

Application Frequency Research on Insomnia Correlated Treatment of Chinese Herbs



Yuan Sheng Liao, Wei Wu Cai, Rui Ling Yang, Li Li Gao and Cheng Han Wu*

Department of Neurology, Clinical College of Fujian University of Traditional Chinese Medicine, Fuzhou, China

Received:  October 26, 2018; Published:  November 08, 2018

*Corresponding author: Cheng Han Wu, Department of Neurology, Clinical College of Fujian University of Traditional Chinese Medicine, Fuzhou, China

Abstract

Objective: To study common Chinese herbs related to treatment of insomnia and their efficacy classification, providing references for their applications in treating insomnia.

Methods: By using information quantitative statistics method, 8176778 literatures in CNKI China Academic Journal Network Publishing Database (CAJD), Medical and Health Science and Technology Database were retrieved from 1996 to 2016. Full-text retrieval was performed by taking insomnia as “key word”. Totally 500 commonly used herbs with higher application frequency were retrieved as “key word” twice. Their application frequencies were statistically calculated. Then they were classified and analyzed by effectiveness in Chinese Materia Medica according to statistical results.

Results: Herbs for insomnia related treatment with higher application frequency were sequenced from high to low as licorice root(56183 times), Chinese Angelica(54817), Astragalus Atractylodes(45964), Salvia Miltiorrhiza(45959), Radix Bupleuri(44034), Radix Paeoniae alba(39525), Astragalus membranaceus(39370), Tuckahoe(37319), pinellia(36268), Dangshen(35292), and so on. Recipes consisted of them were Suanzao Ren Decoction, Jiaotai Pill, Guipi Decoction and so on. According to effectiveness in Chinese Materia Medica, Chinese herbs with higher application frequency after comprehensive analysis were deficiency supplementing herbs, heat clearing herbs, activating blood circulation and removing blood stasis herbs qi regulating herbs, sedative herbs, and so on.

Conclusion: Deficiency supplementing herbs, heat clearing herbs, activating blood circulation and removing blood stasis herbs, qi regulating herbs, sedative herbs were commonly used Chinese herbs for treatment of insomnia.

Keywords: Insomnia; Chinese Herbal Treatment; Correlation; Information Quantitative Statistics

Introduction

Insomnia is the most common sleep disorder, is a very common complaint of patients in various clinical departments, belongs to the category of “insomnia” in traditional Chinese medicine, Huangdi’s Classic known as “insomnia”, “cannot sleep”, “cannot lie down”, for a variety of reasons lead to insomnia caused by distracted sleep disorders. Chinese medicine is currently one of the most commonly used methods to treat the disease [1-3]. In order to objectively evaluate the commonly used Chinese medicines and their categories in the treatment of insomnia, this study used quantitative statistics to analyze the frequency of modern application of Chinese medicines related to insomnia and classified them according to the efficacy of Chinese Materia Medica. The results are reported below.

Data and Methods

Data Source

With insomnia and 500 kinds of commonly used Chinese medicines as keywords, 8176778 articles were accurately retrieved from China How Net, China Academic Journal Network Publishing

General Library and Medical and Health Science and Technology Database from 1996 to 2016. The retrieval methods are as follows: firstly, insomnia is used as the search term, and then 500 kinds of commonly used Chinese medicines are used as the search term for the second time. At the same time, the documents detected in the two searches are analyzed according to the following criteria, and the number of articles that meet the inclusion criteria are recorded, counted and sorted respectively.

Literature Inclusion and Exclusion Criteria

Inclusion criteria: literature on clinical (clinical research, clinical trials, clinical observations, clinical reports, clinical experience, etc.) and experimental (pharmacodynamic experiments, pharmacokinetic experiments, etc.); exclusion criteria: items, indexes and review of analytical literature.

Statistical Ranking Method

The number of articles in each Chinese medicine which were retrieved twice and met the inclusion criteria was recorded before

the name of the Chinese medicine (one paragraph for each drug name, the number of articles recorded was based on 5 digits, and those Less than 5 digits make up 5 figures with 0 before figures), such as "06710 magnet". Automatic ranking of paragraphs according to numbers in Word documents.

Classification Study

After searching, 500 kinds of traditional Chinese medicines were arranged in descending order. Only the first 200 kinds were classified according to the efficacy of Chinese Materia Medica. The total frequency and average frequency of the first and second

classifications were listed respectively.

