

doi: 10.13241/j.cnki.pmb.2020.20.010

布南色林联合团体心理治疗慢性精神分裂症的疗效及对认知功能、社会功能和服药依从性的影响*

宋慧娟¹ 沈 灏² 粟幼嵩¹ 王晓良¹ 潘令仪^{2Δ}

(1 上海交通大学医学院附属精神卫生中心门诊部 上海 200030;

2 上海交通大学医学院附属精神卫生中心心理测量室 上海 200030)

摘要 目的:探讨布南色林联合团体心理治疗慢性精神分裂症(SZ)的疗效,分析其对认知功能、社会功能和服药依从性的影响。方法:选取 124 例慢性 SZ 患者随机分为对照组和观察组,对照组口服布南色林治疗,观察组在对照组基础上加以团体心理治疗,疗程均为 2 个月。治疗后,采用阳性与阴性症状量表(PANSS)和临床疗效总评量表-疾病严重程度(CGI-SI)评估两组患者治疗后的疗效,采用威斯康星卡片分类测验(WCST)评估两组患者治疗前后的认知功能,采用个人和社会功能量表(PSP)评估两组患者治疗前后的社会功能,评定两组患者治疗后的服药依从性。结果:治疗后,两组患者 PANSS 阳性症状、阴性症状、一般精神病理评分以及总评分均低于治疗前,且观察组低于对照组($P<0.05$);两组患者 CGI-SI 评分均低于治疗前,且观察组低于对照组($P<0.05$);两组患者 WCST 总应答数评分均高于治疗前,且观察组高于对照组($P<0.05$);两组患者 PSP 总评分均高于治疗前,且观察组高于对照组($P<0.05$);观察组服药依从性优于对照组($P<0.05$)。结论:布南色林联合团体心理治疗较单一布南色林治疗慢性 SZ 的治疗效果更好,能更好地提高患者的认知功能、社会功能以及服药依从性,值得临床借鉴推广。

关键词:慢性精神分裂症;布南色林;团体心理治疗;疗效;认知功能;社会功能;服药依从性

中图分类号:R749.3;R395 文献标识码:A 文章编号:1673-6273(2020)20-3849-04

Efficacy of Blonanserin Combined with Group Psychotherapy on Chronic Schizophrenia and Its Effects on Cognitive Function, Social Function and Drug Compliance*

SONG Hui-juan¹, SHEN Hao¹, SU You-song¹, WANG Xiao-liang¹, PAN Ling-yi^{2Δ}

(1 Department of Outpatient, Mental Health Center Affiliated to Medical College of Shanghai Jiaotong University, Shanghai, 200030, China;

2 Psychometric Room, Mental Health Center Affiliated to Medical College of Shanghai Jiaotong University, Shanghai, 200030, China)

ABSTRACT Objective: To explore the efficacy of blonanserin combined with group psychotherapy on chronic schizophrenia (SZ), and analyze its effects on cognitive function, social function and drug compliance. **Methods:** 124 patients with chronic SZ were selected and randomly divided into control group and observation group, the control group were treated with blonanserin orally, the observation group were treated with group psychotherapy on the basis of the control group, the courses of treatment were both 2 months. After treatment, positive and negative symptom scale (PANSS) and clinical global impression - severity of illness (CGI-SI) were used to evaluate the efficacy of patients in the two groups after treatment, wisconsin card sorting test (WCST) was used to evaluate cognitive function of patients in the two groups before and after treatment, personal and social performance scale (PSP) was used to evaluate the social function of patients in the two groups before and after treatment, drug compliance of patients in the two groups was evaluated after treatment. **Results:** After treatment, the positive symptoms, negative symptoms, general psychopathology scores and total scores of PANSS of patients in the two groups were all lower than those of before treatment, and the observation group were lower than those of the control group ($P<0.05$). The scores of CGI-SI in the two groups were all lower than those of before treatment, and the observation group were lower than those of the control group ($P<0.05$). The scores of WCST total number of answers in the two groups were higher than those of before treatment, and the observation group were higher than those of the control group ($P<0.05$). The total scores of PSP in the two groups were higher than those of before treatment, and the observation group were higher than those of the control group ($P<0.05$). Drug compliance in the observation group was better than that of the control group ($P<0.05$). **Conclusion:** Blonanserin combined with group psychotherapy is better than single blonanserin therapy for chronic SZ, which can better improve the cognitive function, social function and drug compliance of patients, it's worthy of clinical reference and promotion.

