doi: 10.13241/j.cnki.pmb.2018.20.037

丙泊酚复合七氟醚用于胃癌根治术的麻醉效果及机制探讨 *

梁 璐[1] 苏保雄[1△] 秦妮娜[1] 王 丽[2] 王 敏[1]

(1 延安大学附属医院麻醉科 陕西 延安 716000;2 西京医院麻醉科 陕西 西安 710032)

摘要 目的:探讨丙泊酚复合七氟醚用于胃癌根治术患者的麻醉效果及可能机制。**方法:**选取 2015 年 7 月 -2017 年 8 月拟在我院择期行胃癌根治术患者 89 例,根据入院顺序编号采用奇偶数法分为对照组和观察组,对照组(44 例)给予依托咪酯麻醉,观察组(45 例)给予丙泊酚复合七氟醚。比较两组麻醉前后生命体征、免疫功能指标的变化,麻醉效果,术后苏醒质量及不良反应的发生情况。**结果:**麻醉前,两组患者 SBP(Systolic blood pressure,收缩压)、DBP(Diastole pressure,舒张压)、HR(Heart rate,心率)、SPO_2(oxyhemoglobin saturation,血氧饱和度)水平比较差异无统计学意义(*P>0.05*);麻醉后,两组患者 SBP、DBP、HR 水平均比麻醉前显著降低(*P<0.05*),而 SPO_2 均显著高于麻醉前,两组之间以上指标的差异无统计学意义(*P>0.05*)。观察组的麻醉效果明显优于对照组(*P<0.05*),术后睁眼时间、拔管时间及定向力恢复时间均显著少于对照组(*P<0.05*)。麻醉前,两组患者 $CD3^+$($CD3^+$ Prioritisation,$CD3^+$ 比例)、$CD4^+$($CD4^+$ Prioritisation,$CD4^+$ 比例,$CD8^+$($CD8^+$ Prioritisation,$CD8^+$ 比例)及 $CD4^+/CD8^+$ 值之间比较差异无统计学意义(*P>0.05*);两组患者手术结束时的以上指标均显著低于麻醉前(*P<0.05*),手术结束 24 h 后,观察组 $CD3^+$、$CD4^+$ 及 $CD4^+/CD8^+$ 值恢复至麻醉前水平(*P>0.05*),而对照组仍低于麻醉前水平(*P<0.05*)。观察组不良反应的发生率显著低于对照组(*P<0.05*)。**结论:**丙泊酚复合七氟醚对于胃癌根治术患者麻醉效果好、术后苏醒质量高,可能与患者术后免疫功能恢复快有关。

关键词:丙泊酚;七氟醚;胃癌根治术;免疫功能

中图分类号:R735.2;R614 **文献标识码:**A **文章编号:**1673-6273(2018)20-3963-04

Anesthesia Effects of Propofol Combined with Sevoflurane on the Patients with Radical Gastrectomy and Its Mechanism*

LIANG Lu[1], SU Bao-xiong[1△], QIN Ni-na[1], WANG Li[2], WANG Min[1]

(1 Department of Anesthesiology, Yanan Affiliated Hospital, Yan'an, Shaanxi, 716000, China;

