

Efficacy observation on Governor Vessel-unblocking and mind-calming acupuncture for insomnia

调督安神针法治疗失眠症疗效观察

Wang Yan-jun (王艳君)^{1,2}, Zhang Li-hua (张丽华)³, Han Yi-xu (韩一栩)¹, Li Peng-peng (李朋朋)¹

¹ Hebei Medical University, Shijiazhuang 050011, China

² Hebei Provincial Hospital of Traditional Chinese Medicine, Shijiazhuang 050011, China

³ Hebei Cangzhou Hospital of Integrated Chinese and Western Medicine, Cangzhou 061000, China

Abstract

Objective: To observe the effect of Governor Vessel-unblocking and mind-calming acupuncture on insomnia and further develop the academic idea on Gao's lineage acupuncture.

Methods: A total of 68 insomnia cases were randomly allocated into an acupuncture group ($n=34$) and a medication group ($n=34$) according to their sequences of consultation. Patients in the acupuncture group received acupuncture treatment once a day, 5 d a week, for 4 weeks. Patients in the medication group took 1 mg of Estazolam before sleep for each dose, one dose a day, for 4 weeks. Before and after treatment, the sleep quality was evaluated using the Pittsburgh sleep quality index (PSQI), and the efficacy was assessed using the PSQI reductive rate.

Results: After treatment, the global PSQI score and scores of each component in the acupuncture group were significantly decreased (all $P<0.01$). The global PSQI score in the medication group was significantly decreased ($P<0.01$). Except for sleep disturbance, scores of the rest of components were significantly decreased ($P<0.01$ or $P<0.05$). The between-group difference was statistically significant in global PSQI score ($P<0.01$). Except for sleep latency and duration, scores of the sleep quality, efficiency, disturbance and daytime dysfunction in the acupuncture group were significantly lower than those in the medication group (all $P<0.05$). In addition, the recovery and marked effect rate in the acupuncture group was significantly higher than that in the medication group ($P<0.05$).

Conclusion: The Governor Vessel-unblocking and mind-calming acupuncture is safe, reliable for insomnia and has better efficacy than Estazolam.

Keywords: Acupuncture Therapy; Insomnia; Governor Vessel; Gao's Acupuncture Academic School in Yanzhao Area

【摘要】目的: 观察调督安神针法对失眠症的疗效, 传承燕赵高氏针灸学术思想。**方法:** 将 68 例失眠症患者按随机数字表随机分为针刺组及药物组, 每组 34 例。针刺组采用调督安神针法治疗, 每日 1 次, 每星期治疗 5 次, 休息 2 d, 共治疗 4 星期。药物组予艾司唑仑片治疗, 每日 1 mg, 睡前口服, 共治疗 4 星期。治疗前后采用匹兹堡睡眠质量指数(Pittsburgh sleep quality index, PSQI)评价睡眠质量, 根据 PSQI 减分率评定疗效。**结果:** 治疗后, 针刺组 PSQI 总分及各单项评分均明显下降, 与本组治疗前有统计学差异(均 $P<0.01$); 药物组 PSQI 总分明显下降, 与本组治疗前差异有统计学意义(均 $P<0.01$), 除睡眠障碍外, 其余各单项积分均较治疗前下降($P<0.01$ 或 $P<0.05$)。针刺组治疗后 PSQI 总分明显低于药物组($P<0.01$)。除入睡时间及睡眠时间外, 针刺组睡眠质量、睡眠效率、睡眠障碍及日间功能障碍评分均低于药物组, 组间差异有统计学意义(均 $P<0.05$)。针刺组愈显率显著高于药物组($P<0.05$)。**结论:** 调督安神针法治疗失眠症疗效确切, 疗效优于口服艾司唑仑片。

【关键词】 针刺疗法; 失眠症; 督脉; 燕赵高氏针灸学术流派

【中图分类号】 R246.6

【文献标志码】 A

Insomnia is an inability to obtain sufficient sleep duration or quality coupled with daytime dysfunction^[1]. Overseas studies have shown that insomnia affects

approximately 35.2% people in the Western world^[2]. In China, insomnia affects 42.5% population^[3]. Insomnia greatly affects patients' wellbeing and compromises their quality of life. We treated insomnia with Governor Vessel-unblocking and mind-calming acupuncture and compared with oral Estazolam tablets. The reports are now summarized as follows.