Key words: Chronic schizophrenia; Blonanserin; Group psychotherapy; Efficacy; Cognitive function; Social function; Drug compliance

Chinese Library Classification(CLC): R749.3; R395 **Document code:** A

Article ID: 1673-6273(2020)20-3849-04

* 基金项目:上海市科委中医引导项目(16401934800)

作者简介:宋慧娟(1979-),女,本科,心理治疗师,研究方向:心理咨询与治疗,E-mail: wangluo2019@126.com

Δ 通讯作者:潘令仪(1973-),男,硕士,副主任医师,研究方向:精神卫生,E-mail: plymail@163.com

(收稿日期:2020-05-07 接受日期:2020-05-30)

前言

精神分裂症(schizophrenia, SZ)是一种常见的慢性精神障碍疾病,其病因尚不十分明确,复发率高、致残率高,主要涉及思维、情感、意志、行为等多方面的障碍,严重者可出现认知功能、社会功能损害等神经系统病变^[1]。SZ患者认知功能损害常出现在发病早期,表现为对计划难以形成、制定和执行,对问题难以发现和解决,对任务难以处理和执行等^[2]。SZ患者的社会功能主要包括职业、家庭、个人生活、责任心和计划性等方面^[3]。慢性SZ患者一般以阴性症状为主,如思维贫乏、情感淡漠、意志缺乏、社会性退缩、与人交流少^[4]。慢性SZ患者主要靠口服药物治疗,常用的典型抗精神病药物对器官伤害较大,容易导致肾功能异常等并发症^[5],加上典型抗精神病药物大多治疗时间长、药效慢,患者服药依从性较差,治疗效果并不理想^[6]。布南色林作为一种新型的非典型抗精神病药物,药效快、安全性高、不良反应较少^[7]。团体心理治疗是指SZ患者在团体交际中,习得新思路、新行为,改善社会功能、认知功能、阴性症状,恢复正常精神状态的过程^[8,9]。因此,本研究针对慢性SZ患者,选用布南色林作为治疗药物,并联合团体心理治疗,探讨其疗效,并分析该治疗方法对患者认知功能、社会功能和服药依从性的影响,以期为临床治疗慢性SZ提供参考依据。

1 资料与方法

1.1 临床资料

选取2018年3月至2019年12月我院门诊的慢性SZ患者124例,纳入标准:与《ICD-10精神与行为障碍分类》^[10]中的诊断标准符合;入组前1个月未服用其它抗精神药物。排除标准:合并有严重的心、肝等其它器质性病变患者;合并其它精神疾病患者;有沟通障碍,与医护人员无法正常沟通者。按随机数字表法分为对照组和观察组各62例。对照组男性、女性的例数分别为37例、25例;年龄23~61岁,平均 (39.87 ± 7.09) 岁;病程2~8年,平均 (3.15 ± 2.36) 年。观察组男性、女性的例数分别为35例、27例;年龄19~58岁,平均 (39.73 ± 7.22) 岁;病程1~8年,平均 (3.26 ± 2.78) 年。对比两组一般资料无差异($P > 0.05$)。

1.2 研究方法

对照组采用布南色林(洛珊,住友制药有限公司,国药准字J20170045)进行治疗。服用方法:口服用药,用药次数为2次/d,用药剂量为8 mg/次。治疗期间,根据患者病情合理调整用药次数和用药剂量,用药剂量控制在8~16 mg/d,疗程2个月。2个月治疗过程中,脱落5例。最终,对照组共纳入57例患者。