2 Department of Anesthesiology, Xijing Hospital, Xi'an, Shaanxi, 710032, China)

ABSTRACT Objective: To explore the effect of propofol combined with sevoflurane on the anesthesia in patients with radical gastrectomy and its possible mechanisms. **Methods:** 89 cases of patients in our hospital for radical gastrectomy from July 2015 to August 2017 were selected. According to the admission order number, all the patients were divided into the control group and the observation group by odd and even method. The control group (44 cases) was given etomidate anesthesia, the observation group (45 cases) given propofol combined with sevoflurane. The changes of quality of life, immune function before and after anesthesia, effect of anesthesia, postoperative recovery, and occurrence of adverse reactions were compared between the two groups. **Results:** There was no statistically significant differences in the SBP, DBP, HR and SPO_2 between the two groups before anesthesia (*P>0.05*). After anesthesia, the SBP, DBP, HR were all lower obviously than those before anesthesia, while the SPO_2 were all higher than those before anesthesia, which showed no significant difference (*P<0.05*). The anesthesia effect of observation group was significantly better than that of the control group(*P<0.05*). The eye opening time, removal time and orientation time were significantly shorter in the observation group than those of the control group (*P<0.05*). There was no statistically significant differences in the $CD3^+$, $CD4^+$, $CD8^+$ and $CD4^+/CD8^+$ between the two groups before anesthesia (*P>0.05*). At the end of the operation, the indexes of the two groups were significantly lower than those before the anesthesia (*P<0.05*). At 24h after operation, the levels of $CD3^+$, $CD4^+$ and $CD4^+/CD8^+$ in the observation group restored to anesthesia level (*P>0.05*), while the control group was still lower than the anesthesia level (*P<0.05*). The incidence of adverse reactions in the observation group was significantly lower than that in the control group (*P<0.05*). **Conclusions:** Propofol combined with sevoflurane had a good anesthesia effect on the patients with radical gastrectomy, and it may be related to the recovery of immune function.

Key words: Propofol; Sevoflurane; Radical resection of gastric cancer; Immune function

Chinese Library Classification(CLC): R735.2; R614 Document code: A

Article ID: 1673-6273(2018)20-3963-04

* 基金项目:陕西省自然科学基金项目(2014J0326)

作者简介:梁璐(1980-),女,本科,主治医师,研究方向:麻醉学,E-mail: lianglu_1986@papmedline.club

△ 通讯作者:苏保雄(1978-),男,本科,副主任医师,研究方向:血液免疫学,E-mail: 751317753@qq.com

(收稿日期:2018-01-25 接受日期:2018-02-22)

前言

胃癌是我国最常见的恶性肿瘤之一，与年龄、性别、饮食、幽门螺旋杆菌感染等多种因素密切相关。随着社会老龄化进程的加快，胃癌的发病率呈逐年上升趋势，死亡率居高不下[1-3]。目前，胃癌的主要治疗方法是手术根治法，即胃癌根治术[4,5]。为了减少病患的疼痛及加快术后恢复，手术期间需对患者进行麻醉处理，而中老年患者各个器官生理功能下降，呼吸系统及内分泌系统的调节能力下降，对手术和麻醉的耐受能力较差，在麻醉期间容易发生意外。因此，麻醉药品及方式的选择对中老年胃癌根治术患者有很大的影响，合理应用麻醉方法和药品能使老年患者顺利度过麻醉诱导期[6-8]。

临床上，丙泊酚常用于全身麻醉的诱导和维持，也常与肌松药、镇痛药和吸入性麻醉药同时使用，具有起效快、不良反应少等优点[9-11]，七氟醚是吸入型麻醉药，首次由日本药监部门批准在临床上应用，被麻醉学专家誉为吸入麻醉的里程碑式药物，具有术后苏醒快且醒得较透等特点[12-14]，在儿童全麻诱导及维持中优势显著。本研究将丙泊酚复合七氟醚应用于胃癌根治术患者，取得了良好的效果，现报道如下。

1 资料与方法

1.1 一般资料

选取 2015 年 7 月 -2017 年 8 月拟在我院择期行胃癌根治术患者 89 例，根据入院顺序编号采用奇偶数法分为对照组和观察组，各组分别是 44 例、45 例。两组一般资料比较差异无统计学意义($P>0.05$)，具有可比性，见表 1。本研究经我院伦理委员审核并获得批准。

表 1 两组一般资料比较

Table1 Comparison of the general information between two groups(n, $\bar{x}\pm s$)

Groups	Male/female	Age(years)	Body weight(kg)	ASA I/II/III
Control group(n=44)	28/16	56.53± 5.73	61.21± 10.74	5/30/9
Observation group(n=45)	30/15	58.37± 6.36	62.35± 10.82	4/31/10