Author: Wang Yan-jun, M.D., post-doctoral fellow in integrated traditional Chinese and Western medicine, chief physician, professor.
E-mail: wangyj8055@sina.com

1 Clinical Materials

1.1 Diagnostic criteria

1.1.1 Diagnostic criteria in Chinese medicine

They were based on the diagnostic criteria in the *Criteria of Diagnosis and Therapeutic Effects of Diseases and Syndromes in Traditional Chinese Medicine*^[4]. Predominant complaint of insomnia associated with 5 of the following symptoms: headache, dizziness, dream-disturbed sleep, poor memory, fatigue, palpitations, poor appetite and restlessness/irritability.

1.1.2 Diagnostic criteria in Western medicine

They were based on the *Chinese Classification and Diagnostic Criteria of Mental Disorders* (the 3rd Edition)^[5]. Predominant complaint of sleep disturbances at least 3 times a week for longer than 1 month; inability to maintain sleep or experience poor sleep quality or difficulty falling asleep; over focused on sleep and excessive worries about the consequence of insomnia; and the sleep disturbance causes significant distress or impairment in social or occupational functioning.

1.2 Inclusion criteria

Those who met the above diagnostic criteria in both Chinese and Western medicine coupled with a clear diagnosis; aged between 20 and 80 years; duration ≥ 1 month; the global PSQI score ≥ 7 points; having no severe somatic, mental or nervous system problems; and those who were able to be cooperative in treatment

and willing to sign the informed consent.

1.3 Exclusion criteria

Insomnia secondary to mental disorders and systemic conditions; having complications of severe problems involving the heart, liver, kidney and hemopoietic system; having Alzheimer's or Parkinson diseases; pregnant or breast-feeding women; and those receiving other therapies during the treatment.

1.4 Statistical treatment

The SPSS 16.0 version software was used for statistical analysis. The measurement data were expressed as mean \pm standard deviation ($\bar{x} \pm s$). The Chi-square test was used for enumeration data. The paired *t*-test was used for intra-group comparison and independent sample *t*-test for inter-group comparison. A *P* value of less than 0.05 indicated a statistical significance.

1.5 General materials

A total of 68 cases treated in Acupuncture Department, Hebei Provincial Hospital of Traditional Chinese Medicine and in Rehabilitation Department, Hebei Cangzhou Hospital of Integrated Chinese and Western Medicine between October 2013 and October 2014 were randomly allocated into an acupuncture group and a medication group, 34 cases in each group. There were no significant differences in age, gender, duration and sleep quality between the two groups (all $P > 0.05$), indicating that the two groups were comparable (Table 1).

Table 1. Between-group comparison in baseline data

Group	<i>n</i>	Gender (case)		Mean age ($\bar{x} \pm s$, year)	Mean duration ($\bar{x} \pm s$, year)	Sleep quality score ($\bar{x} \pm s$, point)
		Male	Female			
Acupuncture	34	9	25	53 \pm 13.43	2.35 \pm 2.02	2.38 \pm 0.49
Medication	34	11	23	53 \pm 11.37	2.07 \pm 1.10	2.38 \pm 0.47

2 Treatment Methods

2.1 Acupuncture group

Points: Baihui (GV 20), Shenting (GV 24), Sishencong (EX-HN 1), Anmian [Extra, locates at the midpoint between Yiming (EX-HN 14) and Fengchi (GB 20)], Shenmen (HT 7), Taichong (LR 3), Taixi (KI 3), Zhongwan (CV 12), Tianshu (ST 25) and Yinlingquan (SP 9).

Method: Baihui (GV 20), Shenting (GV 24), Sishencong (EX-HN 1), Anmian [Extra, locates at the midpoint between Yiming (EX-HN 14) and Fengchi (GB 20)], Shenmen (HT 7), Taichong (LR 3) and Taixi (KI 3) were punctured using disposable filiform needles of 0.30 mm in diameter and 25 mm in length. Zhongwan (CV 12), Tianshu (ST 25) and Yinlingquan (SP 9) were punctured using disposable needles of 0.30 mm in diameter and 40 mm in length. After routine

disinfection, the practitioner felt, pressed and kneaded the points using the left hand and then inserted the needle using the right hand: first to Tianshu (ST 25), Zhongwan (CV 12) and Yinlingquan (SP 9); second to Baihui (GV 20), Shenting (GV 24), Sishencong (EX-HN 1) and Anmian [Extra, locates at the midpoint between Yiming (EX-HN 14) and Fengchi (GB 20)]; and finally to Shenmen (HT 7), Taichong (LR 3) and Taixi (KI 3). The needles were retained 15-20 min for a deficiency syndrome and 30-40 min for an excess syndrome. The treatment was done once a day, 5 times a week, for a total of 4 weeks.

