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低浓度丙泊酚复合瑞芬太尼、麻黄素在老年患者无痛肠镜中的应用

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摘 要 **目的** 比较不同浓度丙泊酚复合瑞芬太尼,以及麻黄素的使用在老年患者无痛肠镜检查的效果和安全性。**方法** 60 例行无痛肠镜检查老年患者,年龄 65~83 岁,ASA I~Ⅲ级,随机分为 3 组:Ⅰ组:1% 丙泊酚复合瑞芬太尼组;Ⅱ组:0.5% 丙泊酚复合瑞芬太尼组;Ⅲ组:麻黄素、0.5% 丙泊酚复合瑞芬太尼组。3 组患者均静脉注射瑞芬太尼 10μg,Ⅲ组患者预先注入麻黄素 2~3mg,Ⅰ组静脉注射 1% 丙泊酚,Ⅱ、Ⅲ组静脉注射 0.5% 丙泊酚直到病人入睡,睫毛反射消失后开始行肠镜检查,术中追加剂量为每次丙泊酚 2~3ml。观察病人麻醉前、麻醉后 3min,术毕 MAP、HR 和 SpO₂;异丙酚的总用量;呼吸暂停、面罩加氧、体动次数和苏醒时间,低血压、心动过缓、注射痛、恶心呕吐发生率、患者满意度和术者满意度。**结果** 麻醉后 3min Ⅰ、Ⅱ组患者 MAP 和 HR 明显下降($P<0.05$),Ⅲ组患者无明显下降。Ⅰ组患者呼吸暂停、面罩加氧次数超过Ⅱ、Ⅲ组($P<0.05$)。3 组患者 SPO₂ 无明显变化。Ⅱ、Ⅲ组患者苏醒时间快($P<0.01$);异丙酚总用量少($P<0.01$)。Ⅲ组低血压和心动过缓发生率低($P<0.05$ 或 $P<0.01$)。3 组患者满意度和术者满意度及注射痛、恶心呕吐无统计学差异($P>0.05$)。**结论** 小剂量麻黄素、0.5% 丙泊酚复合瑞芬太尼对老年无痛肠镜患者呼吸循环影响小,可控性好,术中不良反应少,可以较好地用于老年患者无痛肠镜检查。

关键词 麻黄素 丙泊酚 瑞芬太尼 肠镜

Application of Low Concentration of Propofol Combined with Remifentanil and Ephedrine Analgesia in Old Patients During Colonoscopy.

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Abstract Objective To compare the clinical efficacy and safety of different concentrations of propofol combined with remifentanil, or with ephedrine in old patients undergoing colonoscopy. **Methods** Sixty patients aged 65 to 83 years old scheduled to colonoscopy, ASA I~Ⅱ, were randomly allocated into three groups. Patients received 1% propofol and 10μg remifentanil in Group I, 0.5% propofol and 10μg remifentanil in group II and III. Only ephedrine 2~3 mg were administered in group III before colonoscopy. The subsequent doses of propofol were 2~3ml when body movement appeared. Mean arterial pressure, SpO₂ and heart rates before anesthesia induction, three minutes after induction and end of colonoscopy, the total consumption of propofol, times to be conscious, the satisfactory levels of pa-

tients and doctors were recorded. And side effects as apnea, mask supported respiration, hypotension, bradycardia, body movement, transfusion pain, nausea and vomiting were also recorded. **Results** Mean arterial pressure and heart rates decreased significantly in group I and II, while changed little in group III three minutes after induction. The times of apnea and mask supported respiration were more in group I than group II and III. The time to be conscious was shorter in group II and III. And the total consumption of propofol was also fewer. The incidences of hypotension and bradycardia were much lower in group III. There was no significant difference in transfusion pain, nausea and vomiting, satisfactory levels of patients and doctors among the three groups. **Conclusion** Small dose of ephedrine and 0.5% propofol combined with remifentanyl have little influence on respiratory and circulation. It has fewer side effects and could be used in old patients undergoing colonoscopy.