观察组在对照组基础上加以团体心理治疗。由心理治疗师和精神科医生共同实施,具体内容:(1)每周开展1次SZ相关健康教育知识讲座,时间为1h;②SZ知识科普:用简单通俗的语言向患者及其家属介绍SZ的病因、预防、治疗及预后措施,并发放疾病小手册,增强团体对疾病的认识。向患者强调按时服药的重要性,团体成员之间要相互提醒服药,出现不良反应或其他异常症状时及时通知医生,遵医嘱服药。③正确认识自己:接受自己的疾病事实,自愿接受治疗,了解自己身份的多重性,调整到患者的角色,接纳包容自己。④学会管理情绪:患者

产生负面情绪时,选择正确的处理方式合理宣泄,主动思考产生负面情绪的原因,提高认知力。(2)每周举办1次团体活动,时间为1h;⑤相互认识:医生及团体成员进行简单自我介绍,相互认识,建立基础的社交关系。⑥沟通交流:医生提出问题,成员轮流依次回答,以提高患者的倾听及表达能力,并通过唱歌接龙、击鼓传花等小游戏,促进成员间相互沟通交流。⑦团队比赛:将团队成员分成多个小组进行比赛,如包饺子、叠衣服等,小组成员之间通过相互合作,互相鼓励,共同完成任务,以增强患者信心,促进社会功能的恢复,疗程2个月。2个月治疗过程中,脱落3例,最终,观察组共纳入59例患者。

1.3 观察指标

1.3.1 疗效判定 采用阳性与阴性症状量表(PANSS)^[11]、临床疗效总评量表-疾病严重程度(CGI-SI)^[12]评估两组患者治疗后的疗效。PANSS共30项,每条项目采用1~7级评分。CGI-SI采用0~7级评分。两者评分越低,疗效越好。

1.3.2 认知功能评估 于治疗前后采用威斯康星卡片分类测验(WCST)^[13]对两组患者的认知功能进行评估。WCST共有20个测量指标,本研究选取其中6个指标用来评估:总应答数、正确应答数、错误应答数、持续性错误数、非持续性错误数、完成分类数。评分越高,认知功能越好。

1.3.3 社会功能评估 采用个人和社会功能量表(personal and social performance scale, PSP)^[14]评估两组患者治疗前后的社会功能。PSP包括4个领域的功能:社会有益活动、个人和社会关系、自我照料、扰乱及攻击行为。每条项目采用1~6级评分,1~6分分别代表无、轻、中度、明显、严重、非常严重。评分越高,社会功能越好。

1.3.4 服药依从性 治疗后对比两组服药依从性(完全依从、部分依从、不依从)。完全依从:能按医嘱长期用药;部分依从:不能按医嘱维持用药,断续用药、自行减药或用药一段时间后停药;不依从:完全停药^[15]。

1.4 统计学方法

应用SPSS22.0统计软件处理,PANSS评分、CGI-SI评分等计量资料符合正态分布、方差齐性采用均数 $\pm$ 标准差($\bar{x} \pm s$)表示并行t检验。男女比例等计数资料采用(%)表示并行 χ^2 检验,患者服药依从性分布符合等级资料则采用秩检验。检验水准为 $\alpha = 0.05$ 。

2 结果

2.1 两组患者治疗前后疗效比较

两组治疗前PANSS评分对比无差异($P > 0.05$)。两组治疗后PANSS评分均较治疗前降低,且观察组较对照组降低($P < 0.05$)。见表1。治疗前,观察组、对照组患者CGI-SI评分分别为 (4.75 ± 2.81) 分、 (4.63 ± 2.72) 分,组间对比差异无统计学意义($P > 0.05$)。治疗后,观察组CGI-SI评分为 (2.37 ± 1.84) 分,低于对照组的 (3.59 ± 2.36) 分,差异有统计学意义($t = 3.111, P = 0.002$)。

2.2 两组患者治疗前后认知功能比较

两组治疗前WCST总应答数评分对比无差异($P > 0.05$)。两组治疗后WCST总应答数评分均较治疗前升高,且观察组较对照组升高($P < 0.05$)。见表2。

表 1 两组患者治疗前后 PANSS 评分比较(分, $\bar{x} \pm s$)Table 1 Comparison of PANSS scores of patients between the two groups before and after treatment(score, $\bar{x} \pm s$)