2.2 Medication group

Patients in the medication group took Estazolam before sleep, 1 mg for each dose, 1 dose a day, for a total of 4 weeks.

3 Efficacy Observation

3.1 Observation items

The Pittsburgh sleep quality index (PSQI) score was evaluated before and after treatment respectively^[6]. PSQI consists of 23 items in 7 domains: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleeping medication, and daytime dysfunction. Each component scored 0 to 3. The component scores are summed to produce a global score (range 0 to 21). Higher score indicates worse sleep quality. Since patients in the acupuncture group did not take medication, patients in the medication group took medication according to the protocol. The two groups were not comparable in the use of sleeping medications. As a result, there was no score in this regard. The PSQI scores were calculated for all patients before and after treatment.

3.2 Efficacy evaluation criteria

The efficacy criteria was based on the *Diagnosis and Treatment Protocols for Insomnia* by the Medical Administration of the State Administration of Traditional Chinese Medicine issued in 2010^[7], using the PSQI reductive rate.

PSQI reductive rate = (Pre-treatment global score — Post-treatment global score) ÷ Pre-treatment score × 100%.

Clinical recovery: PSQI reductive rate ≥ 75%; global PSQI score < 11 point.

Marked effect: PSQI reductive rate ≥ 50% and < 75%.

Improvement: PSQI reductive rate ≥ 30% and < 50%.

Failure: PSQI reductive rate < 30%.

3.3 Treatment results

3.3.1 Between-group comparison in global PSQI score

Before treatment, there was no significant between-group difference in global PSQI score ($P > 0.05$). After treatment, the global PSQI scores were significantly decreased in both groups (both $P < 0.01$); and there was a significant between-group difference ($P < 0.01$), (Table 2).

Table 2. Between-group comparison in global PSQI score

Group	n	Before treatment	After treatment
Acupuncture	34	13.67±2.20	5.24±2.22 ¹⁾²⁾
Medication	34	13.56±1.82	7.21±2.13 ¹⁾

Note: Intra-group comparison before and after treatment, 1) $P < 0.01$; inter-group comparison after treatment, 2) $P < 0.01$

3.3.2 Between-group comparison in PSQI scores of all components

After treatment, scores of all components in the acupuncture group were significantly decreased ($P < 0.01$ or $P < 0.05$). In the medication group, except for sleep disturbance, scores of the rest were significantly decreased (all $P < 0.01$). In addition, except for sleep latency and duration, the scores in sleep quality, efficiency, disturbance and daytime dysfunction in the acupuncture group were significantly lower than those in the medication group (all $P < 0.05$), (Table 3).

3.3.3 Between-group comparison in efficacy

After treatment, the recovery and marked effect rate in the acupuncture group was higher than that in the medication group, showing a statistical significance ($P < 0.05$) and there was no between-group statistical significance in total effective rate ($P > 0.05$), (Table 4).

Table 3. Between-group comparison in PSQI score of all components before and after treatment

Group	n	Time	Sleep quality	Sleep latency	Sleep duration	Sleep efficiency	Sleep disturbance	Daytime dysfunction
Acupuncture	34	Before treatment	2.38±0.49	2.74±0.67	2.65±0.48	2.09±0.83	1.50±0.51	2.29±0.84
		After treatment	0.79±0.47 ¹⁾³⁾	0.65±0.54 ¹⁾	0.94±0.55 ¹⁾	0.97±0.40 ¹⁾³⁾	1.15±0.56 ²⁾³⁾	0.74±0.78 ¹⁾³⁾
Medication	34	Before treatment	2.38±0.47	2.62±0.54	2.65±0.48	2.18±0.68	1.59±0.59	2.15±0.65
		After treatment	1.18±0.64 ¹⁾	0.82±0.44 ¹⁾	1.09±0.60 ¹⁾	1.32±0.60 ¹⁾	1.56±0.79	1.24±0.76 ¹⁾

Note: Intra-group comparison before and after treatment, 1) $P < 0.01$, 2) $P < 0.05$; inter-group comparison after treatment, $P < 0.05$

Table 4. Between-group comparison in efficacy

Group	n	Recovery	Marked effect	Improvement	Failure	Recovery and marked effect rate (%)	Total effective rate (%)
Acupuncture	34	11	14	8	1	73.5 ¹⁾	97.1
Medication	34	8	9	14	3	50.0	91.2

Note: Compared with the medication group, 1) $P < 0.05$

4 Discussion

Governor Vessel-unblocking and mind-calming acupuncture is one of the Governor Vessel-unblocking techniques of Prof. Gao Yu-chun (1930-), an inheritor of Gao's lineage acupuncture. She started to learn acupuncture from her father Gao Ji-pei (1908-1987), who learned from well-known acupuncturists in Beijing and Tianjin including Xiao Long-you, Guo Pei-chen and Wang Chun-yuan.

