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羟考酮与舒芬太尼复合依托咪酯用于老年患者胃镜检查的麻醉效果

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[摘　要]　**目的：**比较羟考酮与舒芬太尼复合依托咪酯用于老年患者胃镜检查的麻醉效果。**方法：**选择2017年2月至6月保定市第一中心医院于全身麻醉下行无痛胃镜检查的老年患者60例，男女不限，年龄65~77岁，体重46~63 kg，经美国麻醉医师协会(American Society of Anesthesiologists，ASA)分级为II级，患者随机被分为两组(*n*=30)：羟考酮组(O组)和舒芬太尼组(S组)。O组静脉注射羟考酮0.05 mg/kg，S组静脉注射舒芬太尼0.05 μg/kg，2 min后静脉注射依托咪酯0.2 mg/kg。术中出现呛咳或体动反应时，静脉追加依托咪酯0.05~0.1 mg/kg。记录诱导前(T_0)、诱导后2 min(T_1)、进镜后1 min(T_2)、进镜后3 min(T_3)各时间点的生命体征；记录整个胃镜检查过程中依托咪酯用量及发生注射痛、呛咳、体动、呼吸抑制的情况；记录苏醒时间及苏醒后头晕、恶心、呕吐的情况。**结果：**与S组比较，O组苏醒时间及依托咪酯用量减少，呛咳、体动发生率降低(P<0.05)，T_2时点平均动脉压降低(P<0.05)，T_2，T_3时点心率降低恶心、呕吐的发生率降低，差异均有统计学意义(P<0.05)。两组注射痛、头晕及呼吸抑制的发生率差异无统计学意义(P>0.05)。**结论：**羟考酮(0.05 mg/kg)复合依托咪酯可安全、有效地用于老年患者无痛胃镜检查，且效果优于舒芬太尼。

[关键词]　羟考酮；依托咪酯；胃镜检查；老年患者

Anesthetic effect of oxycodone versus sufentanil combined with etomidate on painless gastroscopy in elderly patients

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Abstract　**Objective:** To compare the effect of oxycodone versus sufentanil combined with etomidate on painless gastroscopy in elderly patients. **Methods:** Sixty elderly patients underwent painless gastroscopy were included in this study in the First Center Hospital of Baoding from February 2017 to June 2017. Those patients of either sex, with American Society of Anesthesiologists physical status II, aged 65 to 77 years, weighing 46–63 kg, were divided into two groups (*n*=30): an oxycodone group (Group O) and a sufentanyl group (Group S). Patients were intravenously injected with oxycodone (0.05 mg/kg) in Group O and sufentanyl (0.05 μg/kg) in Group S. And then, all patients were intravenously injected with etomidate (0.2 mg/kg). When cough or movement occurred during

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gastroscopy, etomidate (0.05–0.1 mg/kg) was intravenously injected additionally. The MAP, HR, SpO_2 and dosage of etomidate was recorded at the time points of before induction (T_0), 2 minutes after induction (T_1), 1 (T_2) and 3 (T_3) minutes after gastroscopy. The occurrence of cough, body movement, injection pain and respiratory depression, was recorded during the gastroscopy. And the waking time and the occurrence of adverse reactions, such as, dizziness, nausea and vomiting were recorded. **Results:** Compared with Group S, the waking time and dosage of etomidate decreased in Group O (P<0.05). Compared with Group S, the incidence of cough and body movement decreased in Group O (P<0.05). Compared with Group S, MAP and HR decreased in Group O (P<0.05). Compared with Group S, the incidence of nausea and vomiting decreased in Group O (P<0.05). For injection pain, dizziness and respiratory depression, there were no difference between the two groups (P>0.05). **Conclusion:** Efficacy oxycodone (0.05 mg/kg) combined with etomidate is superior to sufentanil for elderly patients with undergoing painless gastroscopy.

Keywords oxycodone; etomidate; gastroscopy; elderly patient

胃镜检查可以使患者产生疼痛、窒息、恶心等不适，尤其是老年人可能会导致心脑血管意外等不良事件发生[1]。麻醉状态下的胃镜检查减轻了患者的痛苦，提高了患者的安全性与满意度。与异丙酚比较，依托咪酯用于老年患者无痛胃镜检查血流动力学稳定、低氧血症及注射痛的发生率更低[2-3]。鉴于羟考酮独有的内脏痛镇痛效果[4-6]，本研究拟比较羟考酮与舒芬太尼复合依托咪酯用于老年患者胃镜检查的麻醉效果，为临床用药提供参考。