Groups	Positive symptoms		Negative symptoms		General psychopathology		PANSS total score	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group (n=57)	29.14± 5.23	17.96± 3.52*	35.20± 5.89	25.09± 4.38*	58.39± 11.24	36.33± 8.63*	123.30± 12.53	81.56± 8.82*
Observation group(n=59)	28.96± 5.32	16.32± 3.11*	35.42± 5.83	21.17± 3.53*	58.64± 11.36	31.75± 7.30*	123.75± 12.68	70.13± 7.62*
t	0.184	2.662	0.202	5.316	0.119	3.090	0.192	7.477
P	0.855	0.009	0.840	0.000	0.905	0.003	0.848	0.000

Notes: Compared with before treatment, * $P < 0.05$.表 2 两组患者治疗前后 WCST 评分比较(分, $\bar{x} \pm s$)Table 2 Comparison of WCST scores of patients between the two groups before and after treatment(score, $\bar{x} \pm s$)

Groups	Time	Correct answers	Wrong answers	Number of persistent errors	Number of non persistent errors	Number of completed classifications	Total number of answers
Control group (n=57)	Before treatment	28.53± 4.73	37.04± 5.80	16.23± 2.81	21.12± 3.49	5.14± 0.35	65.24± 12.51
	After treatment	37.09± 5.76	36.53± 5.61	16.52± 2.73	20.18± 2.87	5.48± 0.36	74.63± 12.72*
Observation group(n=59)	Before treatment	28.66± 4.24	37.41± 5.59	16.06± 3.01	21.39± 3.84	5.15± 0.38	65.83± 11.37
	After treatment	46.71± 8.84	41.73± 6.60	18.50± 3.45	23.48± 4.01	5.69± 0.31	88.34± 12.18**

Notes: Compared with before treatment, * $P < 0.05$, compared with the control group, # $P < 0.05$.

2.3 两组患者治疗前后社会功能比较

两组治疗前 PSP 总评分对比无差异($P > 0.05$)。两组治疗后 PSP 总评分均较治疗前升高,且观察组较对照组升高($P < 0.05$)。见表 3。表 3 两组患者治疗前后 PSP 评分比较(分, $\bar{x} \pm s$)Table 3 Comparison of PSP scores of patients between the two groups before and after treatment(score, $\bar{x} \pm s$)

Groups	Time	Social beneficial activities	Personal and social relations	Self care	Disturb and attack behaviors	Total PSP scores
Control group (n=57)	Before treatment	2.51± 0.82	2.74± 0.83	2.19± 0.85	1.95± 0.53	42.52± 8.35
	After treatment	3.59± 1.05	3.95± 1.11	2.91± 1.07	2.25± 0.65	56.24± 8.79*
Observation group (n=59)	Before treatment	2.56± 0.84	2.71± 0.73	2.25± 0.88	1.96± 0.54	42.91± 8.46
	After treatment	4.62± 1.32	4.80± 1.26	3.46± 1.13	2.57± 0.76	65.83± 8.90*#

Notes: Compared with before treatment, * $P < 0.05$, compared with the control group, # $P < 0.05$.

2.4 服药依从性比较

治疗后,观察组的服药依从性较对照组更优($P < 0.05$)。见

表 4。

表 4 两组患者治疗后服药依从性比较 例(%)

Table 4 Comparison of drug compliance of patients between the two groups after treatment n(%)

Groups	n	Full compliance	Partial compliance	Noncompliance
Control group	57	31(54.39)	15(26.31)	11(19.30)
Observation group	59	47(79.67)	9(15.25)	3(5.08)
U			9.322	
P			0.000	

