

· 论 著 ·

喉罩麻醉与气管插管麻醉用于小儿腹腔镜疝气修补术效果对比

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摘要: **目的** 探讨在小儿腹腔镜疝气修补术中,对比喉罩麻醉与气管插管麻醉的临床效果。**方法** 研究对象为浙江大学医学院附属儿童医院 2021 年 1 月至 2022 年 1 月收治的 100 例腹股沟斜疝患儿,将患儿随机分为观察组(喉罩麻醉治疗)和对照组(气管插管麻醉治疗),各 50 例,比较两组患儿治疗有效率及并发症情况。**结果** 观察组患儿的治疗有效率高于对照组,差异有统计学意义(96.0% vs 80.0%, $\chi^2=6.061$, $P<0.05$)。麻醉后,观察组患者收缩压(SBP)、心率(HR)、平均动脉压(MAP)优于对照组($P<0.05$)。观察组并发症发生率低于对照组,差异有统计学意义(4.0% vs 20.0%, $\chi^2=6.061$, $P<0.05$)。**结论** 与气管插管麻醉相比,喉罩麻醉手术治疗小儿疝气可提高治疗有效率,改善患者麻醉血流动力学,降低并发症的发生。

关键词: 喉罩麻醉; 气管插管麻醉; 腹腔镜疝气修补术; 腹股沟斜疝; 并发症

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Comparison of clinical effects between laryngeal mask anesthesia and tracheal intubation anesthesia in pediatric laparoscopic hernia repair

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Abstract: **Objective** To investigate the clinical effect of laryngeal mask anesthesia and tracheal intubation anesthesia for pediatric laparoscopic hernia surgery anesthesia. **Methods** The research subjects were 100 children with inguinal hernia admitted to Children's Hospital, Zhejiang University School of Medicine from January 2021 to January 2022. The patients were randomly divided into the observation group (laryngeal mask anesthesia) and the control group (tracheal intubation anesthesia), 50 cases in each group. The treatment effect and complication of two groups were compared. **Results** The treatment effective rate of the observation group was significantly higher than that of control group, the difference was statistically significant (96.0% vs 80.0%, $\chi^2=6.061$, $P<0.05$). After anesthesia, systolic pressure, heart rate, mean arterial pressure in observation group were significantly better than those in control group ($P<0.05$). The complication rate in observation group was lower than that in control group, with a statistically significant difference (4.0% vs 20.0%, $\chi^2=6.061$, $P<0.05$). **Conclusion** Compared with tracheal intubation anesthesia, laryngeal mask anesthesia has achieved good results in the treatment of hernia in children, significantly improved the overall treatment efficiency and anesthesia hemodynamic index, reduced the complication rate of children.

Keywords: Laryngeal mask anesthesia; Tracheal intubation anesthesia; Laparoscopic hernia surgery; Inguinal hernia; Complication

小儿疝气是一种临床外科常见疾病,多发于男性儿童,是由于先天发育不全、鞘状突或脐环未能完全

闭合造成^[1]。患儿因包块胀痛不适出现哭闹。疝囊会随着年龄的增加不断扩大,如果没有及时治疗,会

导致疝内容物出现嵌顿及绞窄风险,病情严重的会出现睾丸及卵巢梗塞、萎缩等,不利于患儿的发育和健康成长^[2]。所以,寻找一种科学有效的治疗方式至关重要,对于保证患儿的健康具有积极意义。基于此,本文探讨喉罩麻醉与气管插管麻醉用于小儿腹腔镜疝气手术麻醉中的临床效果。

1 资料与方法

1.1 一般资料 选择浙江大学医学院附属儿童医院2021年1月至2022年1月收治的100例腹股沟斜疝患儿,随机将患儿分为观察组(喉罩麻醉治疗)和对照组(气管插管麻醉治疗),各50例。对照组男40例,女10例,年龄5个月~12岁,平均(5.34±0.56)岁;观察组男38例,女12例,年龄6个月~12岁,平均(5.43±0.57)岁。两组一般资料比较差异无统计学意义($P>0.05$),患儿监护人均知情同意。(1)纳入标准:符合临床腹股沟斜疝相关诊断,诊断标准参考《儿科诊断治疗学》中相关内容^[3],年龄<12岁;(2)排除标准:无法耐受手术;精神疾病;中途退出。研究经医院伦理委员会审批通过。