Key words Ephedrine; Propofol; Remifentanyl; Colonoscopy

随着人口老龄化,老年患者在门诊行无痛胃肠镜检查日益增多,老年人常合并有心肺肝肾等器官功能不全,行无痛胃肠镜检查具有一定的麻醉风险,门诊通常以1%丙泊酚静脉注射,其速度过快或剂量过大可导致病人呼吸抑制、血压下降^[1]。有资料研究对老年人实施健忘镇痛等方式行无痛胃肠镜检查,以尽量减少其对老年人循环的干扰^[2,3]。本文拟通过比较不同浓度的丙泊酚以及麻黄素的使用,应用于老年患者,探讨老年人行无痛肠镜的一种较佳方法,以尽量减少不良反应,保证病人安全和舒适,为临床应用提供参考。

资料与方法

1. 一般资料:60例行无痛肠镜检查老年患者,ASA分级为I~III级,年龄在65~83岁,体重45~83kg,身高为150~183cm,无心肺肝肾严重器质性病变,及严重高血压(血压>180mmHg/110mmHg,随机分为3组:I组($n=20$):1%丙泊酚(得普利麻,20ml,阿斯利康公司)复合瑞芬太尼组(宜昌人福药业);II组($n=20$):0.5%丙泊酚(1%得普利麻20ml,用5%葡萄糖溶液稀释)复合瑞芬太尼组;III组($n=20$):麻黄素、0.5%丙泊酚复合瑞芬太尼组。

2. 麻醉方法:患者术前12h禁食,4h禁饮,左侧卧位,接麻醉机胃镜专用面罩(新乡市贝斯特医疗器械有限公司)吸氧,氧流量3~4L/min, I组患者静脉注射瑞芬太尼10 μ g后,1%丙泊酚缓慢静注;II组患者先静脉注射瑞芬太尼10 μ g;0.5%丙泊酚缓慢静注;III组患者先静脉注射麻黄素2~3mg,瑞芬太尼10 μ g后,0.5%丙泊酚缓慢静脉注射,注药时间均为15~20s,直至病人睫毛反射消失,开始行肠镜检查,术中追加剂量为每次丙泊酚2~3ml,待结肠镜达回盲部停药。术中心率<60次/分,静脉注射阿托品0.25~0.5mg,血压<90mmHg/60mmHg,麻黄素3~5mg静脉注射。20s无呼吸视为呼吸暂停,SpO₂<90%面罩加压给氧。检查结束后转至恢复室,鼻导管吸氧,清醒后能独立行走,无头晕目眩后方可离开内镜室。

3. 观察指标:术中监测3组患者BP、心电图、RR、SpO₂、HR,记录患者麻醉前、麻醉后3min,术毕MAP、HR、SpO₂;异丙酚的总用量;患者满意度和术者满意度;呼吸暂停、面罩加氧、体动及苏醒时间;低血压、心动过缓、注射痛和恶心呕吐发

生率。

4. 统计学方法:采用SPSS 11.5统计软件进行统计分析,计量资料采用均数 $\pm$ 标准差($\bar{x} \pm s$)表示,组内比较采用重复测量的方差分析,组间比较采用单因素方差分析检验,计数资料采用卡方检验, $P<0.05$ 为差异有统计学意义。

结 果

3组患者年龄、性别、体重、手术时间无统计学差异。

3组患者麻醉前、麻醉后MAP、HR无统计学差异,麻醉后3min I、II组患者MAP和HR明显下降($P<0.05$),III组患者无明显下降。I组患者呼吸暂停、面罩加氧次数超过II、III组($P<0.05$)。3组患者SpO₂无明显变化,II、III组患者苏醒时间快($P<0.01$);异丙酚总用量少($P<0.01$)。III组低血压和心动过缓发生率低($P<0.05$ 或 $P<0.01$)。3组患者注射痛、患者满意度和术者满意度及恶心、呕吐无统计学差异($P>0.05$)。

表1 3组病人一般情况($\bar{x} \pm s$)

组别	n	年龄(岁)	性别 (男性/女性)	体重 (kg)	手术时间 (min)
I组	20	72.5 $\pm$ 3.5	12/8	61.9 $\pm$ 9.5	13.5 $\pm$ 3.5
II组	20	73.7 $\pm$ 5.1	11/9	64.5 $\pm$ 9.7	12.5 $\pm$ 3.2
III组	20	73.4 $\pm$ 4.6	12/8	63.3 $\pm$ 11.4	13.5 $\pm$ 4.2

