

doi: 10.13241/j.cnki.pmb.2020.10.020

右美托咪定治疗老年精神病患者无抽搐电休克的临床效果分析*

张娜娜¹ 孔敏² 王成东³ 刘昊昊⁴ 童柱⁵ 李斌⁶ 武静茹^{1Δ}

(1 徐州医科大学麻醉学院 江苏 徐州 221004; 2 嘉兴学院附属第一医院麻醉科 浙江 嘉兴 314000;

3 徐州市东方人民医院强制科 江苏 徐州 221004; 4 徐州市东方人民医院电休克室 江苏 徐州 221004;

5 徐州市东方人民医院精神六科 江苏 徐州 221004; 6 徐州市东方人民医院老年科 江苏 徐州 221004)

摘要 目的:探讨右美托咪定治疗老年精神病患者无抽搐电休克的临床效果。**方法:**选择 2015 年 9 月~2019 年 2 月在徐州医科大学(本院)进行无抽搐电休克治疗的老年精神病患者 60 例,根据随机数字表法将其分为右美托咪定组与对照组,每组各 30 例。两组都给予丙泊酚静脉注射麻醉,电休克治疗前 10 min 右美托咪定组缓慢推注右美托咪定 0.2 μg/kg(20 mL),对照组推注 20 mL 的生理盐水,记录和比较两组的麻醉效果与患者生命体征的波动情况。**结果:**右美托咪定组的丙泊酚用量、意识恢复时间与定向力恢复时间都显著低于或短于对照组($P<0.05$)。两组麻醉前、无抽搐电休克治疗 20 min 的收缩压、舒张压、心率都处于正常范围内,组内与组间对比差异均无统计学意义($P>0.05$)。两组治疗前后血清 IgA、IgM 值变化比较差异均无统计学意义($P>0.05$)。右美托咪定组治疗期间的烦躁、惊恐发作、苏醒延迟、头痛、恶心呕吐等不良反应发生率为 6.7%,显著低于对照组(36.7%, $P<0.05$)。**结论:**右美托咪定用于治疗老年精神病患者无抽搐电休克治疗不会对机体的生命体征与免疫功能产生负面影响,且能减少丙泊酚用量,提高麻醉效果,安全性更高。

关键词:右美托咪定;老年精神病;无抽搐电休克治疗;生命体征;免疫功能

中图分类号:R749 **文献标识码:**A **文章编号:**1673-6273(2020)10-1889-04

Analysis of the Clinical effect of Dexmedetomidine on the Elderly Mental Illness Patients Without Electroconvulsive Therapy*

ZHANG Na-na¹, KONG Min², WANG Cheng-dong³, LIU Hao-hao⁴, TONG Zhu⁵, LI Bin⁶, WU Jing-ru^{1Δ}

(1 Department of Anesthesiology, Xuzhou Medical University, Xuzhou, Jiangsu, 221004, China;