1.2 纳入及排除标准

纳入标准：① 经组织病理学检验及胃镜检查确诊为胃癌；② 尚未进行放疗、化疗等治疗；③ 经检查证实肿瘤细胞未转移；④ 患者均对本研究知情且已签署知情同意书。

排除标准：① 患严重的心、肝、肾等器官疾病者；② 对本研究所使用的相关药物过敏者；③ 合并呼吸系统、内分泌系统相关疾病者；④ 依从性差或患有精神疾病者。

1.3 方法

患者进入手术室后监测血压(blood pressure，BP)、血氧饱和度(blood oxygen saturation，SpO_2)、心律(heart rhythm，HR)、心电图(electrocardiograph，ECG)。给患者联通静脉通路，麻醉诱导使用舒芬太尼 0.5 μg/kg 和咪达唑仑 0.05 m/kg，在此基础上对照组给予依托咪酯麻醉，以维持 10 g/(kg·min)的速度进行泵注；观察组使用丙泊酚与七氟醚复合麻醉，以 5 mg/(kg·h)的速度泵注丙泊酚和 30 %的七氟醚。

1.4 观察指标

1.4.1 生理指标 检测并记录患者麻醉前后 HR、收缩压(systolic blood pressure，SBP)、SpO_2、舒张压(diastolic blood pressure，DBP)指标的变化。

1.4.2 麻醉效果 记录患者术后睁眼时间、拔管时间、定向力恢复时间。麻醉效果的评判标准，优：完全无痛且肌肉松弛，易于手术开展；良：稍有皱眉、肢动，肌肉松弛，易于手术开展；差：表情痛苦且有挣扎，未达到手术要求。

1.4.3 免疫功能 所有患者麻醉前、手术结束时、术后 24 h 三个时间点抽取外周静脉血 4.0 mL，用离心机对血浆进行分离，保存于 -80℃冰箱待测。采用 COULTER EPICS XL 流式细胞仪(Beckman Coulter 公司，美国)在麻醉前、手术结束时、术后 24 h 检测 T 淋巴细胞亚群 $CD3^+$、$CD4^+$、$CD8^+$ 及 NK 细胞水平，计算 $CD4^+/CD8^+$ 值。

1.4.4 不良反应 观察并记录患者不良反应的发生情况。

1.5 统计学分析

采用 SPSS 20.0 软件对数据进行分析，计量资料用($\bar{x}\pm s$)表示，组间比较采用 t 检验，计数资料以[n(%)]表示，组间比较采用 x^2 检验，以 $P<0.05$ 表示有差异具有统计学意义。

2 结果

2.1 两组患者麻醉前后各项生理指标的比较

麻醉前，两组患者 SBP、DBP、HR、SPO_2 水平比较差异无统计学意义($P>0.05$)。麻醉后，两组患者 SBP、DBP、HR 水平均较麻醉前均显著降低($P<0.05$)，而 SPO_2 水平均明显高于麻醉前，而两组之间各项指标比较差异均无统计学意义($P>0.05$)。见表2。

2.2 两组患者麻醉效果及术后苏醒质量的比较

术后，观察组的麻醉效果显著高于对照组($P<0.05$)，术后睁眼时间、拔管时间及定向力恢复时间均少于对照组($P<0.05$)，见表 3。

2.3 两组患者治疗前后免疫功能的比较

麻醉前，两组患者 $CD3^+$、$CD4^+$、$CD8^+$ 及 $CD4^+/CD8^+$ 值比较差异无统计学意义($P>0.05$)。手术结束时，两组患者的各指标较麻醉前均显著降低($P<0.05$)，且观察组显著低于对照组($P<0.05$)。术后 24 h，观察组 $CD3^+$、$CD4^+$ 及 $CD4^+/CD8^+$ 值恢复至麻醉前水平($P>0.05$)，而对照组仍低于麻醉前水平(P<0.05)，两组之间具有显著性差异($P<0.05$)。见表 4。