Result

Frequency of application of Chinese medicines for insomnia (Table 1). The first 50 medicines included Suanzaoren Decoction (Suanzaoren, Ligusticum chuanxiong, Anemarrhenae, Poria cocos, Licorice), Guipi Decoction (Atractylodes macrocephala, Ginseng, Astragalus, Angelica sinensis, Licorice, Fuling, Polygala, Suanzaoren, Muxiang, Longan, Ginger, Dazao), Jiaotai pill (Coptis chinensis, Cinnamomum cassia) Commonly used prescriptions for insomnia.

Table 1: Table of application frequency of insomnia related Chinese Medicine.

Name/Frequency	Name/Frequency	Name/Frequency	Name/Frequency	Name/Frequency
Licorice 56183	Ligustrum lucidum 17190	Malt 09785	Leech 05952	Glehnia Littoralis 04036
Chinses Angelica	Gardenia 17172	Mother-of-pearl 09776	Cistanche Cistanche 05862	Glauber's salt 04026
Atractylodes 45964	Chrysanthemum 16351	Sophora flavescens 09755	Papaya 05850	Semen Raphani 04008
Miltiorrhiza 45959	Costusroot 16328	Psoralen 09681	Polygonum cuspidatum 05745	Radix Isatidis 03885
Bupleurum root 44034	Rhynchophylla 16136	Cohosh 9464	Cinnabar 05653	Prunella Vulgaris 03880
Paeonia lactiflora 39525	Eucommia 15804	Trichosanthes 09464	Angelica 05618	Hempseed 03804
Astragalus membranaceus 39370	Magnolia officinalis 15634	Coix seed 09135	Borneol 05388	Gorgon fruit 03792
Poria cocos 37319	Panax notoginseng 15630	Bombyx Batryticatus 09118	Soviet wood 05244	Rhizoma Smilacis Glabrae 03727
Pinelliaternata 36268	Figwort 15581	Honeysuckle 08928	Fructus Triticum Levis 05235	Reddle 03660
Codonopsis pilosula 35292	Radix rehmanniae Rehmanniae 15331	Radix Gentianae 08910	Mustard seed 05190	Perilla frutescens crispa 03638
Dried tangerine peel 31533	Atractylodes lancea 15221	Rhizoma sparganii 08874	Pangolin 05182	Pilose antler 03551
Coptis chinensis 31394	Donkey-hide gelatin 15151	Herba Epimedii 08857	Cassia seed 05181	Perillaseed 03478
Fingered citron 28970	Lilium brownii 15107	Morinda officinalis 08777	Excrementum pteropi 05175	Musk 03473
Flos Carthami 28490	The fruit of Chinese wolfberry 14460	Oriental wormwood 08633	American ginseng 05156	Fructus viticis 03402
Ligusticum wallichii 28416	Fructus amomi 13674	Scorpio 08532	Mulberry leaves 05144	Round cardamom 03387
Yam 28072	Radix Pseudostellariae 13380	Concha haliotidis 08009	Herbapatchoui 05137	Cannon ginger 03212
Radix Ophiopogonis 27945	Dried ginger 13371	Plaster 07887	Rhizoma imperatae 04990	Lulu Tong 03200

Ginseng 27844	Pberetima 13155	Endothelium Corneum gigeriae galli 07834	Mulberry bark 04989	Cockroach 03184
Peach kernel 26869	Cortex Moutan 12238	Semen nelumbinis 07792	Centipede 04967	Fructus rubi 03170
Radix Paeoniae Paeoniae 26696	lignum millettiae 12061	Turtle shell 07790	Fritillaria thunbergii 04883	Tripterygium wilfordii 03166
Semen zizyphi spinosae 25914	Ephdra sinica Stapf 12004	Cortex lycii radices 07756	Hairyvein agrimony 04863	Monkshood 03131
Tulip 25794	Bambusae caulis im taeniam 11870	Pericarp 07473	Talc 04826	Ramulus mori 03121
Schisandra chinensis 25331	Platycodon grandiflorum 11749	Cassia twig 07349	Bezoar 04688	Inula 03108
Radix achyranthis bidentatae 24023	Fructus aurantii Immaturus 11725	Medicated leaven 07318	Alizara 04668	Fructus Cnidium 03028
Rheum officinale 23594	Semen corni 11715	Herba Hedyotis 07300	Radix clematidis 04637	Rhizoma cibotii 02992
Rhizoma alismatis 22142	Yellow semen 11672	Curcuma zedoary 07084	Herba eupatorii 04634	Kelp 02970
Monkshood 21884	Motherwort 11607	Myrrh 06718	Houttuynia cordata 04580	Fructus rosae laevigatae 02962
Polygala root 21780	Forsythia suspense 11519	Magnetite 06710	Sanguisorba officinalis 04574	Testa mungo 02961
Baikal Skullcap 21584	Acorus calamus 11517	Pollen cattail 06672	Grifola 04548	Arteannuin 02957
Rhizoma Cyperi 21481	Polygonum multiflorum 11330	Fructus meliae toosendan 06669	Cicada slough 04547	Cortex dictam 02915
Anemarrhena 21105	Cortex albizziae 11035	Asparagus 06618	Seaweed 04514	Fructus kochiae 02881
Fossil fragments 19317	Semen boitae 10989	Frankincense 06597	Honey 04497	Eclipta 02738
Phellodendron 18948	Plantago seed 10863	Jade bamboo 06519	Radix lithospermi 04449	Cornu bubali 02737
Fructus Zizyphi Jujubae 18907	Corydalis ambigua Ch. 10672	Radix dipsaci 06471	Allii macrostemi bulbus 04402	Dragon's blood 02729
Ginger 18505	Dodder 10425	Dark plum 06423	Aloes 04336	Cornu antelopis 02720
Cinnamon 18299	Parasitic loranthus 10404	Dendrobium 06340	Amber 04231	Angelica decursiva 02657
Pueraria lobata 17847	Hawthorn 10212	Evodia 06277	Clove 04217	Desmodium 02639
Oysters 17435	Mint 10206	Higenamine 06266	Artemisia 04084	Cordyceps sinensis 02614
Rehmannia glutinosa 17273	Semen amomi amari 10200	Turmeric 06080	Placenta Hominis 04084	Bletilla striata 02609
Gastrodin 17195	Dandelion 09848	Lentil 06068	Patrinia 04054	Tabaschir 02537