2 Department of Anesthesiology, The First Affiliated Hospital of Jiaxing University, Jiaxing, Zhejiang, 314000, China;

3 Department of Compulsory, Xuzhou Oriental People's Hospital, Xuzhou, Jiangsu, 221004, China;

4 Xuzhou City Oriental People's Hospital Electric Shock Room, Xuzhou, Jiangsu, 221004, China;

5 Xuzhou Oriental People's Hospital, Sixth Division of Science, Xuzhou, Jiangsu, 221004, China;

6 Department of Geriatrics, Xuzhou Oriental People's Hospital, Xuzhou, Jiangsu, 221004, China)

ABSTRACT Objective: To investigate the clinical effect of dexmedetomidine on the elderly mental illness patients without electroconvulsive therapy. **Methods:** 60 elderly mental illness patients who underwent with electroconvulsive therapy in our hospital from September 2015 to February 2019 were enrolled in this study. They were divided into divided into the dexmedetomidine group and control group accorded to the random number table method, 30 cases in each group. The two groups were given intravenous anesthesia with propofol, and the dexmedetomidine group was given a short bolus injection with dexmedetomidine 0.2 μg/kg (20 mL) 10 min before electroconvulsive therapy, and the control group was bolused with 20 mL of normal saline. Record and compare the anesthetic effect of the two groups and the vital signs fluctuations. **Results:** The amount of propofol, recovery time and recovery time of the dexmedetomidine group were significantly lower or shorter than in the control group ($P<0.05$). The systolic blood pressure, diastolic blood pressure and heart rate of the two groups before anesthesia and without electroconvulsive shock for 20 min were within the normal range. There was no significant difference between the two groups ($P>0.05$). There were no significant differences in serum IgA and IgM between the two groups before and after treatment ($P>0.05$). The incidence of adverse reactions such as irritability, panic attacks, delayed recovery, headache, nausea and vomiting during the dexmedetomidine group were 6.7%, which was significantly lower than of the control group (36.7%, $P<0.05$). **Conclusion:** Dexmedetomidine for the treatment of elderly mental illness patients without convulsion electroconvulsive therapy will not have a negative impact on the vital signs and immune function of the body, can reduce the amount of propofol, improve the anesthetic effect, and have higher safety.

* 基金项目:浙江省公益技术应用研究计划项目(LGD19C090001)

作者简介:张娜娜(1983-),女,本科,副主任医师,研究方向:临床麻醉,电话:15950664287, E-mail:15950664287@163.com

Δ 通讯作者:武静茹(1971-),女,硕士,副教授,研究方向:疼痛的基础研究,电话:13685146169, E-mail:Wujingr5810@sina.com

(收稿日期:2019-09-05 接受日期:2019-09-30)

Key words: Dexmedetomidine; Senile psychosis; Electroconvulsive therapy without convulsion; Vital signs; Immune function
Chinese Library Classification(CLC): R749 **Document code:** A
Article ID: 1673-6273(2020)10-1889-04

前言

老年精神病主要表现为情绪低落、意志活动减退、思维迟缓、睡眠障碍,严重者可出现反复自杀等^[1]。由于各种因素的影响,该病在我国的发病率逐年增加,且具有高复发、高致残等特征^[2,3]。口服药物为老年精神病的主要治疗手段,但具有明显起效延迟等缺点,且长期使用存在一定的不良反应^[4]。

无抽搐电休克是当前治疗老年精神病的一种快速有效的物理方法,可迅速改善患者症状,降低自杀风险,减少患者的复发几率^[5,6]。但由于无抽搐电休克治疗刺激较大,可诱发患者心率异常等情况,威胁患者生命,因此在临床上需要进行合理麻醉^[7,8]。当前无抽搐电休克在麻醉中常用丙泊酚复合氯胺酮静脉全麻,具有苏醒快、代谢完全、诱导迅速、在体内不易蓄积等优点,但氯胺酮的疗效持续时间比较短,具有较强的药物滥用风险^[9,10]。

右美托咪定是一种新型的高选择性的肾上腺素能受体激动剂,具有半衰期较短、分布容积大、与蛋白结合率高等特点^[11,12]。该药具有镇静、抑制交感神经活性、降低应激反应等作用,

可以降低静脉麻醉药如丙泊酚的用量^[13,14],但在无抽搐电休克治疗的应用效果尚不完全明确。因此,本研究主要探讨了右美托咪定用于老年精神病患者无抽搐电休克治疗的临床效果,结果报道如下。

1 资料与方法

1.1 研究对象

选择 2015 年 9 月至 2019 年 2 月在本院进行无抽搐电休克治疗的老年精神病患者 60 例作为研究对象,纳入标准:符合 WHO《疾病和有关健康问题的国际统计分类》第 10 次修订本(ICD-10)抑郁症、躁狂症、精神分裂症、分裂情感障碍的诊断标准;副主任及其以上职称医生建议行无抽搐电休克治疗;年龄 60-70 岁;无身体严重合并症;签署知情同意书;医院伦理委员会批准了此次研究。排除标准:伴有严重的躯体疾病者;伴有其他脑器质性疾病者;器质性精神障碍及精神发育迟滞等其他精神疾患;无抽搐电休克治疗禁忌症患者。