2.4 两组患者不良反应发生情况的比较

两组在治疗期间均为出现严重的不良反应。对照组出现 4 例呛咳、5 例呕吐、11 例注射后静脉痛，观察组出现 2 例呛咳、3 例体动及 6 例注射后静脉痛，其不良反应的发生率显著低于对照组(P=0.038)。

表 2 两组患者麻醉前后各项生理指标的比较($\bar{x}\pm s$)

Table 2 Comparison of the physiological indexes between the two groups before and after anesthesia($\bar{x}\pm s$)

Items	Control group (n=44)		Observation group (n=45)	
	Before anesthesia	After anesthesia	Before anesthesia	After anesthesia
SBP (mmHg)	132.23± 15.87	94.45± 8.43*	129.53± 13.94	95.37± 6.86*
DBP (mmHg)	83.47± 9.25	65.47± 7.36*	85.36± 11.63	67.63± 8.92*
HR (counts/min)	86.56± 14.55	69.16± 8.96*	84.66± 13.84	71.36± 9.83*
SpO_2 (%)	95.74± 10.84	99.19± 8.48*	96.85± 9.83	99.56± 7.93*

Note: compared with same group before anesthesia, *$P<0.05$.

表 3 两组麻醉效果及术后苏醒质量的比较(n, $\bar{x}\pm s$)

Table 3 Comparison of the anesthesia effect and postoperative recovery quality between two groups (n, $\bar{x}\pm s$)

Items		Control group (n=44)	Observation group (n=45)
Anesthesia effect	Excellent	32	41*
	Fine	12	4
	Bad	0	0
Eye opening time(min)		15.62± 3.23	12.15± 3.47*
Removal time(min)		18.63± 4.25	14.67± 3.26*
Orientation recovery time(min)		21.32± 4.67	18.34± 4.61*

Note: compared with the control group, * $P<0.05$.

表 4 两组患者治疗前后免疫功能相关指标的比较($\bar{x}\pm s$, %)

Table 4 Comparison of the immune function between two groups before and after treatment($\bar{x}\pm s$, %)

Items	Control group (n=44)			Observation group (n=45)		
	Before anesthesia	After operation	24 h after operation	Before anesthesia	After operation	24 h after operation
$CD3^+$	62.83± 8.82	40.14± 5.74*	52.74± 7.62*	63.25± 9.36	46.72± 5.37*#	61.95± 8.97#
$CD4^+$	40.21± 6.17	21.08± 4.72*	26.29± 3.24*	40.81± 5.72	29.62± 4.28*#	40.22± 3.44#
$CD8^+$	25.61± 4.32	23.69± 3.82*	24.12± 3.61	25.83± 4.24	24.27± 3.07*	25.62± 4.27
$CD4^+/CD8^+$	1.57± 0.03	0.89± 0.03*	1.09± 0.03*	1.58± 0.04	1.22± 0.03*#	1.57± 0.04#

Note: compared with same group before anesthesia, *$P<0.05$; compared with the control group, #$P<0.05$.

3 讨论

目前，胃癌最好的治疗方式肿瘤切除手术，也是唯一可能治愈胃癌的方法[15-17]。胃癌根治术手术治疗时间长、创伤大，而中老年患者身体状况较差、机能下降，术后恢复总体较慢，手术期间合理的选择麻醉用药对患者术中状态及术后健康恢复有很大的影响[18-20]。丙泊酚是一种烷基酚类短效静脉麻醉药，有较强的脂溶性。应用丙泊酚进行麻醉，注射后能迅速扩散至全身，起效快，安全性高[21-23]。七氟醚是一种无色透明、有芳香气味的新型吸入型麻醉药，能保持呼吸道湿度和温度，麻醉诱导快，对血流动力学的影响小[24,25]。