讨 论

肠镜操作不适主要来自肠镜进入时牵拉结肠引起的疼痛,单一的丙泊酚不能抑制疼痛,与阿片类镇痛药合用,可明显减少丙泊酚的用量。瑞芬太尼是短效的阿片类受体激动剂,镇痛强,但两者合用会对呼吸产生协同抑制^[4]。据徐志勇等^[5]研究,超过1 μ g/ml的瑞芬太尼复合丙泊酚合剂在无痛胃镜检查时对呼吸抑制较大。因本研究是肠镜检查,刺激较大,故采用小剂量的瑞芬太尼10 μ g复合丙泊酚,剂量不大较为合适。

表 2 两组患者血压、心率和 SpO₂ 及丙泊酚用量、苏醒时间($\bar{x} \pm s$)

组别		血压 (mmHg)	心率 (次/分)	SpO ₂	丙泊酚用量 (mg)	苏醒时间 (min)
I 组	麻醉前	112.7 ± 12.2	68.4 ± 10.1	98.6 ± 0.7	134.5 ± 30.8	1.03 ± 0.33
	麻醉后 3min	80.6 ± 18.7 ^b	60.7 ± 7.8 ^a	97.8 ± 0.8	30.8	0.33
	术毕	105.7 ± 16.5	66.5 ± 8.4	99.1 ± 0.7		
II 组	麻醉前	116.4 ± 15.7	67.7 ± 9.8	98.8 ± 0.8	109.6 ± 27.5 ^c	0.45 ± 0.21 ^c
	麻醉后 3min	86.5 ± 20.5 ^b	61.5 ± 8.5 ^a	98.5 ± 0.4	27.5 ^c	0.21 ^c
	术毕	109.1 ± 18.4	67.4 ± 11.1	99.4 ± 0.6		
III 组	麻醉前	115.8 ± 14.8	68.9 ± 9.7	98.7 ± 0.3	112.9 ± 29.8 ^c	0.48 ± 0.20 ^c
	麻醉后 3min	110.4 ± 16.7	73.5 ± 10.4	98.6 ± 0.5	29.8 ^c	0.20 ^c
	术毕	110.0 ± 17.7	67.5 ± 9.2	99.4 ± 0.7		

与麻醉前比较,^a $P < 0.05$,^b $P < 0.01$;与 I 组比较,^c $P < 0.01$

表 3 两组患者术中不良反应发生情况(n)

组别	n	呼吸暂停	面罩加氧	体动	低血压 >20%	心动过缓	注射痛	术者满意度	患者满意度	恶心呕吐
I 组	20	8	5	4	10 ^c	5 ^b	5	100%	100%	0
II 组	20	1 ^a	0 ^a	4	5 ^b	2	4	100%	100%	0
III 组	20	1 ^a	0 ^a	3	0	0	5	100%	100%	0

与 I 组比较,^a $P < 0.05$;与 III 组比较,^b $P < 0.05$,^c $P < 0.01$

本研究中 II、III 组将丙泊酚稀释为 0.5%,较 I 组呼吸暂停、面罩加氧次数少,这与肠镜检查过程中,麻醉深度不易控制有关,在患者出现体动后,会盲目追加丙泊酚,很容易导致静脉注射过量。因而 0.5% 丙泊酚,可控性更强,丙泊酚用量会更少。丙泊酚的用量和术后苏醒时间相关,II、III 组丙泊酚用量少,故苏醒更快。3 组患者 SpO₂ 变化不明显,这主要与术前充分的面罩给氧有关,可在呼吸暂停一段时间内仍保持不变。

随年龄增长,老年病人生理功能进行性下降,约 50% ~ 65% 病人有心血管疾病,呼吸功能亦随年龄下降^[6]。丙泊酚对循环呼吸的影响较为显著,丙泊酚 2.0 ~ 2.5mg/kg 静脉注射时,可使血压下降 25% ~ 40%,这与丙泊酚直接抑制心肌和扩张外周血管有关,而老年人自 55 岁后,每增加 1 岁,心排出量约减少 1%,心率慢,除本身生理功能减退、窦房结退变外,还与肠镜操作牵拉肠腔,引起迷走兴奋有关,尤其对老年人表现为明显。本研究中,III 组患者先静脉注射小剂量麻黄素,低血压和心动过缓发生率低,这与麻黄素对 α 、 β 肾上腺能受体的激动有关。

综上所述,使用小剂量麻黄素、0.5% 丙泊酚复合瑞芬太尼可控性好,术中不良反应少,可以较好地用于老年患者无痛肠镜检查。但因老年患者基础病变不同,危重患者仍应坚持个性化用药,尽量减少不良事件的发生。

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