根据随机数字表法将所有患者分为两组,每组各 30 例,两组一般资料比较差异无统计学意义($P>0.05$)。见表 1。

表 1 两组一般资料的对比
 Table 1 Comparison of the general data between the two groups

Groups	n	Gender(Male /Female)	Age(old)	BIM(kg/m ²)	Course of disease (year)	Type of disease (depression / mania / schizophrenia / schizoaffective disorder)
Dexmedetomidine group	30	17/13	68.22± 1.42	22.77± 2.19	3.09± 0.44	10/6/8/6
Control group	30	18/12	68.04± 1.03	22.34± 1.93	3.11± 0.22	12/6/7/5

1.2 麻醉方法

患者在治疗前禁食、禁饮 8 h。患者进入无抽搐电休克治疗室,平卧,连接多功能监护仪,监测患者的生命体征,头部接无抽搐电休克治疗仪。开放静脉液路,电休克治疗前 10 min 右美托咪定缓慢推注右美托咪定(江苏星辰医药有限公司规格,批号 14041132) 0.2 μg/kg (20 mL);对照组推注 20 mL 的生理盐水。

两组均静脉匀速注射丙泊酚(四川国瑞公司,批号 1405233),至呼之不应、睫毛反射消失时,快速静脉推注琥珀胆碱(上海旭东海普公司,批号 20100306) 0.7 mg/kg,面罩正压通气,待全身肌肉松弛后,移开面罩,将牙托放入口中,行电休克治疗。麻醉均由同一人完成。完成治疗后立即取出牙托,同时给予患者面罩通气,必要时辅助呼吸直至呼吸恢复,待患者自主呼吸恢复,意识清醒,血流动力学稳定后可到观察室。

每组患者隔日 1 次,每周 3 次进行无抽搐电休克治疗,两周为 1 个疗程,每位患者共进行 6 次无抽搐电休克治疗。

1.3 观察指标

(1)两组的丙泊酚用量、意识恢复时间与定向力恢复时间。(2)两组麻醉前、无抽搐电休克治疗 20 min 的收缩压、舒张压与心率等生命体征指标。(3)两组治疗中出现的不良反应,如烦躁、

惊恐发作、苏醒延迟、头痛、恶心呕吐等。(4)治疗前后各抽取患者的空腹肘正中静脉血 5 ml 于,立即放入冰箱冷藏,3000 转/min 离心后,由检验科人员检测血清 IgA 与 IgM 水平。

1.4 统计学方法

选择 SPSS20.00 软件进行数据分析,计量数据以($\bar{x} \pm s$)表示,组间对比采用 t 检验(符合正态分布)或秩和检验(不符合正态分布);而计数数据以频数或者百分比表示,组间对比采用 χ^2 检验,以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 两组麻醉效果的对比

右美托咪定组的丙泊酚用量、意识与定向力恢复时间等都显著少于(短于)对照组($P<0.05$),见表 2。

2.2 两组不同时点生命体征变化的对比

两组麻醉前、无抽搐电休克治疗 20 min 的收缩压、舒张压、心率都处于正常范围内,组内与组间对比差异无统计学意义($P>0.05$),见表 3。

2.3 两组治疗前后免疫指标的变化对比

两组治疗前后血清 IgA、IgM 值变化差异在组间及组内比较差异均无统计学意义($P>0.05$),见表 4。

表 2 两组麻醉效果的对比($\bar{x} \pm s$)Table 2 Comparison of the anesthetic effects between two groups($\bar{x} \pm s$)

Groups	n	Propofol dosage(mg)	Conscious recovery time(s)	Recovery time(s)
Dexmedetomidine group	30	70.33± 8.02*	260.02± 12.94*	443.82± 15.00*
Control group	30	93.52± 6.03	278.09± 20.94	467.98± 14.78

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

表 3 两组不同时点生命体征变化的对比($\bar{x} \pm s$)Table 3 Comparison of the changes of vital signs between two groups at different time points($\bar{x} \pm s$)