麻醉药物一般属于脂溶性物质，中老年患者总体运动少、体内脂肪组织多，麻醉药物进入中老年患者体内后药物表观分布容积相对较大[26,27]，使麻醉药物在患者体内沉积时间增长，加之手术创伤，常引起老年胃癌根治术患者术中血流动力学的波动，术后苏醒时间长等现象，故手术期间需对患者的基本生命体征进行监测 [28,29]。本研究结果显示：两组患者麻醉后 SBP、DBP、HR 水平均较麻醉前显著降低，说明麻醉期间患者代谢减慢，各生命体征相关指标平稳，这与丙泊酚和七氟醚对心血管系统、呼吸系统及循环系统的抑制作用有关[30,31]，一方面有利于手术的进行，给医生提供了良好和相对延长的时间进行肿瘤切除，另一方面需随时监测避免休克等严重情况的发生。另外，两组患者基本生命体征指标之间没有显著性差异，说明两种麻醉方式对患者麻醉诱导期间的各项生命体征的影响效应接近。

此外，丙泊酚复合七氟醚的麻醉效果显著优于传统依托咪酯麻醉，术后睁眼时间、拔管时间、定向力恢复时间均短于对照组，提示丙泊酚复合七氟醚对胃癌根治术患者的术后苏醒质量较好，对于患者恢复意识及术后指导治疗有促进作用。手术结束时，两组患者的 $CD3^+$、$CD4^+$、$CD8^+$ 及 $CD4^+/CD8^+$ 值较麻醉前均明显下降，观察组相对于对照组更明显，说明观察组对患者的免疫功能影响较大。术后 24 h，观察组 $CD3^+$、$CD4^+$ 及 $CD4^+/CD8^+$ 值恢复至麻醉前水平，而对照组仍低于麻醉前水平，说明丙泊酚复合七氟醚对胃癌根治术患者麻醉后身体机能的恢复效果好，提示患者术后尽快苏醒能促进患者免疫功能的

恢复,对预后及患者健康有促进作用。

综上所述,丙泊酚复合七氟醚对于胃癌根治术患者麻醉效果好、术后苏醒质量高,可能与患者术后免疫功能恢复快有关。

参 考 文 献(References)

[1] Graham D Y. Helicobacter pylori update: gastric cancer, reliable therapy, and possible benefits[J]. Gastroenterology, 2015, 148(4): 719-731

[2] Cristescu R, Lee J, Nebozhyn M, et al. Molecular analysis of gastric cancer identifies subtypes associated with distinct clinical outcomes [J]. Nature Medicine, 2015, 21(5): 449-456

[3] Yashiro M, Chung Y, Nishimura S, et al. Fibrosis in the peritoneum induced by Scirrhous gastric cancer cells may act as "soil" for peritoneal dissemination[J]. Cancer, 2015, 77(8): 1668-1675

[4] Lu J, Wei Z Q, Huang C M, et al. Small-volume chylous ascites after laparoscopic radical gastrectomy for gastric cancer: Results from a large population-based sample[J]. World Journal of Gastroenterology, 2015, 21(8): 2425-2432

[5] Li H Z, Chen J X, Zheng Y, et al. Laparoscopic-assisted versus open radical gastrectomy for resectable gastric cancer: Systematic review, meta-analysis, and trial sequential analysis of randomized controlled trials[J]. Journal of Surgical Oncology, 2016, 113(7): 756-767

[6] Ding L, Tan H, Li Z, et al. Case report: anaesthetic management of radical gastrectomy for gastric cancer associated with anti-N-methyl-D-aspartate receptor encephalitis [J]. Bmc Anesthesiology, 2017, 17(1): 90

[7] Jiang A, Chen L J, Wang Y X, et al. The Effects of different methods of anaesthesia for laparoscopic radical gastrectomy with monitoring of entropy[J]. Anticancer Research, 2016, 36(3): 1305-1308