1 对象与方法

1.1 对象

本研究经保定市第一中心医院医学伦理委员会批准，所有患者签署知情同意书。选取2017年2月至6月保定市第一中心医院在全身麻醉下行无痛胃镜检查的老年患者60例，美国麻醉医师协会(American Society of Anesthesiologists，ASA)分级为II级，男33例，女27例，年龄65~77岁，体重46~63 kg。排除对羟考酮、舒芬太尼、依托咪酯过敏者，排除近期应用镇痛药物者及严重肝肾功能不全者。本研究将患者随机分为2组(n=30)：羟考酮组(O组)和舒芬太尼组(S组)。

1.2 方法

入室后开放上肢液路，进行无创血压、心电图、脉搏血氧饱和度及呼吸频率监测。吸氧去氮，氧流量2 L/min。O组缓慢静脉注射0.05 mg/kg羟考酮[萌蒂(中国)制药有限公司，BM247]，S组缓慢注射0.05 μg/kg舒芬太尼(宜昌人福药业有限责任公司，1171112)。待给予阿片类药物2 min后，缓慢静脉注射0.2 mg/kg依托咪酯(江苏恩华药业股份有限公司，20161123)。诱导2 min后，判断患者睫毛反射消失，托下颌无反应后行胃镜检查。所有胃镜检查由同一高年资内镜医师完成。术中出现呛咳或体动反应时静脉追加依托咪酯0.05~0.1 mg/kg。患者发生呼吸抑制时，托起患者下颌开放气道，辅助呼吸，必要时退出胃镜并控制呼吸，待呼吸抑制解除后再继续进行胃镜检查。胃镜检查结束后，脱氧观察5 min，SpO_2>90%，将患者送入观察室，由麻醉护士进行复苏管理。

1.3 观察指标

记录诱导前(T_0)、诱导后2 min(T_1)、进镜后1 min(T_2)、进镜后3 min(T_3)各时间点平均动脉压(mean arterial pressure，MAP)、心率(heart rate，HR)及脉搏氧饱和度(pulse blood oxygen saturation，SpO_2)的数值；记录胃镜检查过程中患者发生呛咳、体动、呼吸抑制的情况；记录胃镜检查时间及依托咪酯用量；记录苏醒时间及苏醒后发生头晕、恶心、呕吐的情况。

1.4 统计学处理

采用SPSS 17.0统计软件进行数据分析。计量资料以均数±标准差($\bar{x}\pm s$)表示，组间比较采用t检验；计数资料以率(%)表示，组间比较采用χ^2检验。P<0.05为差异有统计学意义。

2 结果

两组年龄、性别构成比、体重、胃镜检查时

间差异无统计学意义(P>0.05)；与S组比较，O组苏醒时间减少，呛咳或体动的发生率降低，依托咪酯用量减少，差异均有统计学意义(P<0.05，表1)。

与S组比较，T_2时点O组MAP降低(P<0.05)；与T_0时点比较，S组T_2时点MAP升高(P<0.05，表2)。与S组比较，T_2，T_3时点O组HR降低(P<0.05)；与T_0时点比较，S组T_2，T_3时点HR增快(P<0.05，表2)。两组SpO_2差异无统计学意义(P>0.05，表2)。

与S组比较，O组恶心呕吐的发生率降低(P<0.05)；两组注射痛、呼吸抑制及头晕发生率差异无统计学意义(P>0.05，表3)。

表1 两组一般资料的比较(n=30)

Table 1 Comparison of demographic data between the two groups (n=30)

组别	年龄/岁	性别/例		体重/kg	检查时间/min	苏醒时间/min	呛咳或体动/[例(%)]	依托咪酯用量/mg
		男	女					
O组	68.2 ± 5.6	16	14	53.6 ± 5.3	3.8 ± 0.7	3.4 ± 0.7*	3 (10)*	10.6 ± 1.3*
S组	70.4 ± 6.8	17	13	52.9 ± 4.1	3.7 ± 0.9	4.7 ± 1.1	10 (33)	15.2 ± 2.7

与 S 组相比，*P<0.05。

Compared with group S, *P<0.05.