Groups	n	SBP(mmHg)		DBP(mmHg)		Heart rate (times / min)	
		Before anesthesia	At 20 minutes after treatment	Before anesthesia	At 20 minutes after treatment	Before anesthesia	At 20 minutes after treatment
Dexmedetomidine group	30	123.98± 12.99	124.99± 13.77	67.82± 5.91	68.02± 3.46	80.12± 10.77	83.02± 5.39
Control group	30	124.09± 13.66	125.09± 12.66	67.00± 4.14	68.32± 2.19	80.09± 8.23	81.00± 7.98

表 4 两组治疗前后免疫指标变化的对比($\bar{x} \pm s$)Table 4 Comparison of the changes of immune indicators before and after treatment($\bar{x} \pm s$)

Groups	n	IgA	IgM
Dexmedetomidine group	30	-0.075± 0.003	-0.078± 0.002
Control group	30	-0.120± 0.010	-0.132± 0.003

2.4 两组不良反应发生情况的对比

右美托咪定组治疗期间的烦躁、惊恐发作、苏醒延迟、头

痛、恶心呕吐等不良反应发生率为 6.7%, 显著低于对照组(36.7%, $P < 0.05$)。见表 5。

表 5 两组治疗期间不良反应发生情况的对比[例(%)]

Table 5 Comparison of the incidence of adverse reactions between two groups [n(%)]

Groups	n	Irritability	Panic attack	Awakening delay	Headache	Feel sick and vomit	Total
Dexmedetomidine group	30	1	0	0	0	1	2(6.7%)*
Control group	30	2	3	2	1	3	11(36.7%)

3 讨论

当前精神病所造成的经济负担约占所有疾病负担的 5% 左右,特别是老年精神病与自杀关系非常密切,研究显示大约有 2/3 的老年精神病患者曾有过自杀意念和行为,其中约有 20% 的患者有可能因自杀而导致死亡^[15]。该病的具体发病机制还不明确,涉及细胞因子学说、社会心理因素、神经营养假说、下丘脑 - 垂体 - 肾上腺轴功能失调学说等^[16,17]。

无抽搐电休克治疗是指在传统电休克基础上经过改良,利用麻醉技术让患者在安睡和肌肉完全松弛的状态下,运用多参数、多功能监测技术进行电休克治疗^[18]。该方法作为标准化物理方法的一种,对麻醉药物的要求高^[19]。丙泊酚作为临床中常用的麻醉药物,一般用于肌肉松弛、镇痛等,短时间内可让患者进入睡眠,经过肝功能代谢,过程平稳,但该药物在应用可引起一定的应激反应,导致患者的血压、心率产生异常^[20]。右美托咪定为肾上腺素- α_2 激动剂,镇静效果显著,且能减少呼吸抑制的发生率^[21]。本研究显示右美托咪定组的丙泊酚用量、意识恢复时间与定向力恢复时间等都显著少于(短于)对照组;两组麻醉前、无抽搐电休克治疗 20 min 的收缩压、舒张压、心率都处

于正常范围内,表明右美托咪定有很好的安全性,且可减少丙泊酚用量。右美托咪定是一种高选择性肾上腺素受体激动剂,能抑制交感神经活性,可以控制传导通路上交感神经递质的释放,从而提高麻醉效果^[22]。

无抽搐电休克治疗的作用机制可能是通过 5-羟色胺、去甲肾上腺素和多巴胺神经传递,促进神经营养因子的释放,提高受体敏感度,改善下丘脑 - 垂体 - 肾上腺轴功能,促进神经元再生^[23]。但电休克时诱发的电抽搐会产生强烈的伤害性刺激,引起体内儿茶酚胺分泌增加,导致免疫功能紊乱等^[24]。有研究显示精神病患者的血清体液免疫指标也会随病情发生变化,随着抑郁症状的缓解,患者的 IgA、IgM 会降低^[25]。本研究中,两组治疗前后血清 IgA、IgM 值变化差异无统计学意义,提示右美托咪定的应用并不会影响机体的免疫功能。特别是右美托咪定与肾上腺素能受体结合可降低血浆皮质醇及儿茶酚胺的浓度,改善患者血流动力学变化,减轻患者术中应激反应减少耗氧,有利于机体免疫功能保持稳定^[26]。无抽搐电休克治疗作为临床治疗手段的一种,在治疗前需要给予患者一定剂量的肌肉松弛药物,让患者意识消失,进而实现治疗的目的^[27,28]。为此在麻醉目的需要减轻电抽搐所致不良反应,稳定心血管功能,提高电