[8] Zhuang C L, Wang S L, Huang D D, et al. AB19. risk factors for hospital readmission after radical gastrectomy for gastric cancer: a prospective study[J]. Plos One, 2015, 10(4): e0125572

[9] Alexander R, Booth J, Olufolabi A J, et al. Comparison of remifentanil with alfentanil or suxamethonium following propofol anaesthesia for tracheal intubation[J]. Anaesthesia, 2015, 54(11): 1032-1036

[10] Gill P S, Shah J, Ogilvy A. Midazolam reduces the dose of propofol required for induction of anaesthesia and laryngeal mask airway insertion[J]. European Journal of Anaesthesiology, 2015, 18(3): 166-170

[11] Barringer C, Williams J M, Mccrirrick A, et al. Regional anaesthesia and propofol sedation for carotid endarterectomy [J]. Anz Journal of Surgery, 2015, 75(7): 546-549

[12] Noll M. Poincare analysis of the electroencephalogram during sevoflurane anesthesia [J]. Siam Journal on Scientific Computing, 2015, 27(6): 1929-1947

[13] Zhu M, Wang H, Zhu A, et al. Meta-analysis of dexmedetomidine on emergence agitation and recovery profiles in children after sevoflurane anesthesia: different administration and different dosage [J]. Plos One, 2015, 10(4): e0123728

[14] Bergmann I, Szabanowski T, Bräuer A, et al. Remifentanil added to sufentanil-sevoflurane anesthesia suppresses hemodynamic and metabolic stress responses to intense surgical stimuli more effectively than high-dose sufentanil-sevoflurane alone [J]. Bmc Anesthesiology, 2015, 15(1): 3

[15] Wang C, Wang G, Su Z, et al. Laparoscopy-assisted D2 radical gastrectomy for advanced gastric cancer[J]. Hepato-gastroenterology, 2015, 62(139): 758-761

[16] Okabe H, Tsunoda S, Obama K, et al. Feasibility of laparoscopic radical gastrectomy for gastric cancer of clinical stage II or higher: early outcomes in a phase II study (KUGC04)[J]. Annals of Surgical Oncology, 2016, 23(4): 516-523

[17] Huang D D, Zhou C J, Wang S L, et al. Impact of different sarcopenia stages on the postoperative outcomes after radical gastrectomy for gastric cancer[J]. Surgery, 2016, 161(3): 680-693

[18] Gong J, Cao Y, Wang Y, et al. Three-step hand-assisted laparoscopic d2 radical gastrectomy for chinese obese patients: a highly efficient and feasible surgical approach[J]. Journal of Cancer, 2015, 6(2): 120-127

[19] Hao Y, Yu P, Qian F, et al. Comparison of laparoscopy-assisted and open radical gastrectomy for for advanced gastric cancer: A retrospective study in a single minimally invasive surgery center[J]. Medicine (Baltimore), 2016, 95(25): e3936

[20] Huang D D, Zhuang C L, Wang S L, et al. Prediction of prolonged postoperative Ileus after radical gastrectomy for gastric cancer: a scoring system obtained from a prospective study[J]. Medicine, 2015, 94(51): e2242

[21] Chidambaran V, Costandi A, D'Mello A. Propofol: a review of its role in pediatric anesthesia and sedation [J]. Cns Drugs, 2015, 29(7): 543-563

[22] Kargaran P, Lenglet S, Montecucco F, et al. Impact of propofol anaesthesia on cytokine expression profiles in the developing rat brain: a randomised placebo-controlled experimental in-vivo study[J]. European Journal of Anaesthesiology, 2015, 32(5): 336-345

[23] Lee W K, Kim M S, Kang S W, et al. Type of anaesthesia and patient quality of recovery: a randomized trial comparing propofol-remifentanil total i.v. anaesthesia with desflurane anaesthesia [J]. British Journal of Anaesthesia, 2015, 114(4): 663-668.