The top 200 kinds of Chinese medicine related to insomnia were classified according to the results of Chinese Materia Medica (Table 2). According to the first-class efficacy classification, the top five frequencies were Tonic medicines (623628), Antipyretic (295220), Huoxue Huayu (271535), Relieving drug (152639) and Liqi (139183). According to the first-class efficacy classification, the average frequency of the top five were tonifying deficiency (16411), promoting blood circulation and removing blood stasis (14291), regulating qi (13918), calming the mind (13203), and Wenli (12810). According to the classification of secondary efficacy,

the top five frequencies were Reinforcing Qi (280733 times), reinforcing blood (150614 times), activating blood circulation and regulating menstruation (149009 times), regulating qi (139183 times) and dissipating wind-heat (1111443 times). According to the second-level classification, the average frequency of the top five were Reinforcing Qi (25521 times), reinforcing blood (25102 times), activating blood circulation and regulating menstruation (24835 times), clearing away heat and drying dampness (18118 times) and astringent intestines to stop diarrhea (15877 times).

Table 2: Efficacy classification of insomnia related Chinese medicine application frequency.

		Frequency					
First class classification	Secondary classification	Number	Total frequency	Average frequency	Number	Total frequency	Average frequency
Relieving exterior syndrome	Dissipate wind-cold	4	41496	10374	12	152639	12720
	Herbs used to disperse wind-heat	8	111143	13893			
Heat clearing	Clearing heat-fire	5	55225	11045	28	295220	10544
	Heat clearing and drying	5	90591	18118			
	Clearing away heat and toxic material	9	56802	6311			
	Blood-Cooling	6	78974	13162			
	Clearing deficient heat	2	10713	5357			
Purgation	Severe laxative	2	27620	13810	3	31424	10475
	Mild laxation	1	3804	3804			
Dispelling Wind and dampness	Dispel wind and cold dampness	5	22436	4487	9	42119	4680
	Dispelling wind and humid heat	4	19683	4921			
Resolving dampness	Resolving dampness	6	57687	9615	6	57687	9615
Clearing Damp and Promoting diuresis	Inducing diuresis to alleviate edema	4	73144	18286	10	108731	10873
	Inducing diuresis treating stranguria	3	18570	6190			
	Remove Dampness through diuresis	3	17017	5672			
Warm the interior	Warm the interior	5	64048	12810	5	64048	12810

Regulate the flow of vital energy and remove obstruction	Regulate the flow of vital energy and remove obstruction	10	139183	13918	10	139183	13918
Help digestion	Help digestion	5	39157	7831	5	39157	7831
Hemostasis	Cooling blood and hemostasis	2	9564	4782	10	56477	5648
	Blood stasis and hemostasis	4	32145	8036			
	Hemostasis with astringents	2	7472	3736			
	Warming meridian to stop	2	7296	3648			
Promoting blood circulation for removing blood stasis	Promoting blood Circulation to arrest pain	6	84277	14046	19	271535	14291
	Promoting blood Circulation to restore menstrual flow	6	149009	24835			
	Blood activating and healing	3	11157	3719			
	Rupture of blood	4	27092	6773			
Resolving Phlegm and relieving cough and asthma	Warming cold phlegm	3	44566	14855	12	103677	8640
	Clearing heat and phlegm	7	50644	7235			
	Relieving cough and asthma	2	8467	4234			
Relieve uneasiness of mind and body tranquilization	Relieve Uneasiness of Mind and body tranquilization	8	105629	13204	8	105629	13204
Calm the liver to stop the wind	Calm the and suppress yang	4	38880	9720	12	115391	9616
	Resting wind and spasmodic	8	76511	9564			
Inducing resuscitation	Inducing resuscitation	3	20378	6793	3	20378	6793