1.2 方法 观察组患儿采用芬太尼(宜昌人福药业;国药准字H42022076;规格2 mL)3 μg/kg、丙泊酚(四川国瑞药业有限责任公司;国药准字H20040079;规格10 mL)2~3 mg/kg、顺式阿曲库铵(江苏恒瑞医药股份有限公司;国药准字H20060869;规格10 mg)0.15~0.2 mg/kg 静脉注射行麻醉诱导,根据患儿体质量选择适合型号规格的喉罩型号(体质量5~10 kg的患儿选择1.5号喉罩,体质量>10~20 kg选择2号喉罩,体质量>20~30 kg选择2.5号喉罩),肌松完善后,按规范置入喉罩,连接呼吸机进行机械通气,参数:潮气量(V_t)为8~10 mL/kg,呼吸频率设置为15~25次/min,呼气末二氧化碳分压维持在35~45 mmHg。静脉泵入芬太尼0.3~0.5 μg/(kg·min)、丙泊酚50~100 μg/(kg·min)维持麻醉,术中血流动力学波动维持正常范围。患儿于手术结束前10 min 停用丙泊酚,手

术结束时停用瑞芬太尼。患儿自主呼吸恢复($V_t>6$ mL/kg,呼吸频率趋于各年龄正常水平或同术前),吸气条件下血氧饱和度(SpO_2)维持 $\geq 95\%$ 至少3 min,吞咽反射恢复,予以拔除喉罩并送至麻醉恢复室监测观察。对照组麻醉诱导、麻醉维持方案同观察组患儿,根据患儿个体情况选择适合规格型号的气管导管进行插管。气管拔除条件同观察组。

1.3 观察指标 (1)比较两组患儿的治疗效果。判定指标:患儿腹股沟区或脐孔的肿块情况。治疗后患儿临床表现完全消失视为显效;治疗后患儿临床表现部分好转视为有效;患儿腹股沟区或脐孔仍有肿块现象,并且比之前更为严重视为无效。治疗总有效率=(显效+有效)例数/总例数。(2)比较两组患儿麻醉前及麻醉后血流动力学指标变化情况,包括收缩压(SBP)、心率(HR)、平均动脉压(MAP)及 SpO_2 。(3)比较两组患儿术后并发症情况,包括切口感染、鞘膜积液和阴囊水肿。

1.4 统计学方法 采用SPSS 25.0软件分析数据。计数资料以例表示,组间比较采用 χ^2 检验;计量资料以 $\bar{x}\pm s$ 表示,组间比较采用独立样本 t 检验。 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 临床治疗效果 观察组患儿的治疗总有效率高于对照组,差异有统计学意义($P<0.05$)。见表1。

2.2 麻醉相关指标 两组患者麻醉前血流动力学指标SBP、HR、MAP和 SpO_2 对比差异无统计学意义($P>0.05$),麻醉后观察组SBP、HR、MAP低于对照组($P<0.05$)。见表2。

表1 两组患儿的治疗效果比较 ($n=50$, 例)

Tab. 1 Comparison of treatment effect between two groups ($n=50$, case)

组别	治愈	有效	无效	总有效[例(%)]
对照组	34	6	10	40(80.0)
观察组	42	6	2	48(96.0)
χ^2 值				6.061
P 值				0.014

表2 两组患儿血流动力学指标比较 ($n=50$, $\bar{x}\pm s$)

Tab. 2 Comparison of hemodynamic indices between two groups ($n=50$, $\bar{x}\pm s$)