休克疗效^[29-31]。本研究显示右美托咪定组治疗期间的烦躁、惊恐发作、苏醒延迟、头痛、恶心呕吐等不良反应发生率为 6.7%，显著低于对照组，表明右美托咪定的应用能减少不良反应的发生。但本研究的样本量较少，部分患者的依从性不佳，且观察时间比较短，需在后续研究中深入分析。

总之，右美托咪定用于治疗老年精神病患者无抽搐电休克治疗不会对机体的生命体征与免疫功能产生负面影响，且能减少丙泊酚用量，提高麻醉效果，安全性更高。

参考文献(References)

- [1] Acharya H, Gaur A, Kunigiri G. Anesthetic and psychiatric implications of accidental awareness under general anesthesia during electroconvulsive therapy[J]. Saudi J Anaesth, 2018, 12(2): 335-338
- [2] Carspecken CW, Borisovskaya A, Lan ST, et al. Ketamine Anesthesia Does Not Improve Depression Scores in Electroconvulsive Therapy: A Randomized Clinical Trial [J]. J Neurosurg Anesthesiol, 2018, 30(4): 305-313
- [3] Estime SR, Berg SM, Henry ME. Clozapine-Associated Aspiration During Electroconvulsive Therapy[J]. J ect, 2019, 35(2): 133-134
- [4] Franklin AD, Sobey JH, Stickles E. Pediatric Electroconvulsive Therapy: An Anesthesiologist's Perspective [J]. Child Adolesc Psychiatr Clin N Am, 2019, 28(1): 21-32
- [5] Gamble JJ, Bi H, Bowen R, et al. Ketamine-based anesthesia improves electroconvulsive therapy outcomes: a randomized-controlled study [J]. Can J Anaesth, 2018, 65(6): 636-646
- [6] Grover S, Sikka P, Saini S S, et al. Use of modified bilateral electroconvulsive therapy during pregnancy: A case series [J]. Indian J Psychiatry, 2017, 59(4): 487-492
- [7] Guerrier G, Gianni MA. The effectiveness of BIS monitoring during electro-convulsive therapy: A systematic review and meta-analysis[J]. J Clin Anesth, 2019, 58: 100-104
- [8] Jagtiani A, Khurana H, Malhotra N. Comparison of efficacy of ketamine versus thiopentone-assisted modified electroconvulsive therapy in major depression[J]. Indian J Psychiatry, 2019, 61(3): 258-264
- [9] Kudling R, Hartmut Schoels W, Kuhn J. Tako-Tsubo Cardiomyopathy during a series of Electroconvulsive Therapy (ECT) applications: A case report, systematic literature research and discussion of specific risk factors[J]. Fortschr Neurol Psychiatr, 2018, 86(11): 699-710
- [10] Lemasson M, Rochette L, Galvao F, et al. Pertinence of Titration and Age-Based Dosing Methods for Electroconvulsive Therapy: An International Retrospective Multicenter Study [J]. J ect, 2018, 34(4): 220-226
- [11] Medda P, Soccì C, Toni C, et al. Neurological Deficits After Lithium Intoxication in a Bipolar Woman With Catatonia Treated with ECT [J]. J Clin Psychopharmacol, 2018, 38(4): 405-407
- [12] Mickey BJ, White AT, Arp AM, et al. Propofol for Treatment-Resistant Depression: A Pilot Study[J]. Int J Neuropsychopharmacol, 2018, 21(12): 1079-1089
- [13] Palanca B JA, Maybrier HR, Mickle AM, et al. Cognitive and Neurophysiological Recovery Following Electroconvulsive Therapy: A Study Protocol[J]. Front Psychiatry, 2018, 9: 171-204
- [14] Rantamaki T. TrkB neurotrophin receptor at the core of antidepressant effects, but how?[J]. Cell Tissue Res, 2019, 377(1): 115-124
- [15] Shirozu K, Murayama K, Karashima Y, et al. The relationship between seizure in electroconvulsive therapy and pupillary response using an automated pupillometer[J]. J Anesth, 2018, 32(6): 866-871
- [16] Shirozu K, Murayama K, Yamaura K. Pupillary Response as Assessment of Effective Seizure Induction by Electroconvulsive Therapy[J]. J Vis Exp, 2019, 32(2): 866-871