[24] Rhondali O, Pouyau A, Mahr A, et al. Sevoflurane anesthesia and brain perfusion[J]. Pediatric Anesthesia, 2015, 25(10): 180-185

[25] Horwitz M, Jakobsson J G. Desflurane and sevoflurane use during low- and minimal-flow anesthesia at fixed vaporizer settings [J]. Minerva Anestesiologica, 2016, 82(2): 180-185

[26] Mazzola P, Perego S, Picone D, et al. Global anesthesia and perioperative medicine hip fracture in centenarians: retrospective analysis of an orthogeriatric unit reveals the limitations of the current research[J]. Astrophysical Journal, 2015, 721(4): 1-2

[27] Roh W S, Kim D K, Jeon Y H, et al. Analysis of anesthesia-related medical disputes in the 2009-2014 period using the Korean Society of Anesthesiologists database [J]. Journal of Korean Medical Science, 2015, 30(2): 207-213

[28] Toledo P, Mclean S, Duce L, et al. Evaluation of the foundation for anesthesia education and research medical student anesthesia research fellowship program participants' scholarly activity and career choices [J]. Anesthesiology, 2016, 124(5): 1168-1173

(下转第 3991 页)

参 考 文 献 (References)

[1] Liu YC, Hsu JL, Wang SJ, et al. Language background in early life may be related to neuropsychiatry symptoms in patients with Alzheimer disease[J]. BMC Geriatr, 2017, 17(1): 50

[2] Mü ller J, Chan K, Myers JN. Association Between Exercise Capacity and Late Onset of Dementia, Alzheimer Disease, and Cognitive Impairment[J]. Mayo Clin Proc, 2017, 92(2): 211-217

[3] Szeto JY, Lewis SJ. Current Treatment Options for Alzheimer's Disease and Parkinson's Disease Dementia[J]. Curr Neuropharmacol, 2016, 14(4): 326-338

[4] Wang X, Li GJ, Hu HX, et al. Cerebral mTOR signal and pro-inflammatory cytokines in Alzheimer's disease rats [J]. Transl Neurosci, 2016, 7(1): 151-157

[5] Wu WY, Dai YC, Li NG, et al. Novel multitarget-directed tacrine derivatives as potential candidates for the treatment ofAlzheimer's disease[J]. J Enzyme Inhib Med Chem, 2017, 32(1): 572-587

[6] Wang ZY, Liu JG, Li H, et al. Pharmacological Effects of Active Components of Chinese Herbal Medicine in the Treatment ofAlzheimer's Disease: A Review [J]. Am J Chin Med, 2016, 44(8): 1525-1541

[7] Kudoh C, Arita R, Honda M, et al. Effect of ninjin'yoeito, a Kampo (traditional Japanese) medicine, on cognitive impairment and depression in patients with Alzheimer's disease: 2 years of observation[J]. Psychogeriatrics, 2016, 16(2): 85-92

[8] Grubman A, Kanninen KM, Malm T. Multitasking Microglia and Alzheimer's Disease: Diversity, Tools and Therapeutic Targets [J]. J Mol Neurosci, 2016, 60(3): 390-404

[9] May BH, Feng M, Zhou IW, et al. Memory Impairment, Dementia, and Alzheimer's Disease in Classical and Contemporary Traditional Chinese Medicine[J]. J Altern Complement Med, 2016, 22(9):695-705

[10] Wang Y, Yang G, Gong J, et al. Ginseng for Alzheimer's Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials[J]. Curr Top Med Chem, 2016, 16(5): 529-536

[11] Larner AJ. Converting cognitive screening instrument test scores to MMSE scores: regression equations[J]. Int J Geriatr Psychiatry, 2017, 32(3): 351-352

[12] Nguyen KH, Mulhern B, Kularatna S, et al. Developing a dementia-specific health state classification system for a new preference-based instrument AD-5D [J]. Health Qual Life Outcomes, 2017, 15(1): 21