Supplement deficiency	Tonifying Qi	11	280733	25521	38	623628	16411
	Tonifying yang	6	150614	25102			
	Tonifying yin	10	105955	10596			
Inducing astringency	Antidarrhea with astringent	2	31754	15877	8	66420	8303
	Treating spontaneous emission and leukorrhagia	5	29431	5886			
	Strengthening exterior and reducing sweat	1	5235	5235			
Detoxicating and destroying parasites	Detoxicating and destroying parasites	1	3028	3028	1	3028	3028

Discussion

Insomnia is a common clinical disease and frequently-occurring disease, but the causes of insomnia are complex, on the one hand, with its own individual psychological factors, physiological factors and genetic factors; on the other hand, with external factors such as environmental factors, physical diseases, mental illness, drug use or abstinence related. The pathophysiological mechanism is unclear, which is related to abnormalities of neurotransmitters, hormones, cytokines and circadian rhythms in the brain. Therefore, there is still a lack of truly safe and effective treatment drugs and methods. Oral sedative and hypnotic drugs such as diazepam are the most common and common treatment for insomnia [4]. However, insomniacs love and hate them because of their dependence, tolerance and addiction, residual sedation during the day and rebound after stopping the drugs. Hong Biqi and other [5-13] reviewed the efficacy and safety of traditional Chinese medicine in the treatment of insomnia.

In order to further understand the classification and application of Chinese medicines related to insomnia, this study used different statistical methods to analyze the first 200 kinds of Chinese medicines according to the efficacy classification of TCM. Firstly, the total frequencies of the first and second classifications of Chinese herbal medicines were counted. The results showed that there was a great correlation between the ranking results and the number of different kinds of Chinese herbal medicines. For example, according to the first-class efficacy classification, the top five frequently used tonifying deficiency, clearing away heat, promoting blood circulation and removing stasis, resolving exterior and regulating qi drugs, the number of medicines were 38, 28, 19, 12, 10 respectively, and the frequency ranking results were consistent with the number of classified species. In order to reflect the classification of Chinese medicines related to insomnia more accurately, the average frequency of the first and second classifications were calculated respectively. The results showed that although the correlation between the number of Chinese medicines and the number of species of Chinese medicines was significantly

reduced, some categories with higher frequency were found to be related to some of them, such as warming, cooling and phlegm. The frequency of *Pinellia ternata* is high, and the frequency of water swelling is mainly related to the frequency of *Poria cocos*. Although the above classification methods have some limitations, but also to a certain extent reflects the application of different categories of traditional Chinese medicine.

It needs to be noted that the statistical results of this time are based on the full-text retrieval of the relevant database, cannot analyze the original text of the relevant literature, so inevitably there will be statistical incompleteness, and there will also be a certain drug is not a treatment for insomnia, but due to appear in the literature was statistical phenomenon. Therefore, the results of this study only reflect to some extent the objective situation of traditional Chinese medicine in treating insomnia. In summary, quantitative analysis of information found that the frequency of insomnia-related traditional Chinese medicine was higher than that of licorice, *Angelica sinensis*, *Atractylodes macrocephala*, *Salvia miltiorrhiza*, *Bupleurum* root, paeony root, *Astragalus membranaceus*, *Poria cocos*, *Pinellia ternate* and *Codonopsis pilosula*. According to the efficacy classification of TCM, the most frequently used drugs were tonic, heat-clearing, blood-activating and stasis-removing, Qi-Regulating and tranquilizing drugs. The results of this study reflect to some extent the current clinical application of insomnia-related Chinese medicine, which can be used as a reference for the future use of Chinese medicine in the treatment of insomnia.

Acknowledgement

The study was supported by the Natural Science Foundation of the Fujian Province(2016J01563), the Youth scientific research project of fujian health and family planning commission(2016-1-80).

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ISSN: 2574-1241

DOI: [10.26717/BJSTR.2018.10.002016](https://doi.org/10.26717/BJSTR.2018.10.002016)

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