- [17] Smith-Martinez LA, Chatham LN, Muthukanagaraj P. Intramuscular Ketamine Protocol as an Alternative to Physical Restraints for Electroconvulsive Therapy Administration in a Psychotic Patient: A Case Report[J]. J ect, 2019, 35(1): e1-e2
- [18] Taylor R, Hadzi-Pavlovic D, Nikolin S, et al. The anaesthetic-ECT time interval with thiopentone-Impact on seizure quality [J]. J Affect Disord, 2019, 252: 135-140
- [19] Franklin AD, Sobey JH, Stickles ET. Anesthetic considerations for pediatric electroconvulsive therapy[J]. Paediatr Anaesth, 2017, 27(5): 471-479
- [20] Kumar R, Sinha R, Kundu R, et al. Role of dexmedetomidine for sedation in a patient with schizophrenia for strabismus surgery[J]. Indian J Anaesth, 2016, 60(11): 856-857
- [21] Vanicek T, Kranz GS, Vyssoki B, et al. Acute and subsequent continuation electroconvulsive therapy elevates serum BDNF levels in patients with major depression[J]. Brain Stimul, 2019, 12(4): 1041-1050
- [22] Jonker Y, Rutten DJ, Van Exel ER, et al. Transnasal Humidified Rapid-Insufflation Ventilatory Exchange During Electroconvulsive Therapy: A Feasibility Study[J]. J ect, 2019, 35(2): 110-114
- [23] Karameh FN, Nahas Z. A Blind Module Identification Approach for Predicting Effective Connectivity Within Brain Dynamical Subnetworks[J]. Brain Topogr, 2019, 32(1): 28-65
- [24] Kessler U, Björke-Bertheussen J, Soreide E, et al. Remifentanyl as an adjunct to anaesthesia for electroconvulsive therapy fails to confer long-term benefits[J]. Br J Anaesth, 2018, 121(6): 1282-1289
- [25] Kohtala S, Theilmann W, Rosenholm M, et al. Cortical Excitability and Activation of TrkB Signaling During Rebound Slow Oscillations Are Critical for Rapid Antidepressant Responses [J]. Mol Neurobiol, 2019, 56(6): 4163-4174
- [26] Venkataramaiah S, Umamaheswara Rao GS, Kamath S, et al. Duration of Pupillary Unresponsiveness to Light: A Physiological Adjunct to Electroencephalography and Motor Seizure Duration Monitoring During Electroconvulsive Therapy[J]. J ect, 2018, 34(4): e61-e64
- [27] Wajima Z. Anesthesia Management of Special Patient Populations Undergoing Electroconvulsive Therapy: A Review [J]. J Nippon Med Sch, 2019, 86(2): 70-80
- [28] Zhang F, Huang G, Zhu X. Effect of different charges of modified electroconvulsive seizure on the cognitive behavior in stressed rats: Effects of GluR1 phosphorylation and CaMKIIalpha activity [J]. Exp Ther Med, 2019, 17(1): 748-758
- [29] Moshiri E, Modir H, Bagheri N, et al. Premedication effect of dexmedetomidine and alfentanil on seizure time, recovery duration, and hemodynamic responses in electroconvulsive therapy [J]. Ann Card Anaesth, 2016, 19(2): 263-268
- [30] Sharan R, Bala N, Attri JP, et al. A comparison of dexmedetomidine with propofol versus esmolol with propofol to attenuate the hemodynamic stress responses after electroconvulsive therapy [J]. Indian J Psychiatry, 2017, 59(3): 366-369
- [31] Zheng W, Li X H, Zhu XM, et al. Adjunctive ketamine and electroconvulsive therapy for major depressive disorder: A meta-analysis of randomized controlled trials[J]. J Affect Disord, 2019, 250: 123-131