[13] Issac TG, Chandra SR, Gupta N, et al. Autonomic dysfunction: A comparative study of patients with Alzheimer's and frontotemporaldementia-A pilot study [J]. J Neurosci Rural Pract, 2017, 8(1): 84-88

[14] Hwang TY, Ahn IS, Kim S, et al.Efficacy of Galantamine on Cognition in Mild-to-Moderate Alzheimer's Dementia after Failure to Respond to Donepezil[J]. Psychiatry Investig, 2016, 13(3): 341-348

[15] Blautzik J, Keeser D, Paolini M, et al. Functional connectivity increase in the default-mode network of patients with Alzheimer's diseaseafter long-term treatment with Galantamine [J]. Eur Neuropsychopharmacol, 2016, 26(3): 602-613

[16] Nakano Y, Matsuzono K, Yamashita T, et al. Long-Term Efficacy of Galantamine in Alzheimer's Disease: The Okayama Galantamine Study (OGS)[J]. J Alzheimers Dis, 2015, 47(3): 609-617

[17] Li L, Zhang L, Yang CC. Multi-Target Strategy and Experimental Studies of Traditional Chinese Medicine for Alzheimer's Disease Therapy[J]. Curr Top Med Chem, 2016, 16(5): 537-548

[18] Cheng XR, Cui XL, Zheng Y, et al. A Co-Module Regulated by Therapeutic Drugs in a Molecular Subnetwork of Alzheimer's DiseaseIdentified on the Basis of Traditional Chinese Medicine and SAMP8 Mice[J]. Curr Alzheimer Res, 2015,12(9): 870-885

[19] Cheung TS, Song TH, Ng TB, et al. Therapeutic Effects of Herbal Chemicals in Traditional Chinese Medicine on Alzheimer's Disease [J]. Curr Med Chem, 2015, 22(19): 2392-2403

[20] Moussa C, Hebron M, Huang X, et al. Resveratrol regulates neuro-inflammation and induces adaptive immunity in Alzheimer's disease [J]. J Neuroinflammation, 2017, 14(1): 1

[21] Alsadany MA, Shehata HH, Mohamad MI, et al. Histone deacetylases enzyme, copper, and IL-8 levels in patients with Alzheimer's disease [J]. Am J Alzheimers Dis Other Demen, 2013, 28(1): 54-61

[22] Cheng X, Shen Y, Li R. Targeting TNF: a therapeutic strategy for Alzheimer's disease[J]. Drug Discov Today, 2014, 19(11): 1822-1827

[23] Subhadra B, Schaller K, Seeds NW. Neuroserpin up-regulation in the Alzheimer's disease brain is associated with elevated thyroid hormone receptor-β1 and HuD expression [J]. Neurochem Int, 2013, 63 (5): 476-481

[24] Ishida E, Hashimoto K, Okada S, et al. Thyroid hormone receptor and liver X receptor competitively up-regulate human selective Alzheimer's disease indicator-1 gene expression at the transcriptional levels[J]. Biochem Biophys Res Commun, 2013, 432(3): 513-518

(上接第 3966 页)

[29] Cordovani L, Cordovani D. A literature review on observational learning for medical motor skills and anesthesia teaching [J]. Advances in Health Sciences Education, 2015, 21(5): 1113-1121

[30] Hernńndez-Palazón J, Izura V, Fuentes-García D, et al. Comparison of the effects of propofol and sevoflurane combined with remifentanil on transcranial electric motor-evoked and somatosensory-evoked potential monitoring during brainstem surgery [J]. Journal of Neurosurgical Anesthesiology, 2015, 27(4): 282-288

[31] Tsikas D, Jordan J, Engeli S. Blood pressure-lowering effects of propofol or sevoflurane anaesthesia are not due to enhanced nitric oxide formation or bioavailability [J]. British Journal of Clinical Pharmacology, 2015, 79(6): 1030-1033