Insomnia is known as sleeplessness in Chinese medicine. It occurs as a result of yang failing to enter yin due to dysfunctions of Zang-fu organs. Since the five Zang organs store the mind (spirit), dysfunctions of the five Zang organs may cause restlessness and insomnia. Insomnia often occurs as dysfunctions of multiple organs instead of one organ alone. Although mainly located in the brain, insomnia is also associated with the heart, liver, kidney and spleen/stomach. Common patterns are deficiency of the heart and spleen, qi deficiency of the heart and gallbladder, disharmony between the heart and kidney, liver qi stagnation, liver qi stagnation coupled with spleen deficiency, and pathogenic heat disturbing the heart. Consequently, it's crucial to regulate Zang-fu organs for the treatment of insomnia^[8-12].

Yuan-Primary points are where Yuan-Primordial qi of the Zang-fu organs reside and reaction points of meridian qi and blood on the surface of the body. Governor Vessel-unblocking and mind-calming acupuncture nourishes kidney water to submerge liver yang and harmonize heart mind by stimulating the three Yuan-Primary points [Shenmen (HT 7), Taichong (LR 3) and Taixi (KI 3)]. In addition, this acupuncture therapy highlights harmonizing functions of the spleen and stomach, because ascending of turbid qi or insufficient qi and blood due to dysfunctions of the spleen and stomach may either cause or aggravate insomnia. As a result, Zhongwan (CV 12), Tianshu (ST 25) and Yinlingquan (SP 9) were used to harmonize the two organs. This coupled with the above Yuan-Primary points can regulate Zang-fu organs, reinforce the spleen and stomach and improve sleep.

Of the fourteen meridians, Governor Vessel is the only one that directly connects with the brain. What's more, it governs all yang meridians and connects with the five Zang and six Fu organs directly or indirectly. Obstructed qi and blood flow in Governor Vessel may cause yin-yang imbalance, dysfunctions of Zang-fu organs and thus results in insomnia^[13]. Needling Governor Vessel points can unblock meridian qi, disperse yang qi and distribute nutrients. Baihui (GV 20),

a crossing point between the Bladder Meridian and Governor Vessel, acts to tranquilize the mind. Shenting (GV 24) is indicated for palpitations and insomnia. When used in combination, the two points can harmonize the Ying-Nutrient and Wei-Defensive qi, tranquilize the mind, reinforce kidney qi and essence, and improve insomnia^[14]. In addition, Sishenchong (EX-HN 1) and Anmian [Extra, locates at the midpoint between Yiming (EX-HN 14) and Fengchi (GB 20)] were combined to reinforce the effect. Apparently, the main purpose of Governor Vessel-unblocking and mind-calming acupuncture is to unblock the Governor Vessel, i.e., to harmonize yin and yang and improve sleep^[15-18].

It's important to follow the sequence of acupuncture points in this method. First, Zhongwan (CV 12) and Tianshu (ST 25) were punctured to activate yang qi in the spleen and stomach and then qi activity of the entire body. Second, points of the govern vessel were punctured to unblock meridian qi and tranquilize the mind. Finally, the Yuan-Primary points were punctured to regulate functions of the heart, liver and kidney to submerge liver yang and harmonize the heart and mind. Modern physicians also believe 'sequence of acupuncture points is a key part of acupuncture treatment'. In some cases, it can even be a decisive factor of treatment effect^[19]. The sequence of acupuncture points plays a crucial role in the treatment of insomnia.

The study results have suggested that Governor Vessel-unblocking and mind-calming acupuncture and medication can both significantly improve patients' sleep; however, the former is superior to the latter in improving the sleep quality, efficiency, disturbance and daytime dysfunction. Although Governor Vessel-unblocking and mind-calming acupuncture had no significant advantages in improving sleep latency and duration, it has better effect on overall sleep quality. After 4 weeks of treatment, the recovery and marked effect rate in the acupuncture group was significantly higher than that in the medication group, indicating that it has better overall efficacy.

The treatment protocol for insomnia in this study was further developed on the basis of Gao's lineage acupuncture method. It aims to unblock the Governor Vessel, tranquilize the mind and improve insomnia. To achieve better clinical efficacies, it's important to follow the four essential principles: balance yin and yang by unblocking the Governor Vessel first; use Yuan-Primary points to regulate the Zang-fu organs; strengthen the spleen and stomach to supplement acquired foundation; and follow the sequence of acupuncture points.