表2 两组MAP，HR及SpO_2的比较(n=30)

Table 2 Comparison of MAP, HR and SpO_2 between the two groups (n=30)

组别	MAP/mmHg			
	T_0	T_1	T_2	T_3
O 组	96.2 ± 5.4	93.7 ± 3.5	93.6 ± 6.4*	92.3 ± 3.9
S 组	95.6 ± 8.1	93.3 ± 2.8	105.7 ± 5.3#	96.0 ± 4.4

组别	HR/min^{-1}			
	T_0	T_1	T_2	T_3
O 组	73.2 ± 6.5	69.4 ± 2.2	70.7 ± 4.8*	71.5 ± 3.6*
S 组	73.0 ± 4.6	70.3 ± 7.5	85.8 ± 3#	84.2 ± 6.3#

组别	SpO_2/%			
	T_0	T_1	T_2	T_3
O 组	99.6 ± 1.6	99.2 ± 1.3	99.4 ± 1.9	99.1 ± 0.9
S 组	99.7 ± 0.8	99.3 ± 1.7	99.3 ± 1.5	98.3 ± 1.4

1 mmHg=0.133 kPa。与S组相比，*P<0.05；与T_0相比，#P<0.05。

1 mmHg=0.133 kPa. Compared with group S, *P<0.05; compared with T_0, *P<0.05.

表3 两组不良反应发生率的比较(n=30)

Table 3 Comparison of the incidence of adverse reactions between the two groups (n=30)

组别	注射痛/[例(%)]	呼吸抑制/[例(%)]	头晕/[例(%)]	恶心呕吐/[例(%)]
O组	3 (10)	1 (3)	3 (10)	2 (7)*
S组	2 (7)	3 (10)	4 (13)	8 (27)

与 S 组相比，*P<0.05。

Compared with group S, *P<0.05.

3 讨论

最新国家统计局公布数据显示：截至2014年底，中国60岁以上的老人2.12亿，占总人口的15.5%。据估计，至21世纪中叶，中国老年人口数量将达到全球老年人口的1/4，或将超过4.8亿。与此同时，伴随着医疗技术水平的不断进步及对健康重视程度的提高，主动进行疾病早期筛查的老年人日益增多，尤见于罹患消化系统疾病的高危患者。胃镜置入对咽喉、食道及胃黏膜的伤害性刺激可以使患者出现恶心、呕吐、窒息、心动过速、血压升高等不良反应，在老年患者甚至会导致心脑血管意外等不良事件发生。无痛胃镜可大大减轻检查所带来的痛苦，受患者及内镜医师青睐。

异丙酚具有起效迅速、镇静效果确切、停药后苏醒快等优点，是目前无痛胃镜常用的静脉麻醉药物[7-9]。然而，异丙酚对循环及呼吸系统抑制作用较强。由于老年患者对麻醉药物耐受性降低，加上术前禁食水导致的血容量不足，异丙酚用于老年患者静脉麻醉易产生显著的循环波动及呼吸抑制，从而导致心脑血管意外等不良事件发生。依托咪酯对呼吸、循环系统影响轻微，可安全用于老年患者静脉麻醉。与异丙酚相比，在老年患者胃镜检查中依托咪酯在提供有效镇静的同时，对血流动力学影响更加轻微，可提高麻醉的安全性[2,10-12]。有研究[2,13-14]表明：阿片类药物复合依托咪酯应用于无痛胃镜检查可增强抗伤害效应，减少依托咪酯用量及恶心呕吐、肌阵挛等不良反应的发生。羟考酮对内脏痛镇痛效果好，且不易引起呼吸抑制及恶心、呕吐[4-6]，理论上更适合于老年人无痛胃镜检查，故本研究选择羟考酮与依托咪酯作为研究药物。

根据参考文献[13]及老年人阿片类药物药代动力学特点，并结合预试验结果，本研究选择羟考酮的剂量为0.05 mg/kg。鉴于羟考酮与舒芬太尼的镇痛效价为1:1 000，故本研究选择阳性对照药物舒芬太尼的剂量为0.05 μg/kg。本研究结果显示：O组患者呛咳、体动发生率及依托咪酯用量均低于舒芬太尼组，这表明羟考酮用于无痛胃镜检查的抗伤害效应优于舒芬太尼。分析原因，可能是胃镜检查产生的伤害性刺激属内脏痛范畴，羟考酮可激动κ阿片受体，对内脏痛产生更加确切的镇痛效果[15-17]。本研究结果还发现：麻醉诱导及胃镜检查期间，O组患者生命体征较舒芬太尼组平稳，这提示羟考酮较舒芬太尼更适合用于胃镜检查的麻醉。本研究中O组恶心呕吐低于舒芬太尼组，分析原因：可能羟考酮与μ阿片受体的亲和力仅为吗啡的1/5~1/10，而μ阿片受体与恶心呕吐密切相关；O组依托咪酯用量减少也可能与恶心呕吐发生率降低相关。

综上所述，0.05 mg/kg羟考酮复合依托咪酯可安全、有效地用于老年患者无痛胃镜检查，且效果优于舒芬太尼。

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