3 讨论

SZ 是所有精神疾病中最常见的一种,临床上常表现为思维、情感、意识、行为等异常的综合征,严重时可能出现认知功能

障碍和社会功能障碍,甚至精神残疾^[17-19]。慢性 SZ 患者起病缓慢,常伴有抑郁、焦虑等情绪,早期治疗后精神症状可恢复正常,但病程会持续进展,病情易反复发作^[20]。SZ 是由一组症状群所组成的受多种因素影响的临床综合征,目前关于其病因还未明确,但个体心理的易感素质和外部社会环境的不良因素在疾病的发生发展中起到了重要的作用。现有的研究进展表明,机体的大脑结构、神经递质功能异常、遗传因素、环境因素在 SZ 发病过程中扮演重要作用。由于 SZ 的病程长且持续反复发作,病因复杂且症状多样化,治疗难度较大,因此,目前通常采用药物给予治疗,治疗过程中遵循早期、足量、足疗程、个体化用药及联合用药等原则。临床上常见的典型抗精神病药物对器官伤害大,会增加药物不良反应及并发症风险^[21],且单一药物治疗效果欠佳,患者经治疗后仍有精神症状残留^[22]。因此,选用副作用小、疗效好的手段治疗慢性 SZ,对患者的预后极其重要。

布南色林作为一种新型的非典型抗精神病药物,不良反应较少,能有效改善 SZ 患者的异常精神症状,促进患者认知功能及社会功能恢复^[23,24]。布南色林为多巴胺受体及 5-羟色胺受体拮抗剂。王朔等人^[25]在一项 SZ 的药物治疗研究中,给予患者服用布南色林治疗,在坚持服药 8 周末,就可观察到明显的精神改善变化,表明布南色林对于 SZ 具有良好的治疗效果。慢性 SZ 患者药物治疗的关键在于服药依从性水平,而 SZ 患者服药依从性水平往往较差^[26]。团体心理治疗是指患者群体在心理治疗师的指导下通过相互交际改善各自精神状态的过程。慢性 SZ 患者在性格上有更多的相似之处,更容易站在同一个角度看待问题。通过心理治疗师的帮助,慢性 SZ 患者重新学习正确认识接纳自己,相互交流沟通,共同接受治疗,加速疾病痊愈^[27,28]。

本研究结果显示,治疗后,观察组 PANSS 评分、CGI-SI 评分均低于对照组,W CST 评分、PSP 评分、服药依从性均优于对照组。说明布南色林联合团体心理治疗慢性 SZ 患者,比单一布南色林用药疗效更好、能更好改善患者的认知功能、社会功能和服药依从性。慢性 SZ 患者的治疗除了依靠药物作用外,还需要患者自身对治疗有积极的信心、态度,而这些心理因素往往不可控,导致治疗效果并不理想,复发率较高。团体心理治疗可有效弥补单一药物治疗的不足。心理治疗师向患者及其家属科普 SZ 的相关知识,能够增加患者对疾病的正确认识,有助于家属为患者创造良好的治疗环境;团体学习的形式,能够促进患者、家属、医生之间的相互交际,恢复患者的正常社交能力;相互探讨的过程,能够增强患者的治疗意识与认知能力,患者通过相互提醒服药,从而提高患者的服药依从性^[29,30]。布南色林联合团体心理治疗治疗,可有效减少患者的停药机会,帮助患者恢复正常心理、精神状态,全面提升治疗效果。

综上所述,布南色林联合团体心理治疗慢性 SZ 较单一布南色林治疗的治疗效果更好,能更好的提高患者的认知功能、社会功能以及服药依从性水平,可供临床借鉴推广。

参考文献(References)