Conflict of Interest

The authors declared that there was no conflict of interest in this article.

Acknowledgments

This work was supported by Project of Hebei Provincial Administration of Traditional Chinese Medicine (河北省中医药管理局基金项目, No. 2015011).

Statement of Informed Consent

Informed consent was obtained from all individual participants included in this study.

Received: 13 December 2015/Accepted: 15 January 2016

References

- [1] Expert consensus panel on definition, diagnosis and drug therapy for insomnia. Expert consensus (draft) on definition, diagnosis and drug therapy for insomnia. *Chin J Neurol*, 2006, 39(2): 141-143.
- [2] Daniel J, Buysse MD. *Sleep Disorders and Psychiatry (Review of Psychiatry)*. Washington, D.C: American Psychiatric Association, 2005: 185.
- [3] Li YH, Liu Y, Jin T, Gao J. Survey on sleep disorders in middle-aged population. *Shoudu Yiyao*, 2005, 12(13): 6-15.
- [4] State Administration of Traditional Chinese Medicine. *Criteria of Diagnosis and Therapeutic Effects of Diseases and Syndromes in Traditional Chinese Medicine*. Nanjing: Nanjing University Press, 1994: 27.
- [5] Chinese Society of Psychiatry. *Chinese Classification and Diagnostic Criteria of Mental Disorders*. 3rd Edition. Jinan: Shandong Science & Technology Press, 2001: 118.
- [6] Miao HS. *Rehabilitation Medicine Theory and Practice*. Shanghai: Shanghai Scientific and Technical Publishers, 2000: 437-438.
- [7] The State Administration of Traditional Chinese Medicine. *Diagnosis and treatment protocols for 95 diseases in 22 categories*. Medical Administration Department, the State Administration of Traditional Chinese Medicine, 2010: 65.
- [8] Ma J, Li F, Song YH, Liu J, Liu XM, Yang XZ, Mao M. Literature study of treating insomnia from liver. *CJTCMP*, 2012, 27(4): 1076-1080.
- [9] Yuan CZ, Ye R, Xiang ZC, Zhao N, Lin Y, Jiao HJ, Wang XY, Sun SC, He JC. Analysis on the distribution law of TCM pattern identification of 913 insomnia cases. *Zhonghua Zhongyiyao Xuekan*, 2011, 29(7): 1508-1510.
- [10] Chen L, Sun LL, Wang X, Zhang FC. Literature study on acupoint selection and prescription of acupuncture for treatment of insomnia. *Zhongyi Zazhi*, 2012, 53(12): 1051-1054.
- [11] Fan RM, Yang L. Progress in clinical treatment of insomnia. *Zhongguo Linchuang Kangfu*, 2006, 10(10): 149-151.
- [12] Lan SZ, Liao B, Peng ZY, Wan C, Huang MZ. A 6-year follow-up study of insomnia and neurasthenia: clinical features, course and prognosis. *Zhongguo Xinli Weisheng Zazhi*, 2009, 23(8): 564-568.
- [13] Han W, Zhang DZ. Clinical application of Governor Vessel-unblocking idea of Zhang Daozong. *Zhongyiyao Linchuang Zazhi*, 2012, 24(3): 225-228.
- [14] Gou YH, Yang ZX. Clinical observation of *Tiao Ren Tong Du* needling for post-stroke insomnia. *Shanghai Zhenjiu Zazhi*, 2015, 34(6): 505-507.
- [15] Liu ZL, Wang S. Clinical observation of thread embedding at tender points on the Governor Vessel for intractable insomnia. *Shanghai Zhenjiu Zazhi*, 2015, 34(12): 1188-1189.
- [16] Tan KP, Yao X, Li XW. Observation on clinical effect of acupuncture plus *Zi Shen Tiao Gan* Decoction for perimenopausal insomnia. *J Acupunct Tuina Sci*, 2015, 13(1): 49-53.
- [17] Ma QY, Li Y, Cao LY, Zhang YY. Therapeutic observation of moxibustion at the Governor Vessel plus auricular point sticking for insomnia. *Shanghai Zhenjiu Zazhi*, 2014, 33(7): 624-625.
- [18] Zhao JP, Hong Y. Clinical observation on acupuncture plus tuina for insomnia. *J Acupunct Tuina Sci*, 2015, 13(4): 232-235.
- [19] Jiang S, Di Z, Fu WB. On sequence of acupuncture points in acupuncture treatment. *Zhongyi Zazhi*, 2012, 53(7): 620-622.

Translator: Han Chou-ping (韩丑萍)