组别	SBP(mmHg)		HR(次/min)		MAP(mmHg)		SpO_2 (%)	
	麻醉前	麻醉后	麻醉前	麻醉后	麻醉前	麻醉后	麻醉前	麻醉后
对照组	92.18±11.27	104.15±9.66	121.08±10.34	129.33±12.97	123.54±8.31	126.33±7.09	98.47±5.22	98.06±6.14
观察组	92.32±10.11	95.98±10.83	122.67±11.15	120.37±10.47	124.67±7.66	121.33±8.19	98.33±9.07	98.33±6.07
t 值	0.065	3.981	0.739	3.801	0.707	3.264	0.095	0.221
P 值	0.948	<0.001	0.461	<0.001	0.481	0.002	0.925	0.825

2.3 并发症情况 观察组出现1例切口感染和1例阴囊水肿,并发症发生率为4.0%(2/50);对照组有3例切口感染,3例鞘膜积液,4例阴囊水肿,并发症发生率为20.0%(10/50),两组比较差异有统计学意义($\chi^2=6.061, P=0.014$)。

3 讨论

小儿腹股沟疝,主要是单侧斜疝,只有5%左右为双侧疝^[4-5]。胚胎早期睾丸位于腹膜后第2~3腰椎旁,由于年龄不断增长,睾丸出现下降趋势,第8个月到达阴囊,腹膜鞘状突将睾丸的大部分包裹^[6-7]。出生前后,从近端内环和睾丸开始闭塞,直至中间部分完全闭塞,形成纤维束。这个过程在出生后继续。腹股沟斜疝的内因是鞘状突延迟性、不完全性或停滞性闭锁,引起与腹腔相通。造成腹股沟斜疝的外在因素是腹内压增加^[8]。大哭、持续咳嗽、便秘和排尿困难等腹内压增高的因素可促使腹腔脏器通过扩大的疝环进入疝囊,疝环在弹性回缩时阻止疝内容物返回腹腔,疝内容物出现嵌顿。因为小儿疝囊的颈部和内环一般较软,腹股沟受腹肌的压迫较弱,小儿血管弹性好^[9-10],所以,嵌顿疝患儿很少出现疝内容物坏死。但由于长时间的嵌顿,疝内容物因水肿而逐渐增多,使其失去相对柔软的性质,最终出现疝内容物缺血坏死。右侧疝比左侧更常见,因为右侧鞘状突较左侧闭锁晚。由于腹壁肌肉的持续发育和腹股沟管的逐渐扩张,逐渐增强了腹股沟管和内环的闭合作用,小儿腹股沟疝的发病率一般在2岁以后明显下降^[11]。

采用手术方法治疗小儿腹股沟疝是目前最有效的措施之一,虽然传统的疝囊高位结扎术具有一定治疗效果,但其腹直肌外缘切口较长,手术时间较长,对身体造成很大伤害,患儿的康复进程延长,术后还会出现一系列并发症^[12-13]。由于小儿的生理特点,全麻下手术可能会导致气道内物质分泌过多,容易造成气道阻塞,因此保证小儿手术麻醉效果的关键是保持气道畅通,术中做好气道管理^[14-15]。气管插管麻醉是全身麻醉下腹腔镜手术中常用的通气方法。气管插管可能会刺激肾上腺的交感神经核心,与二氧化碳形成气胸可能会增加血压波动并增加心率^[16]。小儿全身麻醉后,如果手术时间长,药物会使肌肉松弛,从而延缓恢复,并可能导致严重的低氧血症^[17]。同时,由于儿童独特的生理结构,气管插管难度较大,极易损伤咽喉和舌根,导致咽喉水肿等多种副作用。损伤和拔管对咽喉的刺激也很大,使小儿咽喉疼痛,严重时会导致窒息,最终影响手术的临床效果^[18-19]。喉

罩麻醉因其操作方便、损伤小而被广泛使用^[20]。

综上所述,和气管插管麻醉相比,喉罩麻醉手术治疗小儿疝气取得了良好效果,显著提高了整体治疗有效率,减少了手术时间、术中出血量等,降低了并发症率,有利于患儿早日康复。

利益冲突 无

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