- [1] 朱晓丹,匡洪宇,程磊,等.首发未用药精神分裂症患者糖代谢异常的情况及相关影响因素分析[J].现代生物医学进展,2018,18(16): 3089-3093
- [2] 万齐华,张伟,王莞尔,等.发作性睡眠病合并精神分裂症的研究进展[J].中华医学杂志,2019,99(3): 238-240
- [3] 陈桂芳.精神分裂症心理时间之旅的临床研究进展[J].重庆医学,2018,47(3): 409-412
- [4] 杨舒文,唐晓晨,徐丽华,等.精神分裂症自我障碍研究进展[J].中国神经精神疾病杂志,2019,45(3): 182-185
- [5] Müller N. Inflammation in Schizophrenia: Pathogenetic Aspects and Therapeutic Considerations[J]. Schizophr Bull, 2018, 44(5): 973-982
- [6] 陈莉,许军英,刘赛球.抗精神病药物不同治疗时程对精神分裂症患者肾功能的影响[J].中国中西医结合肾病杂志,2019,20(5): 425-427
- [7] 张明园.精神分裂症需要长期治疗[J].中华精神科杂志,2018,51(1): 65-66
- [8] Nagoshi Y, Tominaga T, Fukui K. Blonanserin Augmentation for Treatment-Resistant Somatic Symptom Disorder: A Case Series[J]. Clin Neuropharmacol, 2016, 39(2): 112-114
- [9] 石银燕,夏泳.团体心理治疗对首发精神分裂症患者认知功能、社会功能及疗效的影响[J].中华全科医学,2018,16(6): 957-960
- [10] Sestini S, Perone R, Domenichetti S, et al. Brain Network Underlying the Improvement of Social Functioning in Schizophrenic Patients After One-year Treatment with Social Skills Training[J]. Curr Radiopharm, 2016, 9(2): 150-159
- [11] 范肖冬译. ICD-10 精神与行为障碍分类[M].北京:人民卫生出版社,1993: 20-29
- [12] Kay SR, Fiszbein A, Opler LA. The Positive and Negative Syndrome Scale (PANSS) for schizophrenia[J]. Schizophrenia Bulletin, 1987, 13(2): 261-276
- [13] Turkoz I, Fu DJ, Bossie CA, et al. Relationship between the clinical global impression of severity for schizoaffective disorder scale and established mood scales for mania and depression [J]. J Affect Disord, 2013, 150(1): 17-22
- [14] Chiu EC, Wu WC, Hung JW, et al. Validity of the Wisconsin Card Sorting Test in patients with stroke[J]. Disabil Rehabil, 2018, 40(16): 1967-1971
- [15] Tianmei S, Liang S, Yun'ai S, et al. The Chinese version of the Personal and Social Performance Scale (PSP): validity and reliability[J]. Psychiatry Res, 2011, 185(1-2): 275-279
- [16] 聂莲莲,潘胜琼,吴龙辉.居家精神分裂症患者服药依从性影响因素分析[J].预防医学,2019,31(12): 1283-1286
- [17] Vita A, Barlati S. Recovery from schizophrenia: is it possible? [J]. Curr Opin Psychiatry, 2018, 31(3): 246-255
- [18] Zeng Jun, Zhou Xiaohong. Effect of Rehabilitation Training on Self-knowledge in Patients with Schizophrenia [J]. China Journal of Health Psychology, 2019, 27(5): 645-648
- [19] Dai Jiageng, Ma Wenyou, Liu Siqian, et al. Effect of English Language Training on Social Function of Recovered Schizophrenia [J]. China Journal of Health Psychology, 2018, 26(7): 968-971
- [20] Mamakou V, Thanopoulou A, Gonidakis F, et al. Schizophrenia and type 2 diabetes mellitus[J]. Psychiatriki, 2018, 29(1): 64-73
- [21] Seidman LJ, Mirsky AF. Evolving Notions of Schizophrenia as a Developmental Neurocognitive Disorder [J]. J Int Neuropsychol Soc, 2017, 23(9-10): 881-892
- [22] Meltzer HY. New Trends in the Treatment of Schizophrenia[J]. CNS Neurol Disord Drug Targets, 2017, 16(8): 900-906

