和从麻醉中清醒,对心血管和呼吸道方面影响小^[3]。提供足够麻醉剂量后,没有肌松剂的情况下,七氟烷的肌松剂属性允许插入喉罩或者气管插管通气^[4]。

3.2 七氟烷麻醉诱导存在低和高的初始浓度两种方法,低的初始浓度方法在最初给予低浓度,然后逐渐增加剂量,直到病人被麻醉。高初始浓度方法开始即给予高浓度(4%~8%),直到病人被麻醉。高浓度挥发性麻醉诱导可在一个较短(快)时间内发挥作用^[5,6]。高浓度七氟烷可以增加它在肺泡和大脑中的浓度,作用速度要比低浓度快,可以缩短麻醉的第二阶段时间,减少咳嗽及屏气发生的次数,但高浓度七氟烷可能导致病人气道刺激增加,伴随一系列并发症如屏气发作、喉痉挛、躁动、唾液分泌和低血压^[5-7]、更频繁的呼吸暂停^[8]以及心动过缓^[9]、癫痫样的脑电图^[10,11]等。但最近发表的一篇文献

予低浓度(0.5%),然后逐渐增加剂量,直到病人被麻醉。高初始浓度组开始即给予高浓度(4%~8%),直到病人被麻醉。两种方法均可使用不同呼吸模式,记录病人的睫毛反射消失时间和不良反应发生例数。

1.3 统计学方法 应用 SPSS17.0 统计学软件进行数据处理,计量资料以均数 $\pm$ 标准差($\bar{x}\pm s$)表示,组间比较采用大样本 u 检验,计数资料比较采用 χ^2 检验, $P<0.05$ 为差异有统计学意义。

2 结果

高初始浓度组的睫毛反射消失时间短于低初始浓度组,差异有统计学意义($P<0.01$);两组不良反应呛咳、喉痉挛、屏气发作、躁动、心动过缓发生率差异均无统计学意义($P>0.05$)。见表 2。

Meta 分析^[12]显示,高初始浓度七氟烷诱导全麻,麻醉诱导时间更短,且除呼吸暂停外其他不良反应与低初始浓度差异无统计学意义。本研究也显示,初始高浓度七氟烷在全麻诱导中与低初始浓度相比诱导时间更短,且不良反应呛咳、喉痉挛、屏气发作、躁动、心动过缓的发生率无明显增加。

高初始浓度七氟烷与低初始浓度相比诱导时间更短,并发症发生率差异无统计学意义,高初始浓度七氟烷全麻诱导安全有效,值得推广应用。

参考文献

1 Eger EI 2nd, Eisenkraft JB, Weiskopf RB. The Pharmacology of Inhaled Anesthetics[M]. 3rd Edition. New Jersey: Baxter Healthcare Corporation, 2003:36-37.
2 van den Berg AA, Chitty DA, Jones RD, et al. Intravenous or inhaled induction of anesthesia in adults? An audit of preoperative patient preferences[J]. Anesth Analg, 2005,100(5):1422-1424.
3 Delgado-Herrera L, Ostroff RD, Rogers SA. Sevoflurane: approaching the ideal inhalational anesthetic: a pharmacologic, pharmacoeconomic, and clinical review[J]. CNS Drug Rev, 2001,7(1):48-120.
4 Aantaa R, Takala R, Muiittari P. Sevoflurane EC50 and EC95 values for laryngeal mask insertion and tracheal intubation in children[J]. Br J Anaesth, 2001,86(2):213-216.

- 5 Epstein RH, Stein AL, Marr AT, et al. High concentration versus incremental induction of anesthesia with sevoflurane in children: a comparison of induction times, vital signs, and complications[J]. J Clin Anesth, 1998,10(1):41-45.
 - 6 Martin-Larrauri R, Gilsanz F, Rodrigo J, et al. Conventional stepwise vs. vital capacity rapid inhalation induction at two concentrations of sevoflurane[J]. Eur J Anaesthesiol, 2004,21(4):265-271.
 - 7 Dubois MC, Piat V, Constant I, et al. Comparison of three techniques for induction of anaesthesia with sevoflurane in children[J]. Paediatr Anaesth, 1999,9(1):19-23.
 - 8 Pancaro C, Giovannoni S, Toscano A, et al. Apnea during induction of anesthesia with sevoflurane is related to its mode of administration [J]. Can J Anaesth, 2005,52(6):591-594.
 - 9 Green DH, Townsend P, Bagshaw O, et al. Nodal rhythm and bradycardia during inhalation induction with sevoflurane in infants: a comparison of incremental and high-concentration techniques[J]. Br J Anaesth, 2000,85(3):368-370.
 - 10 Constant I, Seeman R, Murat I. Sevoflurane and epileptiform EEG changes[J]. Paediatr Anaesth, 2005,15(4):266-274.
 - 11 Vakkuri A, Yli-Hankala A, Särkelä M, et al. Sevoflurane mask induction of anaesthesia is associated with epileptiform EEG in children[J]. Acta Anaesthesiol Scand, 2001,45(7):805-811.
 - 12 Boonmak P, Boonmak S, Pattanittum P. High initial concentration versus low initial concentration sevoflurane for inhalational induction of anaesthesia [J]. Cochrane Database Syst Rev, 2012, 9: CD006837.
- [收稿日期 2013-08-19][本文编辑 黄晓红 韦 颖]

学术交流

小切口非超声乳化囊外摘除人工晶体植入术治疗白内障的效果观察

冯桂强

作者单位: 545005 广西, 柳州市红十字会医院眼科

作者简介: 冯桂强(1978-), 男, 大学本科, 医学学士, 主治医师, 研究方向: 青光眼、白内障及眼底外科疾病的诊治。E-mail: 509597795@qq.com

[摘要] 目的 观察小切口非超声乳化囊外摘除人工晶体植入术治疗白内障的效果及安全性。方法 选取2011-02~2012-02该院眼科收治的639例白内障患者, 随机分成两组, 实验组339例采用小切口非超声乳化囊外摘除人工晶体植入术, 对照组300例采用超声乳化手术, 比较两组术后视力恢复情况及并发症发生情况。结果 实验组的疗效优于对照组($P < 0.05$), 两组并发症发生率比较差异无统计学意义($P > 0.05$)。结论 小切口非超声乳化囊外摘除人工晶体植入术治疗白内障有较好的临床疗效及安全性, 是治疗白内障的主要方法, 具有重要的临床应用价值。

[关键词] 眼科; 白内障; 小切口非超声乳化囊外摘除术

[中图分类号] R 779.6 **[文献标识码]** B **[文章编号]** 1674-3806(2014)02-0146-03

doi:10.3969/j.issn.1674-3806.2014.02.18

Effect observation of small incision non phacoemulsification extracapsular cataract extraction and intracapsular lens implantation operation for treatment of cataract FENG Gui-qiang. Department of Ophthalmology, Red Cross Hospital of Liuzhou City, Guangxi 545005, China

[Abstract] **Objective** To explore the effect and safety of small incision non phacoemulsification extracapsular cataract extraction and intracapsular lens implantation operation for treating cataract. **Methods** From February 2011 to February 2012, 639 patients with cataract received cataract surgery for treating blindness in department of ophthalmology in Red Cross Hospital of Liuzhou City, were randomly divided into two groups: 339 patients in experimental group were treated by small incision non phacoemulsification extracapsular cataract extraction and intraocular lens implantation operation; 300 patients in the control group were treated by ultrasonic emulsification operation, postoperative visual acuity and complications were compared between two groups. **Results** The clinical effect of experimental group was better than that in the control group ($P < 0.05$), there was no significant statistically difference in compli-