- 1479-1496
- [23] Hu X H, Li W B, Kan J M. Gesture control technology based on surface electromyography for automatic pruning machine[J]. Bjing Linye Daxue Xuebao/Journal of Bjing Forestry University, 2017, 39 (2): 117-124
- [24] Chakaveh Ahmadizadeh, Lukas-Karim Merhi, Brittany Pousett, et al. Toward Intuitive Prosthetic Control: Solving Common Issues Using Force Myography, Surface Electromyography, and Pattern Recognition in a Pilot Case Study [J]. Ieee robotics & automation magazine, 2017, 24(4): 102-111
- [25] Maria Bernarda Salazar Sánchez, Miguel Ángel Mañanas Villanueva. Potential clinical application of surface electromyography as indicator of neuromuscular recovery during weaning tests after organophosphate poisoning.[J]. rev bras ter intensiva, 2017, 29(2): 253-258
- [26] Razin Y S, Pluckter K, Ueda J, et al. Predicting Task Intent From Surface Electromyography Using Layered Hidden Markov Models[J]. IEEE Robotics and Automation Letters, 2017, 2(2): 1180-1185
- [27] Al-Quraishi M S S. CLASSIFICATION OF ANKLE JOINT MOVEMENTS BASED ON SURFACE ELECTROMYOGRAPHY SIGNALS[J]. Medical & Biological Engineering & Computing, 2017, 55 (5): 747-758
- [28] Martinez-Valdes E, Negro F, Laine C M, et al. Identifying Motor Units in Longitudinal Studies with High-Density Surface Electromyography [M]// Converging Clinical and Engineering Research on Neurorehabilitation II. Springer International Publishing, 2017
- [29] Kitagawa K, Uezono T, Nagasaki T, et al. Relationship between surface electromyography of the spinae erector muscles and subjectively adjusted step length in the supporting standing-up motion [J]. Journal of Physical Therapy, 2019, 31(11): 869-872
- [30] Chada A, Hoque R. Images: Periodic Limb Movements During Sleep Noted on Ventral Thigh Surface Electromyography in an Above-the-Knee Amputated Stump [J]. Journal of clinical sleep medicine: JCSM: official publication of the American Academy of Sleep Medicine, 2019, 15(8): 1183-1184
- [31] Zhu G, Zhang X, Tang X, et al. Examining and monitoring paretic muscle changes during stroke rehabilitation using surface electromyography: A pilot study [J]. Mathematical Bioences and Engineering, 2019, 17(1): 216-234
- [32] Kyeong S, Shin W, Yang M, et al. Recognition of walking environments and gait period by surface electromyography[J]. Frontiers of Information Technology & Electronic Engineering, 2019, 20(03): 40-50
- [33] Antuvan C W, Masia L. An LDA-Based Approach for Real-Time Simultaneous Classification of Movements Using Surface Electromyography[J]. IEEE transactions on neural systems and rehabilitation engineering, 2019, 27(3): 552-561
- [34] Bashford J, Mills K, Shaw C. The evolving role of surface electromyography in amyotrophic lateral sclerosis: A systematic review [J]. Clinical Neurophysiology, 2020, 131(4): 942-950
- [35] Hatamzadeh M, Hassannejad R, Sharifnezhad A. A new method of diagnosing athlete's anterior cruciate ligament health status using surface electromyography and deep convolutional neural network [J]. Biocybernetics and Biomedical Engineering, 2019, 40(1): 65-76

(上接第 3852 页)

- [23] Harvey PD, Nakamura H, Murasaki M. Blonanserin versus haloperidol in Japanese patients with schizophrenia: A phase 3, 8-week, double-blind, multicenter, randomized controlled study [J]. Neuropsychopharmacol Rep, 2019, 39(3): 173-182
- [24] Deng S, Ni X, Shang D, et al. Effects of Alcohol on the Pharmacokinetics of Blonanserin and N-Deethylated Blonanserin in Healthy Chinese Subjects[J]. J Clin Psychopharmacol, 2018, 38(2): 129-133
- [25] 王朔, 刘学兵, 江涛. 布南色林治疗精神分裂症 37 例[J]. 医药导报, 2019, 38(10): 1292-1294
- [26] Tomasik J, Rahmoune H, Guest PC, et al. Neuroimmune biomarkers in schizophrenia[J]. Schizophr Res, 2016, 176(1): 3-13
- [27] Grenon R, Schwartze D, Hammond N, et al. Group psychotherapy for eating disorders: A meta-analysis [J]. Int J Eat Disord, 2017, 50(9): 997-1013
- [28] Heck NC. Group Psychotherapy with Transgender and Gender Nonconforming Adults: Evidence-Based Practice Applications[J]. Psychiatr Clin North Am, 2017, 40(1): 157-175
- [29] Marmarosh CL. Introduction to special issue: Feedback in group psychotherapy[J]. Psychotherapy (Chic), 2018, 55(2): 101-104
- [30] Kivlighan DM, Chapman NA. Extending the multicultural orientation (MCO) framework to group psychotherapy: A clinical illustration[J]. Psychotherapy (Chic), 2018, 55(1): 39-44